HINE COMMISSION

rt of muckraking, and for his own
dvantageous in the practical art of

o suggest that Adams himself ever
riumph as muckraker and regulator.
ght of his "Erie" at all, he recalled
ld had turned the tables on him, se-
from the Union Pacific presidency,
acid portrait of 1869. But in later
e time puzzling over the decline of
he rise of coercive regulation. In ret-
trend in regulation come into much
in Adams' time. The most powerful
vision of the nation's people into de-
n of these groups drove hard not to-
soned peace and harmony Adams
the power and autonomy that each
Adams, bewildered and embittered
helplessly from the sidelines as his
e apart among dozens of quarreling
encies.

xty-five at the turn of the twentieth
trialization was proceeding at full
growing at an unprecedented rate,
re entering the United States at the
he census of 1900 disclosed the re-
n one American in two was both
ive-born parents. From his position
lass, Adams reacted to this new, di-
th downright hostility. In this re-
n subsequent understanding of the
s' bitterness at the failure of public
ine commission he had so carefully
tion from what he began to deride
olatant exaggeration, perhaps from
nse of elitism into a hateful carica-
o memorably etched of the robber
e signs, one can read the sea change
society and therefore in the condi-

CHAPTER 2

State to Federal, Railroads to Trusts

IN THE LATTER PART of the nineteenth century, Charles Francis Adams' Massachusetts Board of Railroad Commissioners took its place as the national prototype of the so-called weak regulatory commission. It became a model for many other states whose legislatures wished to regulate railroads but, for one reason or another, did not want to assume the power of setting rates and fares. An important alternative to the weak commission appeared in the midwestern states of Illinois, Wisconsin, Minnesota, and Iowa. Beginning in 1871, the legislatures of these states passed Granger Laws, which directly regulated the rates of railroads operating within each state. Three of the four states also created "strong" regulatory commissions and empowered them to prescribe maximum rates.[1]

Although significant as milestones in the history of regulation, this midwestern variety of strong commissions proved unsuccessful. Most of the Granger Laws were repealed within a few years of their enactment, for reasons that suggest a good deal about the overall nature of regulation. One stimulus to repeal was a political counterattack by the railroads. Another, more important reason derived from the severe economic depression of the 1870s, which, in both the Middle West and in Massachusetts, drove rates down faster than regulatory agencies could hope to do. Still a third reason, and the most revealing of all, lay in the very nature of the national railroad network: it simply made no sense for small state agencies to perform pricing functions for giant interstate corporations whose tracks crossed thousands of miles in a dozen different states. In the Granger cases of 1877, the United States Supreme

Court firmly upheld the power of public agencies to regulate railroads and other industries "affected with a public interest." But in practice, the Granger commissions did not achieve as much success as their misnamed weak counterparts to the east.[2]

The model weak agency, that of Massachusetts, continued to enjoy a measure of prestige even after Adams' departure in 1879. Such decline as its reputation did suffer occurred only gradually, as a result of several trends common to state railroad commissions during the late nineteenth century. For one thing, the onset of federal railroad regulation in 1887 reduced the importance of all state commissions. For another, no new commissioners as talented as Adams appeared in Massachusetts—a typical example of the difficulty nearly all regulatory agencies have experienced in consistently attracting the best people. Finally, the Massachusetts agency like other state railroad commissions went through a sharp transition in function. One by one, each agency evolved into a public utility commission.[3]

This shift in function occurred more rapidly in Massachusetts than elsewhere, but the change there was also representative of evolutions in other states. In 1885, Massachusetts created a second regulatory agency, the Board of Gas Commissioners, with supervisory authority over the new gas-lighting companies that were bringing artificial illumination to the state's cities and towns. In 1887, this agency became the Board of Gas and Electric Light Commissioners, as the state took formal notice of the rise of still another vital new industry. The gas and electric commissioners, following the pattern of the Board of Railroad Commissioners, did not wield strong authority over rates but tried instead to regulate more gently, mediating a host of difficult issues between the corporations and the public. In 1909, both the original railroad board and the newer gas and electric commission received important powers over the issuance of stocks and bonds by the companies. Four years after that, in 1913, Adams' original railroad commission was renamed the Public Utility Commission and given additional responsibility for telephone companies, street railways, and steamships. Finally, in 1919, the last institutional consolidation occurred, as the railroad and utility commissions were merged into one body, which was named the Massachusetts Department of Public Utilities. This organization still exists today, having grown over the course of a hundred years from its seed as Adams'

of public agencies to regulate rail-
ted with a public interest." But in
ons did not achieve as much suc-
nterparts to the east.[2]
t of Massachusetts, continued to
after Adams' departure in 1879.
d suffer occurred only gradually,
non to state railroad commissions
y. For one thing, the onset of fed-
educed the importance of all state
ew commissioners as talented as
s—a typical example of the diffi-
cies have experienced in consis-
ple. Finally, the Massachusetts
ommissions went through a sharp
ne, each agency evolved into a

l more rapidly in Massachusetts
there was also representative of
, Massachusetts created a second
Gas Commissioners, with supervi-
s-lighting companies that were
the state's cities and towns. In
oard of Gas and Electric Light
formal notice of the rise of still
gas and electric commissioners,
of Railroad Commissioners, did
tes but tried instead to regulate
difficult issues between the cor-
both the original railroad board
commission received important
s and bonds by the companies.
lams' original railroad commis-
ty Commission and given addi-
companies, street railways, and
last institutional consolidation
lity commissions were merged
the Massachusetts Department
tion still exists today, having
d years from its seed as Adams'

tiny agency, with its single clerk, to a small bureaucracy with more than one hundred full-time employees.[4]

Much the same pattern of institutional growth occurred in other states, as the American industrial economy began to mature. Led by New York and Wisconsin (whose commissions were reorganized in 1907), state agencies everywhere, in their efforts to do justice to both companies and consumers, focused their regulatory efforts on the question of rates. Working from the premise that gas and electric utilities were natural monopolies, nearly all commissions inaugurated a complex administrative system that came to be called rate-of-return regulation. This system, over the next several decades, dominated the entire state regulatory process, and the details of that evolution confirmed the earlier prophecies of Charles Francis Adams. As Adams had feared would happen, excessive involvement in the rate question resulted in much controversy and red tape and tended to handicap more important efforts to promote rational adjustment of the general relationship between utility corporations and the public.[5]

Many of the problems of rate-of-return regulation began in a controversial Supreme Court decision in 1898. In this important case, *Smyth v. Ames*, the Union Pacific Railroad challenged a Nebraska statute that specified the maximum rates the corporation could charge for hauling freight. The court ruled that the railroad was entitled to a "reasonable" return on "the fair value of the property being used for the convenience of the public." In setting forth this fair-value doctrine, the court inadvertently started a definitional controversy that for many years afterward plagued accountants, lawyers, utility managers, and regulatory commissioners. At one time or another, particular state and federal commissions, and the Supreme Court itself, have included in their definitions of fair value such considerations as the original cost of the property less depreciation (a view favoring the consumer in periods of inflation); the cost of reproducing the same property (a view favoring corporations in periods of inflation); the market value of the corporation's stocks and bonds; and assorted other factors. No authoritative view has ever met with unanimous acceptance by courts and commissions. Nor was definitional uncertainty the only problem. At bottom, the entire concept of "fair return on fair value" is a cost-plus formula, vulnerable to all the difficulties associated with cost-plus ways of thinking about how

a business should be conducted. Some of these problems appeared early in the history of utility regulation, and several of them still trouble state and federal commissions. Such difficulties include:

1. Temptation to pad the "rate base" (the rate base is equivalent to the value of the property being used to produce the service; it provides the arithmetic denominator for the percentage "rate of return").
2. Creation of a strong incentive to emphasize capital equipment rather than labor, whenever the one can be substituted for the other (equipment goes into the rate base and labor does not).
3. Disincentives to cut operating costs—and therefore to promote more efficient operation.
4. The problem of "boundaries," in which one part of a company is a regulated natural monopoly but another part of the same company is not.
5. "Regulatory lag," in which the drawn-out proceedings of the commission consume so much time that the situation being ruled on becomes obsolete and irrelevant to future revenue requirements.[6]

In practice, these problems promoted the rise of ingenious accounting methods by corporations, all calculated to maximize revenues in the face of regulatory limits on percentage rates of return. At worst, they made the process of rate regulation a ritualistic charade, played out in the form of full-scale "rate cases" as part of the routine operations of commissions. Such cases, conducted under elaborate procedural rules, often turned into extremely laborious hearings dominated by lawyers and engineers, incomprehensible to ordinary citizens.[7]

The Rise of Federal Regulation

The movement from state to federal jurisdiction did not occur across the entire spectrum of regulated industries. In many industries, state regulation has continued, with no abatement of importance, down to the present day. Most public utilities, for example, continue to be regulated primarily by state commissions. But for industries in which single companies could grow so large that they spread across several states, thereby making effective supervision

l. Some of these problems ap-
tility regulation, and several of
al commissions. Such difficulties

ase" (the rate base is equivalent
ing used to produce the service;
enominator for the percentage

to emphasize capital equipment
e one can be substituted for the
e rate base and labor does not).
costs—and therefore to promote

in which one part of a company
y but another part of the same

e drawn-out proceedings of the
time that the situation being
irrelevant to future revenue re-

noted the rise of ingenious ac-
all calculated to maximize rev-
ts on percentage rates of return.
rate regulation a ritualistic cha-
-scale "rate cases" as part of the
. Such cases, conducted under
urned into extremely laborious
d engineers, incomprehensible

eral jurisdiction did not occur
ated industries. In many indus-
l, with no abatement of impor-
st public utilities, for example,
by state commissions. But for
s could grow so large that they
y making effective supervision

by any one state commission impracticable, state regulation yielded to federal. The railroad industry set the pattern here. During the latter part of the nineteenth century, as the "railroad problem" became national in scope, its dimensions also became much more complex. In the East, the major regulatory issue often had to do with excessive competition: too many railroads handled too little freight. In the West and South, by contrast, the problem usually took the form of uncontrolled monopoly, as whole communities came to depend for their very existence on single railroad corporations. In all regions of the country, railroads themselves often exhibited tendencies toward questionable financial practices and discriminatory pricing. Such pricing, in which different classes of shippers were charged different rates for the same type of service, might flow logically from the economics of railroading, but it often violated deep-seated popular conceptions of fairness. And underlying the entire national railroad problem was the political incongruity of a democratic society held in apparent subordination to one of its key industries.[8]

Ultimately, railroads grew so powerful and so vital to the national economy that continued reliance on state regulation alone became futile. Federal entry into the picture was precipitated by an important Supreme Court case: *Wabash, St. Louis and Pacific Railroad Company v. Illinois* (1886). In its decision, the court ruled that commerce originating or ending outside the boundaries of a state could not be regulated by that state, even though the federal government provided no alternative means of regulation. This doctrine partially contravened the court's prior ruling in the Granger cases, and the new *Wabash* rule made some final resort to federal regulation all but certain. In 1883, Senator Shelby M. Cullom, a Republican from Illinois, had introduced a bill providing for a federal commission that would administer a set of general and flexible guidelines for the governance of the railroad industry. The *Wabash* decision attracted majority support to Cullom's bill, and in 1887 the Interstate Commerce Commission was born. By that time, a national consensus had developed. Merchants, farmers, politicians, and even many railroad managers were now convinced, after years of trial and error with other methods, that serious federal railroad regulation must be inaugurated.[9]

From our own perspective a century later, the greatest significance of the 1887 Act to Regulate Commerce lies in its creation of

the prototypical federal regulatory agency. Most of the later federal commissions were patterned on the Interstate Commerce Commission, in appointment and tenure of members and in relationships with the existing branches of government—legislative, executive, and judicial. In fact, one measure of the success that the ICC was perceived as having in its first fifty years was its imitation in the creation of later agencies. Even so, the ICC began life with several different missions, not all of which easily accorded with each other or with the economics of railroading. The act of 1887 forbade rebating, pooling, and—with some important exceptions—rate discrimination between long-haul and short-haul traffic. The statute prescribed that rates be "just and reasonable," and it provided a new arena—the ICC—in which determinations of reasonableness could occur. The five commissioners were to be appointed by the president and confirmed by the senate, for staggered terms of six years. No more than three of the five could come from any one political party, and each commissioner was to receive an annual salary of $7,500—a very large sum for the time, greater than the salary of all federal judges except those on the Supreme Court.[10]

After an auspicious beginning under its distinguished first chairman, Thomas M. Cooley, the ICC encountered severe difficulties with the courts. Here too it set the pattern for future regulatory agencies. For the federal judiciary, with the Supreme Court in the lead, sharply restricted the powers of the new commission and reduced it, by the late 1890s, to a mere collector of data. Over the next several decades, a gradual process of adjustment occurred, involving the courts, the commission, and, most important, the Congress. Responding to continual problems within the railroad industry, as well as to jurisdictional squabbles between the ICC and the courts, the national legislature steadily added to the commission's authority. The highlights in this long history included: (1) the Elkins Act of 1903, which gave teeth to the prohibition against rebating contained in the original Act to Regulate Commerce of 1887; (2) the Hepburn Act of 1906, which empowered the commission to fix maximum railroad rates, shifted the burden of proof in rate proceedings from the commission to the railroads, and made ICC decisions effective as soon as they were reached; (3) the Mann-Elkins Act of 1910, which broadened the ratemaking authority of the commission, reinforced the long-

y agency. Most of the later fed-
on the Interstate Commerce
tenure of members and in rela-
ies of government—legislative,
measure of the success that the
first fifty years was its imitation
ven so, the ICC began life with
of which easily accorded with
of railroading. The act of 1887
-with some important excep-
n long-haul and short-haul traf-
es be "just and reasonable," and
C—in which determinations of
five commissioners were to be
nfirmed by the senate, for stag-
nan three of the five could come
each commissioner was to re-
-a very large sum for the time,
eral judges except those on the

under its distinguished first
ICC encountered severe diffi-
set the pattern for future regu-
iciary, with the Supreme Court
powers of the new commission
o a mere collector of data. Over
ual process of adjustment oc-
mmission, and, most important,
inual problems within the rail-
ictional squabbles between the
egislature steadily added to the
lights in this long history in-
which gave teeth to the prohibi-
n the original Act to Regulate
burn Act of 1906, which em-
aximum railroad rates, shifted
ings from the commission to the
effective as soon as they were
of 1910, which broadened the
mission, reinforced the long-

haul/short-haul rule, and created the Court of Commerce, a short-lived experiment in specialized judicial review; (4) the Transportation (or Esch-Cummins) Act of 1920, which gave the commission power to set minimum railroad rates, to supervise the issuance of railroad securities, to approve the previously forbidden practice of pooling, and to begin comprehensive planning for a systematic national transportation network; (5) the Motor Carrier Act of 1935, which gave to the ICC regulatory authority over the important new interstate trucking industry; and (6) the Transportation Act of 1940, which added still another industry—domestic water carriers—to the roster of businesses regulated by the ICC.[11]

This litany of legislation underlines an extremely important principle: during the twentieth century—just as in Charles Francis Adams' time—the art of regulatory strategy remains in large measure a political art. In no meaningful sense did the creation of the Interstate Commerce Commission take railroad regulation "out of politics," as so many supporters of regulation thought should be done. It was true of course that Congress, by creating the ICC, relieved itself of a continuing need to attend to innumerable trivial matters peculiar to the railroad industry. Congress did not, however, permanently yield its powers to an "independent" regulatory commission. Instead, the congressional committees stayed in close touch with developments at the ICC. The commission itself often originated proposals for new legislation, and the agency took great pains to develop and nurture political support within Congress. Without this support, the ICC could not have done its job properly, especially since a jealous judiciary often threatened to undercut its authority.[12]

Throughout its history, the ICC has remained controversial. Sometimes, as during the Progressive Era, it became the target of railroad industry protests charging that it favored shippers at the expense of carriers. More often, the commission has been accused by shippers and consumer groups of trying to protect the carriers at the expense of the general public. Sometimes, critics with entirely different viewpoints have joined in blaming the ICC for the long-term decline in the nation's rail service. But the most damning line of criticism has rested on claims that the ICC has worked to impede economic efficiency. Indeed, from the historical record, it is clear that the agency's policies often prevented market forces from allocating traffic according to the individual modes of trans-

portation—whether rail, highway, or water—best suited for particular kinds of freight. The commission appears to have interfered with efficiency unintentionally, at first simply through ignorance, since in its early years the economics of transportation was not very well understood. Later on, most errors derived from the ICC's misguided attempts to be "fair" to all parties. The commission regulated transportation rates in such a way as to ensure that each industry—rail, highway, or water—received not those portions of the total traffic most appropriate to its routes, but instead a fair share. In its concern for fairness at the expense of economic efficiency, as in so many other respects, the ICC typified the practice of most regulatory agencies in American history.[13]

Eventually, the kinds of regulatory problems dealt with by state and federal railroad commissions expanded to include troubles rooted in other large enterprises. Although the profound economic movement that has become known as the "rise of big business" began with the railroads in the 1850s, it continued to move forward, in vastly expanded form, causing revolutions in manufacturing and distribution. These changes occurred between about 1880 and 1920. Prior to this period, no single manufacturing enterprise, indeed no entire manufacturing industry, had attained sufficient size to affect masses of people. Before the 1880s, even major factories customarily employed no more than a few hundred workers. The largest manufacturing companies were usually capitalized at less than one million dollars. Yet, within a single generation after 1880, all this changed. By 1890, each of several large railroads employed more than 100,000 workers. By 1900, John D. Rockefeller's Standard Oil Company had grown into a huge multinational corporation capitalized at $122 million. By 1904, James B. Duke's American Tobacco Company completed a series of mergers and internal expansions that took it to a capitalization of $500 million (up from $25 million in 1890). And in 1901, the creation of the United States Steel Corporation climaxed a $1.4 billion transaction. This sum, which far exceeded the imaginations of most contemporary citizens, became a symbol of the new giantism in the American economy.[14]

With the rise of big business, the term "private enterprise" acquired a different meaning. Whereas once it had signified liberty, freedom, and individualism, it now meant danger as well—the threat of giant corporations. Suddenly, big business seemed to

or water—best suited for par-
ion appears to have interfered
rst simply through ignorance,
ics of transportation was not
nost errors derived from the
r" to all parties. The commis-
n such a way as to ensure that
ıter—received not those por-
riate to its routes, but instead
ss at the expense of economic
ets, the ICC typified the prac-
ımerican history.[13]

problems dealt with by state
xpanded to include troubles
nough the profound economic
as the "rise of big business"
850s, it continued to move
ısing revolutions in manufac-
ges occurred between about
no single manufacturing en-
uring industry, had attained
ople. Before the 1880s, even
no more than a few hundred
ompanies were usually capi-
s. Yet, within a single genera-
1890, each of several large
0 workers. By 1900, John D.
had grown into a huge mul-
$122 million. By 1904, James
pany completed a series of
took it to a capitalization of
1890). And in 1901, the crea-
ation climaxed a $1.4 billion
ceeded the imaginations of
symbol of the new giantism

erm "private enterprise" ac-
once it had signified liberty,
meant danger as well—the
ly, big business seemed to

menace America. Large corporations represented that same centralized power against which the founding fathers had fought their revolution. Perhaps inevitably, American big business evoked a powerful regulatory response.

Overcapacity and the Rise of the Trusts

In the popular language of the late nineteenth and early twentieth century, such companies as Standard Oil, American Tobacco, and United States Steel became known as "trusts." Although most combinations did not take the precise legal form of a trust (in which trustees for several different companies hold the common stock of those companies and thereby exercise control over them),[1] all such corporations did share the characteristics of centralized management and very large size. The process by which companies in certain industries did or did not grow to great size is not fully understood, even today. But it is much better understood now than it was in the early twentieth century. Within the past few years, several streams of important research in economics, history, and business administration have converged, to make possible a much fuller understanding of the rise of big business and of attempts to regulate it. This story is not a simple one to tell but, because it is one so rich in importance, paradox, and surprise, it well repays the necessary effort.

The trust movement—that is, the powerful tendency of businessmen to combine with their competitors in associations or mergers—grew out of a particular problem of industrialization. This was the problem of periodic industrial overcapacity, tied to the boom-and-bust cycles of the late nineteenth century. Just as worldwide overcapacity lies behind the periodic "sickness" of such contemporary industries as steel, fibers, footwear, and automobiles, so in the late nineteenth century industrial overcapacity caused serious disruptions in the economies of all industrialized nations.

The underlying cause of overcapacity was the industrial revolution, which initially took the form of a revolution in production and productivity. In the first phase of the industrial revolution, progress in the technology of production far outran similar developments in distribution, marketing, and consumer purchasing power. Cyrus McCormick's reaper, invented in the 1830s, laid the

foundation for a national and international system of commercial grain agriculture; but the new system of distribution did not develop until a national railroad network emerged for marketing the grain (there were 23 miles of track in America in 1830 and 208,152 by 1890). Changes occurred at uneven rates, and these different paces of change created serious periodic imbalances between nations' capacities to produce and their abilities to consume. In some respects, of course, the differences were natural and inevitable. The rise of the department store (1870s) could hardly have preceded the invention of the sewing machine (1844). And the vast array of consumer goods that poured forth from the production of thousands of American factories could not flow to their users until a corresponding revolution had occurred in packaging and wholesaling.[15]

Machines that could reap grain, stitch cloth, and wrap consumer goods were but three examples of a profound worldwide revolution in productivity. This revolution substituted machine tools for human craftsmen, interchangeable parts for hand-tooled components, and the energy of coal for those of wood, water, and animals. The rising productivity, in turn, often brought overcapacity. The response, among businessmen in every industrial nation, was to combine with one another in schemes designed to limit the total output of their plants, maintain the price levels of their goods, and discourage the entry of new companies into their lines of business.

Such tendencies are discoverable in all industries, all countries, and all times. Adam Smith's famous description of the phenomenon was already trite when he made it in 1776: "People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices."[16] But the tendencies Smith observed seemed mild indeed when compared with the manic compulsions stimulated afterward by the revolution in productivity, which made the potential rewards of industrial success far greater than anything possible in Smith's era. It had the same magnifying effect on the potential cost of failure: the immense capital investment represented by a large modern factory or string of factories raised the penalty for failure beyond anything Smith could have contemplated. The collapse of, say, a large steel company would cost tens of millions of dollars in idled physical plant

national system of commercial
tem of distribution did not de-
ork emerged for marketing the
n America in 1830 and 208,152
even rates, and these different
riodic imbalances between na-
ir abilities to consume. In some
s were natural and inevitable.
1870s) could hardly have pre-
machine (1844). And the vast
d forth from the production of
uld not flow to their users until
urred in packaging and whole-

, stitch cloth, and wrap con-
ples of a profound worldwide
evolution substituted machine
angeable parts for hand-tooled
for those of wood, water, and
y, in turn, often brought
g businessmen in every indus-
ne another in schemes designed
ants, maintain the price levels
entry of new companies into

in all industries, all countries,
s description of the phenome-
de it in 1776: "People of the
even for merriment and diver-
conspiracy against the public,
es."[16] But the tendencies Smith
en compared with the manic
y the revolution in productiv-
vards of industrial success far
Smith's era. It had the same
cost of failure: the immense
large modern factory or string
ailure beyond anything Smith
apse of, say, a large steel com-
dollars in idled physical plant

and would throw thousands of employees out of work. Thus industrialists felt a powerful urge to maintain a market for their products—if necessary by temporarily selling below costs, if possible by cooperating with each other for the mutual protection of capital.

Among European industrialists, this inclination to combine in self-defense against overcapacity led to very different results from those in the United States. Although the response was not precisely the same in every European country, governments there generally accepted business combinations as legitimate. European price and production cartels usually enjoyed official sanction, so that the legal machinery of the state could be used to enforce contractual articles of cartelization against rebellious price cutters. In Europe, therefore, with its large public bureaucracies long established, industrial overcapacity became simply another problem for a mature political state to manage. The official sanctioning of cartels provided a convenient way for national governments to prevent direct damage to individual firms and thus to soften and stabilize the otherwise wrenching process of industrialization.[17]

In Europe, typical political battles during the late nineteenth century pitted a fairly united business community against a powerful labor movement. In America, by contrast, the most conspicuous political warfare of that time matched *one group of businessmen against another:* carriers versus shippers, commodity farmers versus mortgage bankers, small wholesalers and shopkeepers against large firms whose marketing divisions were eliminating the traditional roles of local jobbers and retailers. The small size of the United States government, as compared to its European counterparts, meant that no adequate public bureaucracy existed to manage such industrial conflicts. (In 1871, on the eve of the trust movement, only 51,020 civilians worked for the federal government, of whom 36,696 were postal employees. The remaining 14,424 constituted the national government for a country whose population exceeded 40 million.) Under American conditions, the emerging problem of industrial overcapacity, compounded by the boom-and-bust business cycle, moved immediately into the realm of public controversy. To a degree often underestimated by scholars, overcapacity influenced nearly every major economic issue of the period: not only the trust question, but also the perennial and divisive battles over the protective tariff, the railroad rate prob-

lem, and the imperial quest for foreign markets to absorb surplus production.[18]

Even so, the initial response to industrial overcapacity took much the same form in America as in Europe. American businessmen, like their counterparts abroad, energetically combined with each other in loose cartels designed to limit production, maintain prices, and divide markets. These cartels were intended to protect all member companies from the fearful consequences of collective overcapacity. By preventing bankruptcies and by making mergers unnecessary, the cartels could preserve the individual identity of all cooperating companies. During the 1870s and 1880s, the number of formal and informal associations erected for this purpose within the United States numbered in the thousands. Seldom, however, did these early cartels accomplish their purpose because almost every one of them encountered legal obstacles. The national culture was so opposed to "monopoly" and "restraint of trade" that American courts refused to enforce cartel arrangements against recalcitrant members.[19] Thus, unlike their European counterparts, American businessmen participating in cartels were left free to cut their prices in violation of the cartel agreements or to sell their products outside geographic areas determined by the cartel. In 1890, passage of the Sherman Antitrust Act served to formalize the common law's hostility to cartels, as well as to compel the Department of Justice to become an active opponent of cartel-like associations. The Sherman Act soon began to have an enormous, if paradoxical, impact.

The New Vocabulary

To understand that impact, it is necessary to use certain terms of modern economic analysis. Before proceeding further with the story of the trust movement, it will be appropriate to pause briefly and investigate the meaning and application of this new economic vocabulary. It is important to remember that most of these terms did not originate with the trust movement. Instead, they have evolved over the years since passage of the Sherman Act, as part of an enormous effort of research in the fields of economics and business administration.

In applying such terms in historical analysis, we are something like modern astronomers studying the pre-Copernican theories of

oreign markets to absorb surplus

to industrial overcapacity took
a as in Europe. American busi-
abroad, energetically combined
s designed to limit production,
ets. These cartels were intended
from the fearful consequences of
enting bankruptcies and by mak-
els could preserve the individual
panies. During the 1870s and
informal associations erected for
ates numbered in the thousands.
cartels accomplish their purpose
em encountered legal obstacles.
ed to "monopoly" and "restraint
efused to enforce cartel arrange-
ers.[19] Thus, unlike their Euro-
inessmen participating in cartels
in violation of the cartel agree-
outside geographic areas deter-
age of the Sherman Antitrust Act
law's hostility to cartels, as well
ustice to become an active oppo-
he Sherman Act soon began to
impact.

ecessary to use certain terms of
re proceeding further with the
l be appropriate to pause briefly
pplication of this new economic
ember that most of these terms
movement. Instead, they have
ge of the Sherman Act, as part of
he fields of economics and busi-

rical analysis, we are something
the pre-Copernican theories of

Aristotle or Ptolemy. That is, we are testing the assumptions and insights of an earlier generation of observers through the use of methods developed in a subsequent scientific revolution to which they had no access. Although it may seem unfair to judge early twentieth-century observers by standards of economic reasoning they themselves did not fully comprehend, that price must be paid in return for our own understanding of the trust question. Even so, we should remember, in our effort to minimize the unfairness and achieve an appreciation of the problems faced by this earlier generation, that the movements and trends best described by the new vocabulary were not all equally prominent at the same time. At any given moment, some dominated the scene while others were latent. It is only through the double lenses of our own retrospect *and* the contemporaneous view that we are able to reach a mature historical evaluation of the elements involved in the trust question.

For us, the vocabulary essential to an understanding of that question has a minimum of seven relevant terms:

1. *Productive efficiency.* This term refers to the amount of work accomplished in relation to the effort expended. The underlying principle is common in mechanical engineering, as in the comparison that steam engines are more efficient than internal-combustion engines because they deliver more work per unit of fuel consumed. In economics, the meaning of productive efficiency is similar, but much broader. It includes anything that businesses can do to reduce the cost or improve the quality of their products, without any offsetting effect. Such changes may be organizational, technical, or of some other kind. One example of productive efficiency is machine mass production on assembly lines.[20]

2. *Allocative efficiency.* This term relates to the way in which an entire economy operates. In an allocatively efficient economy, no further rearrangement of prices, outputs, or distribution of goods and services can possibly make one consumer better off in terms of his own desires without making another worse off in terms of his. With the highest allocative efficiency, prices are set close to the marginal costs of production—that is, the cost of the last unit produced. Maximum allocative efficiency is equivalent to maximum "consumer welfare"; and in economic theory, any policy that promotes allocative efficiency and consumer welfare car-

ries a very strong favorable presumption. Similarly, any policy tending to diminish them should, if such a policy is to be justified, bring extremely beneficial offsetting effects of a noneconomic nature. Of course, allocative efficiency and consumer welfare apply chiefly to "economic man" and say little—at least directly—about aesthetic values, income distribution, ideological preferences, or any number of other legitimate human concerns. Even so, the concepts have important implications for practical politics as well as for theoretical economics: in modern times, high government regard for allocative efficiency and consumer welfare has been closely correlated with democracy; and low regard, with authoritarianism.[21]

3. *Scale economies.* There are two types of scale economies; in both, the larger the operation, the greater the productive efficiency. The first type is a *physical* scale economy, related to the amount or size of equipment used in a business operation. In the case of railroads, as Adams saw so clearly, the larger the number of cars in a given freight train, the lower the ton-per-mile cost of moving a given item of cargo. In some industries, such as oil refining (and others involving the flow of liquids or gases), economies of scale also derive from certain advantages in geometry. The volume of a pipe, for example, increases with the square of its radius. If the radius is doubled, the volume is quadrupled. Thus the bigger the pipe, the greater the productive efficiency, all other things being equal. The second type of scale economy is not physical but *organizational,* deriving from what Adam Smith called "the division of labor." It focuses on method rather than on equipment. The more particularized an operation is, the more efficiently it can be done by a specialized tool, machine, or skilled worker. The larger the undertaking, the more numerous and specialized its constituent labor force and machinery can be and, therefore, the greater the potential productive efficiency.

4. *Vertical integration.* This term refers to the gathering of many different business functions within a single firm. A company that conducts all of its business operations itself, ranging from the derivation of its raw materials to the selling of its finished manufactured products at retail, is said to have achieved complete vertical integration. A company's movement toward vertical integration almost always takes the form of incremental decisions to extend the functions performed by the existing business. An oil-refining

esumption. Similarly, any policy
, if such a policy is to be justified,
ting effects of a noneconomic na-
ncy and consumer welfare apply
ay little—at least directly—about
ution, ideological preferences, or
human concerns. Even so, the
tions for practical politics as well
modern times, high government
and consumer welfare has been
cy; and low regard, with authori-

two types of scale economies; in
the greater the productive effi-
al scale economy, related to the
d in a business operation. In the
clearly, the larger the number of
lower the ton-per-mile cost of
some industries, such as oil refin-
of liquids or gases), economies of
ntages in geometry. The volume
ith the square of its radius. If the
quadrupled. Thus the bigger the
efficiency, all other things being
conomy is not physical but *orga-*
am Smith called "the division of
r than on equipment. The more
more efficiently it can be done
r skilled worker. The larger the
and specialized its constituent
and, therefore, the greater the

refers to the gathering of many
a single firm. A company that
ons itself, ranging from the deri-
selling of its finished manufac-
ave achieved complete vertical
ent toward vertical integration
ncremental decisions to extend
xisting business. An oil-refining

company, for example, might decide to purchase tank trunks for transporting its gasoline to market; later it also decides to build service stations from which the gasoline will be sold at retail. Both decisions represent vertical integration.

A fully integrated oil company would own exploration and production equipment for the finding and pumping of crude oil; tanker fleets and pipelines to transport it; refineries to turn it into gasoline, kerosene, and heating oil; tank trucks from which to wholesale these products; and service stations for sales to retail customers. The company would pursue this strategy of vertical integration in order to match its organizational scale economies with its physical ones. If the company did not integrate vertically, then the scale-economy potential in refining might be interrupted randomly by a host of unforeseen events: an abrupt stoppage of crude-oil supply, a sharp rise in its market price, the unavailability of transportation at a critical time, a collapse of the distribution system, or some other sudden bottleneck in the movement of the product from one stage to another. With vertical integration, on the other hand, every part of the operation (exploration, production, transportation, refining, wholesaling, retailing) would be matched in size to every other part, and the company's own managers would supervise the flow of oil through the system. A continuous movement of the product at constant speed and at declining costs of production should be assured.

Even so, vertical integration is not necessarily good for all companies. It seems to work well as a business strategy only for firms in those industries that possess a significant scale economy at some stage in the production or marketing process. A business integrates vertically for the purpose of ensuring that its advantage from the scale economy is maximized and not interrupted. But vertical integration can also become dangerous to the survival of a firm, since it has the disadvantage of putting all a company's eggs in one very large basket, and then risking that entire basket to the contingency of a declining market for its products.

5. *Horizontal combination.* This term signifies agreements among producers of a certain item: either to limit production of the item or to maintain its price level, or to do both. (The word "horizontal" refers to all participants' being in the same line of business, producing the same item; as opposed to "vertical," which refers to different business functions—production, whole-

saling, retailing, and so forth.) In the late nineteenth century, when manufacturers began to make use of the new technology and new sources of energy in their factories, shops, and refineries, they discovered to their astonishment that production had suddenly become the least of their worries. They could produce huge quantities of oil, steel, sewing machines, cigarettes, and hundreds of other items. But could they also sell this enormous new production? And, if so, could they still keep their prices up, even as vast quantities of their goods kept flowing onto the market? Many producers found an apparently affirmative answer to these questions in mutual cooperation—that is, one or another type of horizontal combination. On the surface, these associations seemed attractive. Yet horizontal combinations had two enormous flaws. Whereas they might help participating companies, they would hurt nonparticipating ones; even worse, they would reduce consumer welfare by creating artificial scarcities. Total output of specific products would be restricted, prices kept up, and allocative efficiency diminished.[22]

In practice, a particular horizontal combination might take one of several different forms. At its simplest, it consisted of an informal agreement among, say, all the coal dealers in a single city, who made a mutual promise not to sell a ton of coal below a certain minimum price. A more complex horizontal combination appeared in America as a European-style cartel—ten or twelve steel companies sharing output quotas and price agreements. The ultimate horizontal combination proved to be huge firms such as American Tobacco Company, which represented the final stage in a series of mergers that brought all important cigarette companies into one industry giant. This so-called tight form, involving actual mergers of corporate entities, became known as "horizontal integration." In fact, all horizontal integration involved horizontal combination, but not vice versa. Most horizontal combinations were not tight mergers, but loose associations of corporations that still retained their individual legal identities. The difference between loose horizontal combinations and tight ones turned out to be extraordinarily important.[23]

6. *Center firms.* This term denotes those new types of giant companies—such as Standard Oil, American Tobacco, United States Steel, and a few hundred others—that grew to large size *and remained large.*[24] These center firms tended to have a set of

In the late nineteenth century,
ake use of the new technology and
actories, shops, and refineries, they
nt that production had suddenly
s. They could produce huge quan-
ines, cigarettes, and hundreds of
o sell this enormous new produc-
keep their prices up, even as vast
wing onto the market? Many pro-
rmative answer to these questions
one or another type of horizontal
ese associations seemed attractive.
d two enormous flaws. Whereas
ompanies, they would hurt non-
hey would reduce consumer wel-
cities. Total output of specific
rices kept up, and allocative effi-

ntal combination might take one
simplest, it consisted of an infor-
the coal dealers in a single city,
to sell a ton of coal below a cer-
nplex horizontal combination ap-
-style cartel—ten or twelve steel
and price agreements. The ulti-
oved to be huge firms such as
ich represented the final stage in
ll important cigarette companies
alled tight form, involving actual
came known as "horizontal inte-
integration involved horizontal
. Most horizontal combinations
associations of corporations that
al identities. The difference be-
ons and tight ones turned out to

notes those new types of giant
il, American Tobacco, United
others—that grew to large size
er firms tended to have a set of

common characteristics. All were capital-intensive, requiring very large outlays of investment. All were technologically advanced, in the sense that their production facilities were dominated either by continuous process production (Standard Oil, American Sugar Refining, United States Steel) or by some combination of large-batch production with machine mass production (Singer Sewing Machine, American Tobacco, Quaker Oats, Pillsbury Flour, International Harvester). Consequently, all center firms enjoyed some significant scale economy in the production or packaging process, and all were vertically integrated. Planning for the future, center firms also adopted an unusually long-range perspective. Because of the enormous investments required, survival was a far more important goal than was short-run profit. Accordingly, many center firms planned their business strategies on the basis of five-year horizons. In addition, many of them engaged in organized research and the development of new products. To manage their many internal functions, they began to organize complex managerial hierarchies.[25]

7. *Peripheral firms.* This term refers to companies that were small, labor-intensive, managerially thin, and bereft of scale economies. Concerned for survival, they looked more to this year's profits than to five-year plans. Peripheral firms, in other words, represented the opposite kind of company from center firms. The distinction between peripheral and center is not a perfect one, but the two terms may be considered as the polar ends of a spectrum: very pronounced differences are evident from one end of the spectrum to the other, but the differences become less dramatic toward the middle. The major point, however, is that center firms and peripheral firms represent two fundamentally different types of businesses.[26]

To be "peripheral" does not necessarily mean to be unimportant. Many peripheral firms are major sources of employment and thus vital to the national economy. Such industries as textiles, furniture, clothing, food service, building materials, hotels, and automobile repair are characterized by a large number of relatively small firms. These peripheral firms compete with each other very much in the fashion of Adam Smith's classical model, which remains the model of competition described in economics textbooks. Companies in these industries, along with numerous other kinds of peripherals—ranging from restaurants and family retail outlets to

specialized parts manufacturers and subcontractors for the center firms—form the backbone of small business in all capitalist economies. These industries, like the companies in them, are also called peripheral, to distinguish them from such center industries as oil, steel, automobile manufacturing, and electrical machinery.[27]

The New Research

As we have noted, the modern discipline of economics has helped us to understand the rise of big business, especially by supplying some of the necessary vocabulary. But economic research has also displayed some important limitations. Despite advances in the subdiscipline of industrial organization, the economic theory of oligopoly is not yet mature. Mainstream theory still tends to assign too little significance to the gains in productive efficiency arising from changes in the forms of business organizations, including vertical integration.[28]

One very important contribution to research on center firms has come not from economics but from history, especially from the world's leading historian of business, Alfred D. Chandler, Jr. In a series of articles and books written from the 1950s to the 1980s, Chandler and his students have systematically examined the evolution of the business system in the United States and in other major capitalist economies. From this study of more than one thousand center firms has emerged an enormous body of information about their evolution, structure, business strategies, and methods of internal governance. The implications of Chandler's work are far-reaching, but its principal message is simple and forthright. The economist Robert Heilbroner described Chandler's Pulitizer Prize book, *The Visible Hand,* as "a major contribution to economics, as well as to 'business history,' because it provides powerful insights into the ways in which the imperatives of capitalism shaped at least one aspect of the business world—*its tendency to grow into giant companies in some industries but not in others.*"[29]

For a better understanding of the trust issue, three of Chandler's propositions are especially helpful. First, the industry structure characteristic of the American center economy evolved largely during the forty-year period between 1880 and 1920. The shakeout of center firms and peripheral firms into a more or less stable

and subcontractors for the center
all business in all capitalist econo-
companies in them, are also called
from such center industries as oil,
, and electrical machinery.[27]

iscipline of economics has helped
business, especially by supplying
y. But economic research has also
tations. Despite advances in the
zation, the economic theory of ol-
stream theory still tends to assign
s in productive efficiency arising
usiness organizations, including

on to research on center firms has
rom history, especially from the
ess, Alfred D. Chandler, Jr. In a
en from the 1950s to the 1980s,
ystematically examined the evo-
the United States and in other
m this study of more than one
d an enormous body of informa-
ucture, business strategies, and
The implications of Chandler's
rincipal message is simple and
Heilbroner described Chandler's
Hand, as "a major contribution to
ss history,' because it provides
n which the imperatives of capi-
of the business world—*its ten-
ies in some industries but not in*

e trust issue, three of Chandler's
ul. First, the industry structure
enter economy evolved largely
veen 1880 and 1920. The shake-
firms into a more or less stable

configuration did not end abruptly in 1920, but the major phase of this evolution was complete by that time. Evidence of a remarkable industrial stability may be found by comparing a list of the 200 largest U.S. manufacturing companies (measured in assets) in 1917 with a similar list for 1973:

a. In 1917, 22 of the largest 200 companies were in the petroleum business. In 1973, 22 of the largest 200 were still in petroleum. For the most part, they were the same 22.
b. In 1917, 5 of the largest 200 companies were in the rubber business. In 1973, 5 of the largest 200 were still in rubber. Four of these five were the same (Goodyear, Goodrich, Firestone, Uniroyal). The fifth, Fisk, merged with Uniroyal—then called United States Rubber—in 1939.
c. In 1917, 20 of the largest 200 companies were in the machinery business. In 1973, 18 of the largest 200 were still in machinery. For the most part, they were the same companies.
d. In 1917, 30 of the largest 200 companies were in the food products business. In 1973, 22 of the largest 200 were still in food products, and several other food companies remained in the top 200 as parts of conglomerates.
e. In 1917, 26 of the largest 200 companies were in the transportation equipment business. In 1973, 20 were still in transportation equipment (down, partly as a result of mergers, from 26 in 1948).[30]

These numbers suggest that the companies which succeeded initially in center industries later enjoyed a considerable advantage over firms entering the same industries. Their advantages included scale economies and lower unit costs achieved through long production runs. If the companies also rationalized their production process by concentrating operations in their lowest-cost plants—and most did just this—then their advantages increased even more. Finally, when the companies proceeded to integrate vertically, thereby protecting the advantages they already held in production, they became inordinately difficult for competitors to dislodge. Considering the numerical evidence, which shows that the companies maintained their position over a very long period, the fact of their continuing dominance becomes a historical phenomenon of enormous help in understanding the trust question.

A second proposition is that companies in every manufacturing

industry attempted the same sort of growth strategy described above. That is, the movement toward horizontal integration was universally attractive. Firms in peripheral industries tried it as often as did those in center industries. Only the outcome proved different: unlike center firms, peripherals almost never succeeded. (*None* of the largest 200 companies in either 1917 or 1973, for example, was in furniture, printing, or similar peripheral industries.) Thus the difference between center and peripheral must be regarded as crucial to understanding the true nature of the trust question.[31]

A third proposition has to do with the evolution of business organizations in other countries. After having established that certain patterns characterized the structure of American industry in the twentieth century, Chandler went on to discover that the very same patterns obtain, with surprisingly few modifications, in other major market economies. These similarities appear despite different markets, political cultures, and sources of supply. The numbers cited above concerning the stable makeup of the largest 200 American manufacturing companies resemble comparable sets of numbers compiled for the same period in Germany, France, Britain, and Japan. Only the pace and timing of appearance vary, and even these do not differ radically. Furthermore, the pattern of industries themselves tends to be similar to that in the United States, as the following list shows:

	U.S. (192 companies)	*Abroad* (187 companies)
Center industries		
Transportation equipment	22	23
Electrical machinery	20	25
Stone, clay, and glass	7	8
Tobacco	3	4
Chemicals	24	28
Rubber	5	5
Petroleum	14	12
Peripheral industries		
Furniture	0	0
Printing	0	0

This list includes all manufacturing companies (worldwide) that as of 1973 had at least 20,000 employees. Approximately one half of the total of 379 were American firms, and half had their headquarters elsewhere.[32]

ort of growth strategy described
ard horizontal integration was uni-
ipheral industries tried it as often
. Only the outcome proved differ-
als almost never succeeded. (*None*
either 1917 or 1973, for example,
milar peripheral industries.) Thus
and peripheral must be regarded
rue nature of the trust question.[31]
with the evolution of business or-
After having established that cer-
structure of American industry in
went on to discover that the very
isingly few modifications, in other
similarities appear despite differ-
and sources of supply. The num-
stable makeup of the largest 200
nies resemble comparable sets of
period in Germany, France, Brit-
d timing of appearance vary, and
. Furthermore, the pattern of in-
milar to that in the United States,

U.S. (92 companies)	*Abroad* (187 companies)
22	23
20	25
7	8
3	4
24	28
5	5
14	12
0	0
0	0

g companies (worldwide) that as
yees. Approximately one half of
ms, and half had their headquar-

The striking similarities between industrial experience in the United States and in other market economies suggest strongly that the economic and technological characteristics of certain industries encourage them to assume either a center or peripheral configuration and to maintain that configuration over a long period of time. These characteristics now seem much more important than do differences in legal systems or national cultures; in fact they appear to determine the relative size and organizational structure of firms within the industries represented. This conclusion is of great importance to anyone interested in assessing the historical record of big business in the United States, a record that includes all attempts to regulate monopolistic "trusts."

The Old Assumptions

In the minds of many members of the generation that came to maturity during the 1880s and 1890s, the huge new companies we now call center firms seemed somehow unnatural. This generation, like all its predecessors, had grown up in an era occupied almost exclusively (the railroads being the sole exception) by what I have identified as peripheral firms. With their meager resources and lack of political power, such firms posed no threat whatever to the country's democratic heritage. The sudden appearance of center firms, on the other hand, brought novel and alarming practices: degradation of human labor in such industries as steel (where immigrant laborers put in 72-hour workweeks); unscrupulous manipulation of stocks and bonds in industries such as railroads and utilities (where "frenzied finance" seemed common); and abrupt losses of community control, not only over industries but over individual center firms, whose resources often dwarfed those of city and even state governments.

In the early years of industrialization, the trusts seemed to be mysterious mutations, the consequences of some evil tampering with the natural order of things. They were not merely economic freaks but also sinister new political forces—powers that had to be opposed in the name of American democracy. Such a conclusion seemed especially compelling once the ruthless, inhuman methods used in the formation of Standard Oil, American Tobacco, and other huge companies had reached public attention. Unlike loose cartels, which protected the interests of all participating com-

panies, these tightly organized, horizontally and vertically integrated giants swallowed up numerous competitors and pushed aside traditional wholesalers and retailers. If the low prices of center firms brought unprecedented benefits to masses of consumers, then those same prices also injured large numbers of competing small producers, wholesalers, and retailers.

Yet the central assumption shared by most contemporary critics was simply that trusts were *unnatural,* the bastard offsprings of unscrupulous promoters. Without the benefit of experience and of a vocabulary that could clarify important distinctions in the business revolution—center firms compared with peripheral, productive efficiency compared with allocative, vertical integration compared with horizontal, and so on—those observers had only their personal sensibilities and traditional political ideologies to guide them. Both their personal and political values concerning the nature of liberty, the meaning of opportunity, and the promise of America seemed to be seriously threatened by the new monster trusts.

By about the middle of the 1880s, public sentiment in America had crystallized: something had to be done about trusts. Courts began to be more attentive to violations of common-law prohibitions against the collusive fixing of prices and planned limitations of output. In 1887, Congress created the Interstate Commerce Commission as a new means of dealing with the perennial railroad problem. Three years later, Congress passed the milestone Sherman Antitrust Act, which seemed clear, concise, and to the point. The Sherman Act declared illegal "every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce." It defined as a criminal "every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations."[33]

Despite the apparent clarity of the Sherman Act, however, its implementation raised severe difficulties. Unlike the Act to Regulate Commerce of 1887, the Sherman law set up no new regulatory commission or other machinery, but instead relied on the existing structure of government. Enforcement was vested in the federal Department of Justice, but the attorneys general of the 1890s showed little inclination to prosecute aggressively. When

horizontally and vertically inte-
merous competitors and pushed
retailers. If the low prices of cen-
l benefits to masses of consumers,
ired large numbers of competing
d retailers.

ered by most contemporary critics
natural, the bastard offsprings of
t the benefit of experience and of
mportant distinctions in the busi-
compared with peripheral, pro-
h allocative, vertical integration
so on—those observers had only
raditional political ideologies to
and political values concerning
g of opportunity, and the promise
y threatened by the new monster

80s, public sentiment in America
to be done about trusts. Courts
olations of common-law prohibi-
of prices and planned limitations
eated the Interstate Commerce
aling with the perennial railroad
gress passed the milestone Sher-
l clear, concise, and to the point.
"every contract, combination in
conspiracy, in restraint of trade
riminal "every person who shall
polize, or combine or conspire
, to monopolize any part of the
veral States, or with foreign na-

f the Sherman Act, however, its
iculties. Unlike the Act to Regu-
man law set up no new regula-
hinery, but instead relied on
nt. Enforcement was vested in the
ut the attorneys general of the
o prosecute aggressively. When

they did prosecute, their favored targets were not the feared center firms but local combinations of peripheral firms, whose price-fixing practices were easy to demonstrate. During the Sherman Act's first twenty years, by far the majority of prosecutions were aimed at loose cartels of small companies. The six or seven "big cases" of this period, however, did pertain to railroad combinations and to large trusts in sugar, beef, oil, and meatpacking. But in almost none of these cases did the court decison emerge in the form that antitrust advocates had hoped to see. The apparent clarity of the statutory language became lost in verbal uncertainties. Courts struggled with the meaning of such terms as "restraint of trade" and "monopolization"; and judges' opinions created a semantic confusion that persisted for years afterward. Soon the obvious ineffectiveness of early antitrust policy began to stimulate a new movement to do something more. Meanwhile, the severe economic depression of the 1890s added another note of urgency, and finally both the populists of that decade and the progressives of the early twentieth century made trust reform a pivotal and decidedly durable political issue. Indeed, the trust question dominated political discourse in America from the 1880s until the start of the First World War.[34]

CHAPTER 7

Kahn and the Economist's Hour

In *Nixon Agonistes,* his bestseller of 1970, the journalist Garry Wills argued that "America is distinguished by a 'market' mode of thought in all its public (and even private) life." Wills went on to identify four market systems, each with its reigning prophet: the economic market system (Adam Smith), the political (Woodrow Wilson), the moral (Ralph Waldo Emerson), and the intellectual (John Stuart Mill). These four systems, Wills wrote, combined to yield up the strange and anomalous figure of Richard M. Nixon.[1]

Nixon Agonistes now seems both profound and half-baked. More important, however, the book's popular success signaled an unmistakable restoration of "the market" to intellectual respectability. For the principles that Wills made acceptable to a popular audience also found an enthusiastic if less boisterous welcome in the halls of academe. There a group of innovative scholars had spent the preceding years sending a similar message to students and colleagues. In economics the "Chicago school" of free-market theorists gradually gained reinforcements from a corps of young monetarists who became impatient with the policy activism favored by Keynesians. The Chicago school exerted only moderate influence before 1970, although occasionally a member might score a popular hit, as Milton Friedman did with *Capitalism and Freedom* (1962). By and large, however, the Chicago economists hardly entered the consciousness of most Americans, who took in what they knew about economics from the witty John Kenneth Galbraith. Even in 1970, few people realized that time and circumstance were now on the side of the Chicagoans. But over the next dozen years, the Chicago school came to exercise great influ-

PTER 7

Economist's Hour

eller of 1970, the journalist Garry
s distinguished by a 'market' mode
even private) life." Wills went on
each with its reigning prophet: the
n Smith), the political (Woodrow
do Emerson), and the intellectual
ystems, Wills wrote, combined to
alous figure of Richard M. Nixon.[1]
both profound and half-baked.
ook's popular success signaled an
market" to intellectual respecta-
Vills made acceptable to a popular
stic if less boisterous welcome in
group of innovative scholars had
ing a similar message to students
"Chicago school" of free-market
orcements from a corps of young
ient with the policy activism fa-
go school exerted only moderate
occasionally a member might
riedman did with *Capitalism and*
owever, the Chicago economists
of most Americans, who took in
cs from the witty John Kenneth
eople realized that time and cir-
of the Chicagoans. But over the
hool came to exercise great influ-

ence on public policy in America and on regulatory policy in particular. During this brief period, three Chicagoans (Milton Friedman, Theodore W. Schultz, and George J. Stigler) were awarded Nobel Prizes in Economic Science.

In 1970, when *Nixon Agonistes* was published, *The Economics of Regulation* by Alfred E. Kahn also reached print. Kahn taught at Cornell, and he had been a liberal Democrat since the New Deal. In no sense did he belong to the Chicago school. Yet much in his book appealed to Friedman, Schultz, Stigler, and other Chicagoans: in particular, the arguments that regulation and competition are often at odds; that government officials often misunderstand the economic consequences of their decisions; and that market incentives are usually preferable to command and control regulations.[2]

At the time his book appeared, Kahn was not well known beyond the Cornell campus, where he served as dean of arts and sciences and as professor of economics. A few years later, he was a national celebrity. His success rested on the power and timeliness of his ideas, combined with a magnetic personality, which won him a series of political appointments. The first appointment came in 1974, when Kahn was named chairman of the New York Public Service Commission—at the time the most important state regulatory post in the country (and the highest paid, state or federal). In 1977 and 1978, he presided over the Civil Aeronautics Board, which then carried through the first major deregulation of an entire American industry. From 1978 until 1980, he chaired the president's Council on Wage and Price Stability and became known to the public as "the nation's chief inflation fighter." He was a media favorite, a fixture on the evening news.

A good deal of Kahn's newsworthiness derived from the simple fact that he was great copy. He loved Gilbert and Sullivan, enjoyed singing in amateur productions of *Iolanthe* and *Yeomen of the Guard*, and could quote hilarious lyrics from obscure operettas. In his best form Kahn was the model of a modern media general. When as chief inflation fighter he broached the possibility of "a deep, deep depression" and suffered the inevitable White House reprimand, he proffered a substitute word: "banana." That witticism prompted a second deluge of coverage. *Newsweek* called him "Alfred 'Bananas' Kahn," while a second magazine ran "The Sayings of Chairman Kahn." Even this did not end the game;

apprised of protests from banana interests, Kahn took fresh refuge in a new term, "kumquat."[3]

Later, when a Polish cardinal became Pope John Paul II, thus igniting a round of Polish jokes, Kahn—with his mind on the aberrant forecasts of his colleagues—solemnly declared that the new Pope had conquered Rome by telling economist jokes. For Kahn, one-liners became a trademark, even though he resisted the media's attempts "to make me a character," a "Walking Mouth." Profiled in the magazine *People* (surely one of few regulators ever selected for the honor), he complained afterward, "All life is a concatenation of ephemeralities." And during his tenure at the Civil Aeronautics Board, Kahn astonished Frank Borman and other Eastern Airlines executives, who were trying to educate him about the merits of different aircraft, by admitting that "I really don't know one plane from the other. To me they are all marginal costs with wings." Words seemed never to fail him.[4]

Yet to Kahn the principle of marginal costs—a fundamental tool of regulatory economics—represented no ephemerality and certainly no laughing matter. Unlike many other commissioners who shared his humanist values, he attached great importance to this favorite economic idea. He argued that in its neglect of marginal costs, more than at any other point, regulation had gone wrong. Once in office, Kahn determined to oversee improvements in regulatory practice by personally supervising the application of marginal-cost pricing.

Sound regulatory policy, he never tired of explaining, requires that buyers pay the marginal cost of all the goods and services they receive. If five units of an item cost $40 to produce and six units cost $60, then the marginal cost of the item is not $8 or $10 but $20. If the sixth unit is priced at $10 (that is, at average cost), consumers will purchase too many units—often not just one too many, but several—and since consumers have only a certain amount of money to spend, they will be able to buy too few units of other items, relative to what they would do under allocative efficiency. When goods and services are not priced according to marginal costs, therefore, consumers will automatically bring about a misallocation of society's resources. In order to prevent this unhappy result, Kahn believed, the prices of all goods and services should be set "at the margin"—that is, they should be pegged to the cost of producing one more unit at a particular time.

interests, Kahn took fresh refuge

became Pope John Paul II, thus
Kahn—with his mind on the aber-
-solemnly declared that the new
lling economist jokes. For Kahn,
, even though he resisted the
character," a "Walking Mouth."
surely one of few regulators ever
plained afterward, "All life is a
" And during his tenure at the
astonished Frank Borman and
who were trying to educate him
raft, by admitting that "I really
her. To me they are all marginal
never to fail him.[4]
rginal costs—a fundamental tool
ented no ephemerality and cer-
many other commissioners who
tached great importance to this
d that in its neglect of marginal
int, regulation had gone wrong.
o oversee improvements in regu-
ervising the application of mar-

ver tired of explaining, requires
of all the goods and services they
ost $40 to produce and six units
of the item is not $8 or $10 but
10 (that is, at average cost), con-
ts—often not just one too many,
have only a certain amount of
e to buy too few units of other
d do under allocative efficiency.
t priced according to marginal
tomatically bring about a misal-
order to prevent this unhappy
of all goods and services should
ey should be pegged to the cost
articular time.

But Kahn went further than this. He argued that marginal-cost pricing in regulated industries should also include the social cost of minimizing such "externalities" as air and water pollution. For an item such as electricity, pricing below marginal social cost would have not only the usual result of encouraging excessive consumption; it would also lead to the additional construction of expensive, polluting power plants, all the while driving the electric company toward bankruptcy. Remarkable as it now seems, this process was already underway in the state of New York in 1974, when Kahn became chairman of its Public Service Commission.

Kahn worked to persuade both producers and consumers of electricity that only some drastic change in the pricing system could avert disaster. Eventually he succeeded in getting marginal-cost principles partially incorporated into standard rate designs, so that they were factored into price levels. The resulting prices took the form of time-of-day differentials, designed in particular to discourage the careless use of air conditioning, which requires large amounts of electricity. Marginal-cost pricing nearly always raised difficult problems of implementation; but even so, in the case of New York, some of the practical changes were dramatic, as the difference between off-peak and peak hours now reflected the social cost of each type of use. In one of Kahn's "proudest accomplishments," for example, the New York Public Service Commission made summer air conditioning extremely expensive to consumers. As Kahn explained it,

> In Long Island, if you are a large residential user of electricity, you used to pay roughly five cents a kilowatt-hour, a damn high price no matter when you consumed it. Now you pay 3½ cents on a normal summer day per kilowatt-hour . . . and 2½ cents at night; and on summer days, when the temperature gets above 82 degrees, you pay 30 cents per kilowatt-hour. Now, that represents a much closer reflection to the comparative economic costs of your being supplied. Notice, this is a ratio of 12 to 1, as between night and a hot summer day, a much closer approximation to the respective marginal costs of supply. Think what that does to people's conservation habits. Think what it does to encourage the development of a technology that will enable you to use your electricity at night.[5]

The new pricing schedule discouraged careless use, checked the growth of demand, and diminished the need for new construction to serve the peak load.

Kahn liked to illustrate the point by comparing electric utilities to retail stores. To him, charging a flat rate for electricity regardless of the time of consumption seemed "like charging a flat price per pound for all items in a grocery or department store. What would happen if everything that came out of the cow—steak, hamburger, suet, bones, and hide—were priced at average cost per pound?" His answer, of course, was that everyone would buy steak and no one would want suet or bones. A basic principle emerged: "The only economic function of price is to influence behavior—to elicit supply and to regulate demand." No Chicago economist could have said it more clearly.[6]

A Scholar's Odyssey

That Alfred Kahn should become the nation's best known evangelist for marginal-cost principles—a set of ideas seldom associated with Kahn's liberal noneconomist friends—may seem ironic. Yet an explanation can be found in the long intellectual journey that marked his life. Kahn was born in Paterson, New Jersey, in 1917, the son of a Russian Jewish immigrant who worked in a silk mill. Young Alfred (or Fred, as he was called) soon proved to be an intellectual prodigy. At the age of fifteen he completed high school in New York City. At eighteen he graduated *summa cum laude* and first in his class from New York University, and before he turned twenty took a master's degree at NYU. He pursued further graduate work at the University of Missouri, then moved on to Yale for his doctorate.

During the same years, he also worked at a series of research jobs in Washington, for the Brookings Institution, the Department of Commerce, and the Antitrust Division of the Justice Department. Early in his career, Kahn began to acquire firsthand experience with the kind of policy-oriented social science research that was linking universities, foundations, and public bureaucracies into an integrated network with real power. For the next thirty years, he would continue to shuttle among the bases within this system. He worked with the War Production Board, the Federal Trade Commission, the staff of the Council of Economic Advisers, and as a member of the three-person Economic Advisory Council of American Telephone and Telegraph. And, whenever he needed to, Kahn returned to a stable anchorage: Cornell University and the life of a teacher and publishing scholar. He and his wife lived

IST'S HOUR

nt by comparing electric utilities
a flat rate for electricity regard-
eemed "like charging a flat price
cery or department store. What
t came out of the cow—steak,
e—were priced at average cost
se, was that everyone would buy
uet or bones. A basic principle
ıction of price is to influence be-
regulate demand." No Chicago
e clearly.[6]

the nation's best known evange-
a set of ideas seldom associated
friends—may seem ironic. Yet
ıe long intellectual journey that
Paterson, New Jersey, in 1917,
grant who worked in a silk mill.
called) soon proved to be an in-
ifteen he completed high school
e graduated *summa cum laude*
York University, and before he
ree at NYU. He pursued further
of Missouri, then moved on to

worked at a series of research
ngs Institution, the Department
Division of the Justice Depart-
gan to acquire firsthand experi-
ıted social science research that
ions, and public bureaucracies
real power. For the next thirty
le among the bases within this
Production Board, the Federal
Council of Economic Advisers,
on Economic Advisory Council
raph. And, whenever he needed
horage: Cornell University and
g scholar. He and his wife lived

in Ithaca, near the campus, and found it a wholesome place in which to raise their three children.[7]

Between 1940 and 1974, when he took his seat as chairman of the New York Public Service Commission, Kahn wrote two books and coauthored two others. All four proved to be major works. In addition, he managed to publish some two dozen articles and comments, most of them in the *American Economic Review,* the leading journal of the discipline. Nearly all of this writing reflected, in one way or another, the influence of his two principal advisers, Myron Watkins and Joseph Schumpeter. It also evidenced deep intellectual debts to the pioneering institutional economists, Thorstein Veblen and John Maurice Clark.

Kahn had begun graduate study in the 1930s, the last decade during which many of the leading economists in the United States were still avowed institutionalists. The giants in this distinctively American tradition—Richard T. Ely and John R. Commons of Wisconsin, Wesley Clair Mitchell and John Maurice Clark of Columbia, Schumpeter of Harvard—characteristically looked less to a deductive theory of prices and markets than to the social influence of economic institutions. Taking a cue from Veblen, they studied the sociological and anthropological aspects of such institutions as the leisure class, the business cycle, the capitalist legal system, the labor union, the business corporation, and the regulatory agency. This last "institution" proved especially important, and many institutional economists interested themselves in regulation. John R. Commons, Balthasar H. Meyer, and Rexford G. Tugwell, for example, actually helped to write regulatory legislation; they and many others also served as members of regulatory bodies.

In the late 1930s, when Kahn was coming of age as an economist, the institutionalist approach was moving steadily out of fashion, in the face of a revolution in macroeconomics—that subdiscipline devoted to the study of national economies. Of course, the Great Depression helped to stimulate this change by encouraging the new line of such work, including the masterpiece of macroeconomics, John Maynard Keynes's *General Theory of Employment, Interest, and Money* (1936). Within a decade, institutionalism had lost its eminence. Within three decades, Keynesian macroeconomics held the fort, overshadowing all other subdisciplines. Kahn stood as witness to the change.

In the meantime, classical microeconomics had slowly begun to

recover from an earlier slump of its own. Common topics of that subdiscipline included the theories of prices and markets pioneered by Adam Smith, John Stuart Mill, and Alfred Marshall. These giants of an earlier era had long dominated the field of economics. Over the first half of the twentieth century, however, the classical approach suffered three severe blows. The first came from institutionalism. Veblen, among others, savagely attacked Adam Smith's proposition that an invisible hand moved the free market automatically to serve the public interest, with no need for government intervention. The institutionalists asserted that here classicism was simplistic and merely deductive; it sacrificed both common sense and empirical observation to an alleged theoretical rigor that on close inspection turned out to be chimerical. As a case in point, argued the institutionalists, Smith and Mill offered no help for the human costs of industrialization. More than anything else, classicism's implicit assumption that whatever is, is right angered the institutionalists, who pointed to the Great Depression as a confirmation of their views. Clearly, the invisible hand—if there was one—had guided the world of the 1930s to disaster.

As if the institutionalist attack were not bad enough, classicism, like institutionalism itself, now began to suffer from Keynesian macroeconomics. For thirty years after the depression, many of the best advanced students were attracted to the new Keynesian theories. The remarkable performance of national economies offered a series of practical experiments for the benefit of those scholars and planners who thought in terms of aggregates. National economies were growing very rapidly, and only the "new economics" of Keynes seemed to offer clear explanations. Keynesian economists in many countries became the honored prophets of society.

At the start of the 1970s, however, the period of miracle growth abruptly ended, as a variety of powerful forces struck almost simultaneously: rising inflation, the first "oil shock," and intensified competition from Japan and other advanced industrial nations. Suddenly, in America, the old topics of classical microeconomics began to reassert their original value, as unfamiliar concerns about scarcity, overregulation, and the functioning of different types of markets again emerged to become the most serious problems for policy. In a short time, classical and "neoclassical" approaches (as

the redeveloping philosophy came to be called) took center stage. And with the revival of the classical framework came a resurgence of interest in marginal-cost pricing, already a favorite idea of Alfred Kahn's.

In fact, almost the entire intellectual history of twentieth-century economics played a part in Kahn's professional career. He entered graduate school during the late 1930s, at the ebb tide of institutionalism but before the flood of Keynesianism. Kahn understood microeconomics, yet felt a greater fascination with the macroeconomic side of his discipline. Even so, he emerged from his training as a disciple of neither school but as a broadly informed empiricist, equipped with an eclectic mixture of research tools, special interests, and what Keynes liked to call "propensities."

One propensity, inherited from his institutionalist forebears, committed Kahn to dissatisfaction with the status quo. In his first published article, an attack on American patent law appearing in the *American Economic Review* in 1940, the young scholar showed his reformism by protesting that the law unduly rewarded holders of patent pools, such as General Electric and other giant companies. Their "great research laboratories are only incidentally technological centers. From the business standpoint they are patent factories: they manufacture the raw material of monopoly." With its echoes of Veblen, this article was unmistakably the credo of an institutionalist. At the same time, it also bore the marks of a youthful impetuosity and a habit, which its author never outgrew, of saying more than he should—of issuing torrents of words, in part on extraneous subjects.[8]

Kahn's first book, *Great Britain in the World Economy* (1946), reflected broad research, careful thought, and the author's persistent effort to superimpose a theoretical framework onto an empirically dominated philosophy of institutionalism. The book seemed at once technical, historical, and theoretical. Well-written and bursting with energy, it was innovative chiefly in its eclecticism.[9] Like several of Kahn's subsequent publications, it also expressed his deep interest in development economics and in macroeconomics generally. In fact, except for the critical essay on patent laws, all of his work during the 1940s was directed at macroeconomic or international themes. Kahn himself moved from assorted government jobs in wartime Washington to a two-year stint teaching at

Ripon College in Wisconsin and later, in 1947, to an assistant professorship at Cornell, where he would remain. Many times, even after he became established as a scholar, he considered going to law school. He thought that a law degree, added to his training in economics, would increase his understanding of (and opportunity to influence) the making of public policy. As it turned out, he gained ample understanding and influence even without formal legal training.[10]

In the early 1950s, Kahn's interests began to shift toward regulation and marginal-cost pricing. The evidence appears in a second book and several articles on antitrust. Within the profession of economics, antitrust forms part of a larger field called industrial organization, which tends to combine some of the old policy concerns of the institutionalists with a more rigorous and theoretical analysis of market structures. The topic is microeconomic and heavily freighted with the ideological overtones that surround every discussion of the role of big business in a democratic society. If the central value implicit in classical microtheory was allocative and productive efficiency, the central value of antitrust—at least as the practical basis for enforcement of antitrust laws—seemed broader and fuzzier. For Kahn this new concern posed a dilemma he could not easily resolve. As a liberal Democrat writing in a time of national prosperity, he now found himself preoccupied less with the improvement of efficiency than with the promotion of social justice. In particular, he believed that national policy should not be misled by what he regarded as misdirected paeans to the American business system, such as David E. Lilienthal's popular book, *Big Business—A New Era* (1953) and John Kenneth Galbraith's *American Capitalism: The Concept of Countervailing Power* (1952).[11] Typical of the time in which they were written, both books derided antitrust controls as ineffective in promoting efficiency and, even worse, as harmful to American businesses threatened by international competition. Other analysts from both the political right and the left also argued for overhaul of the antitrust laws.[12]

Uncharacteristically, Kahn responded by defending the status quo. He insisted that the antitrust laws worked well and should not be altered. In a book he wrote with his colleague Joel Dirlam and in articles for the *Harvard Law Review*, the *Journal of Political Economy*, *Fortune*, and other periodicals, Kahn outlined a

thorough justification of the antitrust system. His argument took as its text not the deductive theories of microeconomics but the actual practice of antitrust control represented by leading judicial decisions.[13]

His book entitled *Fair Competition: The Law and Economics of Antitrust Policy* (1954) provides the most complete analysis of the problem. Here the burden of the argument, in particular its insistence that economics offers a poor guide to practice, departed from the approach Kahn would take in his later scholarly work and in his practice as a regulator. This episode turned out to be the intellectual crossroads of his life. In the pages of *Fair Competition* may be seen a struggle between the sentimental feelings of the liberal activist and the reasoned arguments of the analytical economist. In this case, for one of the few times in Kahn's professional life, sentiment routed reason.

The argument began on sufficiently sound footing. "One cannot simply equate the 'public interest' in a democracy with the 'consumer interest,' defining the latter as the interest of all citizens 'in getting more and better goods for consumption at ever lower prices.' " But from this solid platform Kahn and Dirlam stepped off into a quagmire. They asserted that even though the Sherman law promoted active government intervention in business decisions, "it represented, paradoxically, a departure from laissez faire in the ultimate interests of laissez faire." Through the device of "preserving the competitive regulator it [antitrust] would in the end minimize coercion."[14] Although the authors had a point here, they failed to recognize the connection between ends and means. Employing coercion as a means of minimizing coercion did not make sense. Whatever else antitrust prosecutions may have signified, they certainly were not undertaken "in the ultimate interests of laissez faire." Kahn and Dirlam also appear to have misunderstood the actual effects of antitrust policy. They too easily assumed that center firms must be the usual targets of prosecutors, ignoring the much greater impact antitrust actions had on loose horizontal combinations of peripheral firms—an impact that indirectly but powerfully promoted the rise of that very bigness in business which they themselves opposed.

Kahn and Dirlam worked themselves into a logical dilemma very much like the one experienced by Louis Brandeis forty years before. Their argument has a number of Brandeisian overtones: a

marked preference for small size, an assumption that consumers could be helplessly manipulated, and an abhorrence of advertising. As the authors describe what they see:

> In our society the individual's consumption pattern and the businessman's costs are surely not determined by truly untrammeled choices or truly free bargaining. Instead it is the business culture which imposes more or less invariable standards of the "good life" on consumers and fixes interest rates, wages, and other costs of doing business. And constantly disrupting the consumer's tranquillity are the advertising agencies . . . A large portion of our "highest per capita income in the world" consists in expenditures that are necessary to offset the horrible consequences of our unplanned, ugly, dirty, crime-ridden cities, and to keep up with the ubiquitous ad-man.[15]

Like Brandeis, Kahn and Dirlam moved from a disaffection with some of the aesthetic horrors of modern life to a rejection of the consumer values that seemed to underlie those horrors.

In a remarkable abnegation of their own profession, the authors went on to argue that because economists could never achieve unanimity, economics itself "does not offer clear-cut objective criteria for antitrust superior to those which have long prevailed" (that is, the legal criteria developed in judicial decisions). Certainly Kahn and Dirlam were correct to point out that economists, like other students of public affairs, did disagree about criteria for effective antitrust policy. But their argument for the irrelevance of economics on the grounds of economists' disagreements seems comparable to insisting that medical research has nothing to do with the care of patients so long as researchers continue to dispute over forms of treatment.[16]

Reading Kahn's book now, a generation after its completion, one reaches the conclusion that its analysis is largely confused and lacking in rigor. As a reviewer noted, the book falls between two chairs because "it mixes, in unspecified proportions, vague moral values and unsystematic economics."[17] To Kahn and Dirlam this kind of attack was especially painful, since they knew that in many respects they had written a courageous book. They had taken on all comers regardless of discipline, reputation, or popularity: falling between chairs sometimes cannot be avoided when scholars work at the borders of several disciplines.[18] It is now clear, however, that the real problem was not the lack of a disciplinary fit, but that the book exposed a significant division in Kahn's

an assumption that consumers
nd an abhorrence of advertis-
hey see:

umption pattern and the busi-
ed by truly untrammeled choices
e business culture which imposes
e "good life" on consumers and
osts of doing business. And con-
quillity are the advertising agen-
per capita income in the world"
sary to offset the horrible conse-
crime-ridden cities, and to keep

oved from a disaffection with
dern life to a rejection of the
derlie those horrors.
eir own profession, the authors
onomists could never achieve
t offer clear-cut objective cri-
which have long prevailed"
d in judicial decisions). Cer-
t to point out that economists,
did disagree about criteria for
rgument for the irrelevance of
nomists' disagreements seems
al research has nothing to do
esearchers continue to dispute

neration after its completion,
nalysis is largely confused and
d, the book falls between two
fied proportions, vague moral
"[17] To Kahn and Dirlam this
ful, since they knew that in
courageous book. They had
scipline, reputation, or popu-
mes cannot be avoided when
l disciplines.[18] It is now clear,
not the lack of a disciplinary
ignificant division in Kahn's

thinking about the problem of antitrust policy. That division, we have seen, originated in the mixed legacy of his graduate training; it grew more pronounced in the clash between his personal values and his increasing analytical powers.

In the years after publication of this book, Kahn's confidence in the rigors of deductive and theoretical research in neoclassical economics began to overcome his strong personal objections to the choices made by American consumers. Twenty-five years after the appearance of *Fair Competition,* he wrote a letter to the editor of a college newspaper, chiding the young journalist in language that Kahn himself would have done well to heed a quarter century earlier:

> You tended in your article to mix together your own tastes and values (most of which I share) with objective analysis; it is important to try to keep these two separate. For example, it is popular to define some kinds of consumption as wasteful and undesirable and others as necessary. But one of the values that we hold important in our society is the substantial freedom of each consumer to choose what to consume within the constraints of income. We let the individual decide how many children to have, how many cars, how much food. We let the individual decide how hard to work and on what to work jointly with any willing employer. We let people save and invest, work for wages or take entrepreneurial risk. We leave definition of want and waste to the market.[19]

These lessons came hard for Kahn. But he learned them well and then proceeded to teach them to others.

Toward Marginalism and a Masterwork

Alfred Kahn's transformation took place gradually over the 1950s and 1960s. In part, this change reflects important shifts in the basic economics of those industries that captured his attention; in part, change was in the man, as he grew older and developed new interests in fields dependent on neoclassical methods. His public declaration of this transition came in 1970, with the appearance of his *Economics of Regulation,* one of the most important books ever written on the subject. Here Kahn managed brilliantly to fuse the economics of institutionalism and classicism. That achievement, in its turn, led to a new phase of his career: in 1974, he entered public office as a regulator.

By the middle 1950s, shortly after the publication of his book on

antitrust, Kahn had begun to interest himself in the related area of regulation, particularly of the oil and gas industries. Again the evidence may be found in a book, which he wrote with another co-author and published in 1959 as *Integration and Competition in the Petroleum Industry*. Spinoffs from Kahn's research included articles on the control of crude oil production, an examination of the oil depletion allowance, and—most important for his future interests—a critical analysis of the Federal Power Commission and its role in the regulation of natural gas. Here he faced one of the most controversial and convoluted subjects in the entire history of regulation in America. The stakes at issue in oil and gas regulation were very high; by the late 1950s, the issues had developed such complexity that institutionalist economic methods could no longer be used to study them adequately. One reason for this is that oil and gas are joint products. They occur together in nature and the drilling for one often results in production of the other, without regard to what the driller intended. If one or both are to be subjected to utility-like price regulation, then joint production costs must be allocated between the two; this problem alone requires a mixture of economic and accounting theory that moves beyond the reach of institutional analysis. Indeed, any systematic thinking about the price issue requires a sophisticated application of neoclassical price theory, including the concepts of cross-elasticities, substitution, and marginalism.

Yet as a scholar steeped in institutionalist methods, Kahn enjoyed certain advantages. In the real world, neither oil nor gas was priced solely through the interaction of supply and demand. Instead, the prices of both were influenced by regulation. Oil was "prorationed" to market demand by the policies of state and federal agencies. It also was subject to a series of laws designed to help certain parts of the industry: schemes ranging from depletion allowances and other tax advantages to oil import quotas. By itself, natural gas also was regulated; it came under the purview of the Federal Power Commission, which engaged in a constant struggle to rationalize its pricing. Just at the time Kahn became interested in the subject, the FPC seemed to be failing in this job. As James Landis, in his *Report to the President-Elect* of 1960, reminded his readers, the FPC "represents the outstanding example in the federal government of the breakdown of the administrative process." The point was not lost on one reader at least.[20]

MIST'S HOUR

terest himself in the related area of oil and gas industries. Again the k, which he wrote with another co- s *Integration and Competition in* 's from Kahn's research included oil production, an examination of d—most important for his future the Federal Power Commission natural gas. Here he faced one of oluted subjects in the entire his- The stakes at issue in oil and gas e late 1950s, the issues had devel- titutionalist economic methods them adequately. One reason for roducts. They occur together in ften results in production of the e driller intended. If one or both price regulation, then joint pro- between the two; this problem mic and accounting theory that tional analysis. Indeed, any sys- ssue requires a sophisticated ap- eory, including the concepts of marginalism.

itutionalist methods, Kahn en- l world, neither oil nor gas was ion of supply and demand. In- uenced by regulation. Oil was y the policies of state and fed- o a series of laws designed to chemes ranging from depletion s to oil import quotas. By itself, ame under the purview of the engaged in a constant struggle time Kahn became interested e failing in this job. As James *t-Elect* of 1960, reminded his tstanding example in the fed- f the administrative process." r at least.[20]

Kahn knew that if he were going to do serious work on the regulation of oil and gas, he must master every relevant tool of economic analysis. To be sure, some of these tools belonged to institutional economics. But even more essential, he must learn to use better the methods of neoclassical microeconomics. His research into the pricing mechanisms of oil and gas had to be based on the theory of price. At this point in his career, Kahn began the final stage of his intellectual odyssey.

He now became directly involved in the difficult problem of pricing natural gas. In testimony before the Federal Power Commission during the early 1960s, he introduced a set of ideas that later became institutionalized as the "two-tier pricing system." Under FPC regulation, "old" gas, drawn from fields already discovered and producing, would be priced more cheaply than "new" gas, from fields brought into production more recently. Although at the time this seemed to Kahn a worthwhile idea (since it would prevent big companies from reaping unearned benefits from rising gas prices), in fact the two-tier arrangement raised a host of problems. Not only was the idea itself grounded in mistaken economic theory, but once in operation it also proved impossible for regulators to administer. Kahn later expressed his regret that, in attempting to impose discipline on large gas companies, he had "bequeathed to the nation an impractical system." In overestimating the actual degree of concentration in the natural gas industry, he had set in motion a policy that inadvertently penalized small companies along with large ones. Intellectually, it amounted to the same type of mistake made fifty years before by Brandeis, and indeed the same kind made only six years earlier by Kahn himself in his book on antitrust policy.[21]

But Kahn was learning fast now. He continued to study the natural gas issue, as he immersed himself in the vast multidisciplinary literature of regulation and started intensive work on his new book. As he later recalled, "My sense of the economics of all this [pricing of natural gas] didn't really get straight until I wrote my *Economics of Regulation.*" By 1967, Kahn had begun to chart the course of his masterwork and to present his early conclusions in several exploratory papers, each one delivered first at one of the many conferences on regulatory reform being held at this time. In 1970, the first volume of his great book appeared in print (volume two followed in 1971). *The Economics of Regulation: Principles*

and Institutions soon took its place as the leading textbook in the field of regulation. Measured by its impact on practitioners—both business executives and commissioners—it remains the most influential work written on the subject. Reviewers praised Kahn's "enormous job of scholarship," his "mature, confident and witty humanism," his "wholesome discipline and restraint." The book examined every aspect of economic regulation, from utilities and airlines to railroads and trucks; from externalities and the theory of second-best to the economics and politics of valuation and pricing.[22]

The triumph lies in Kahn's ability to join two subdisciplines of economics in what had long been regarded as an impossible synthesis. His intention is clear: "Together, the two volumes are an attempt to join neoclassical theory with 'institutional economics.' The latter is aimless if it is not informed by theory. And a normative theory of public policy is not of much use if it cannot be related to the selection of the best set of social arrangements for achieving those norms. Therefore, each volume [one subtitled *Principles*, the other, *Institutions*] is written with continuous reference to the other."[23] Fusing neoclassicism with institutionalism meant fusing economics with law, with history, with political science. It also meant analyzing the experience of public ownership in America and bringing together a colossal mass of heterogeneous material, much of it laden with misinformation and tainted with controversy. The two volumes totaled almost 600 large pages, with more than 1300 footnotes. Dozens of these footnotes were little articles in themselves: discussions of the legal, political, and economic literature of regulation and extended analyses of judicial decisions. Kahn brought all this off in a virtuoso performance, and thus made his escape from life's "concatenation of ephemeralities."

Most of *Principles* is devoted to an exposition of marginal-cost pricing. This approach was still unusual, but it foreshadowed Kahn's priorities when he later served as a regulator. Now, he wrote, "The economist who asks a politician 'Won't you let me advise you on your legislative program?' deserves another question in response: 'What do you *know*?' And only the economist who can answer 'Well, I can tell you that if you pass a law that says such-and-such, these are the things that will probably happen,' or 'If you do nothing about such-and-such, this is what will probably happen,' deserves to have his offer taken seriously." The message

ace as the leading textbook in the
its impact on practitioners—both
ssioners—it remains the most in-
ubject. Reviewers praised Kahn's
his "mature, confident and witty
cipline and restraint." The book
mic regulation, from utilities and
from externalities and the theory
and politics of valuation and pric-

ility to join two subdisciplines of
n regarded as an impossible syn-
ogether, the two volumes are an
ry with 'institutional economics.'
rmed by theory. And a normative
uch use if it cannot be related to
cial arrangements for achieving
me [one subtitled *Principles,* the
ith continuous reference to the
th institutionalism meant fusing
, with political science. It also
of public ownership in America
mass of heterogeneous material,
ation and tainted with contro-
most 600 large pages, with more
ese footnotes were little articles
egal, political, and economic lit-
d analyses of judicial decisions.
oso performance, and thus made
ion of ephemeralities."
an exposition of marginal-cost
unusual, but it foreshadowed
erved as a regulator. Now, he
a politician 'Won't you let me
ram?' deserves another question
' And only the economist who
hat if you pass a law that says
that will probably happen,' or
such, this is what will probably
taken seriously." The message

seems clear: in the arena of practical regulation, Kahn knew with a rare certainty that the economist's hour lay at hand.[24]

He could hardly have timed his book better. The two volumes appeared in 1970 and 1971, the early years of a period destined to be plagued by a set of economic problems newly christened as "stagflation." The marvelous postwar era of rapid growth had suddenly ended. Now, for utilities as for other industries, the future called for reduced markets. This prospect clashed with the prevailing business strategies of many utilities, especially electric companies. These companies had anticipated—based on steady growth of demand and increasing economies of scale in their new plants—that they would continue to build large projects and would need ever-growing amounts of capital. In terms of net capital investment, electric power was America's largest industry and also its most capital-intensive, requiring the greatest amount of investment to produce a given dollar of revenue. With the total invested capital measured in hundreds of billions of dollars, utilities faced a continuous obligation to pay their heavy burden of debt. For a generation after World War II, this problem did not seem serious. So long as sales increased and fuel remained inexpensive, so long as inflation remained moderate and interest rates on borrowed capital stayed low, so long as construction costs held steady and technological innovation continued—under these conditions the task of utility management was simple: to promote a steady growth of demand and to build the generating capacity to meet it.

By the time Kahn's *Economics of Regulation* reached the public, every element underlying this task had begun to disappear. National economic growth, which had averaged more than 4 percent a year for thirty years, dropped to 2.6 percent in 1969 and then further, to a negative .3 percent for 1970. (The average for the 1970s stood at 2.87 percent, nearly a third lower than the rate for the preceding three decades.) And the national inflation rate, which had averaged 2.5 percent a year in the 1950s and 1960s, climbed to 5.3 percent in 1971 and averaged 6.7 percent for the decade of the 1970s. These national trends meant that the economics of the utility business was about to be turned upside down.[25]

Stagflation represented bad news for utilities, and three additional developments made things even worse. First, the environ-

mental movement: again the watershed year was 1970, when the celebration of Earth Day ushered in the creation of a new federal Environmental Protection Agency. The sudden popularity of environmental concerns hit utilities hard. Power plants pollute the environment in almost every conceivable way—indirectly through the strip mining of the coal they burn, directly through smokestack emissions, thermal pollution of cooling water, and leakage of radioactive materials. To prevent pollution, even to control its sources, soon becomes extremely costly. A utility must pay for nuclear-waste facilities, scrubbers for high-sulfur coal, and towering stacks (some more than 1000 feet high), and all are expensive. A national consensus, however, required that environmental quality be improved, and it formed just when economic growth began slowing and when inflation and interest rates began rising.

A second problem emerged from the sudden slowing of technological progress in the design and fabrication of generating equipment. For almost a century after the construction of Thomas Edison's first electric power plant, technological progress brought steady gains in productivity. Engineers and utility managers had come to take such gains for granted, thinking they would continue indefinitely. Beginning in the 1960s, however, a technological plateau was reached in the industry, as yearly gains came to an unexpected halt, particularly in those large-scale electric generating plants on which most power companies relied. Between 1967 and 1976, utility executives discovered that the most technologically advanced plants, which used steam at very high temperatures to turn gigantic turbines, went out of service almost three times as often as smaller-scale plants. Bigger came to mean not necessarily better, only less reliable.[26]

Then late in 1973 the price of imported crude oil shot up to four times the summer 1973 figure. Utilities were stunned, especially those located in the northeastern United States—where the companies had earlier converted to oil as a fuel less polluting than coal—and where Alfred Kahn was about to become a key regulator.[27] With the shock of the new oil pricing, the last comfortable assumption of regulatory commissioners and utility managers disappeared, along with every shred of confidence in low interest rates, low inflation, high economic growth, and constantly improving technology.

atershed year was 1970, when the
ed in the creation of a new federal
ıcy. The sudden popularity of en-
es hard. Power plants pollute the
ıceivable way—indirectly through
ey burn, directly through smoke-
n of cooling water, and leakage of
nt pollution, even to control its
y costly. A utility must pay for
ers for high-sulfur coal, and
an 1000 feet high), and all are
however, required that environ-
d it formed just when economic
ı inflation and interest rates be-

m the sudden slowing of techno-
fabrication of generating equip-
er the construction of Thomas
, technological progress brought
ineers and utility managers had
ed, thinking they would continue
0s, however, a technological pla-
as yearly gains came to an unex-
large-scale electric generating
panies relied. Between 1967 and
d that the most technologically
m at very high temperatures to
f service almost three times as
r came to mean not necessarily

ported crude oil shot up to four
ilities were stunned, especially
United States—where the com-
il as a fuel less polluting than
about to become a key regula-
il pricing, the last comfortable
oners and utility managers dis-
of confidence in low interest
c growth, and constantly im-

The impact of these multiple revolutions transformed the entire economic picture. The overall effect on power companies can be gauged by the rapid rise in their combined requests for new rate increases.[28]

Quarter ending	*Cases filed nationally during quarter*	*Total increases requested*
3/31/70	12	$89 million
3/31/72	22	$171 million
3/31/74	45	$638 million

Because of accelerating inflation, utilities that based their rates on historical costs, as most did, had difficulty in meeting current expenses. Even when a regulatory agency did grant the requested rate increase in full, the time lag between petition and decision guaranteed that the companies would keep running faster and faster in pursuit of outdated targets. By 1974, the length of procedural delays averaged eleven months; and when inflation approached double digits, "regulatory lag" soon became a serious problem. All this set the stage for a warm reception of Kahn's work, which addressed itself directly to the revolutions in the underlying economics of utilities and of regulation in general.[29]

Ratemaking versus Stagflation

Kahn knew about the utilities' mushrooming revenue requirements, but he was even more concerned about the structure of their rates. Here, as he wrote in *Economics of Regulation*, Kahn could point to an area in which the professional economist might make a distinctive contribution, by starting from a foundation of marginal-cost pricing. The existing rate structures contained an implicit assumption that the costs of production would always be declining, as indeed they had done until the late 1960s. During those happier years, utility companies had experimented with declining-block rates, under which the price of a kilowatt-hour would be reduced with every increase in the total consumed, much like volume discounts for large purchases in retail stores.

A pioneer in this field, the publicly owned Tennessee Valley Authority, introduced as early as 1933 its radical declining-block rate structure:[30]

First 50 kwh per mo.	3.00 cents per kwh
Next 150 kwh	2.00 cents per kwh
Next 200 kwh	1.00 cents per kwh
Next 1000 kwh	0.40 cents per kwh

The central mission of the TVA was to encourage the widest possible usage of electricity, thereby improving the standard of living in the depressed Tennessee Valley region. This 3¢-2¢-1¢ rate schedule, based on a commercial jingle of the period that touted 3-2-1 Shoe Polish, directly promoted the goal. Fully electrified homes, each charged at an average rate of about 0.7¢ per kilowatt-hour, represented TVA's objective, at a time when the national average stood at 5.5¢. The agency took an enormous gamble: that, by slashing prices, it could multiply consumption and, further, that such increased consumption would permit savings based on scale economies in generation, which in turn would justify the price cuts already made. Only a government body could afford to take such a bold step, and the gamble did pay off. In one district located in Mississippi, as rates dropped from 7.40¢ to 1.58¢, usage more than tripled. By 1937, three years after the start of the experiment, the price of electricity in the entire TVA region stood at less than half the national average, and usage was about 60 percent greater.[31]

These results proved revolutionary. News of the TVA experiment stimulated thinking all over the world, especially the thinking of economists on the responses of utility customers to strong price signals. Kahn himself, while still a graduate student, became enamored of the experiment. One of his boyhood idols had been Senator George W. Norris, the "father of the TVA." And as Kahn remarked years later, "TVA did what regulatory commissions could not require private companies to do: set low rates and see what happened to demand and cost."[32]

Before fixing their rates, TVA's planners had made two important assumptions. First, all of the agency's generating capacity, including new production from hydroelectric dams under construction, would actually be sold. Only if this power was sold would the lower rates cover TVA's costs; that is, the "marginal cost curve" could tend downward only if usage tended upward. (Henry Ford had demonstrated the same principle years earlier, by making Model T's at less and less cost and then continuously cutting the selling price of each manufactured unit.) Second, TVA

3.00 cents per kwh
2.00 cents per kwh
1.00 cents per kwh
0.40 cents per kwh

was to encourage the widest pos-
improving the standard of living
lley region. This 3¢-2¢-1¢ rate
l jingle of the period that touted
noted the goal. Fully electrified
age rate of about 0.7¢ per kilo-
bjective, at a time when the na-
The agency took an enormous
, it could multiply consumption
consumption would permit sav-
generation, which in turn would
e. Only a government body could
nd the gamble did pay off. In one
s rates dropped from 7.40¢ to
y 1937, three years after the start
ctricity in the entire TVA region
al average, and usage was about

nary. News of the TVA experi-
the world, especially the think-
es of utility customers to strong
still a graduate student, became
e of his boyhood idols had been
ather of the TVA." And as Kahn
l what regulatory commissions
nies to do: set low rates and see
st."[32]

planners had made two impor-
e agency's generating capacity,
hydroelectric dams under con-
l. Only if this power was sold
A's costs; that is, the "marginal
l only if usage tended upward.
ne same principle years earlier,
less cost and then continuously
anufactured unit.) Second, TVA

assumed that the annual "load factor" for its system would soon reach 50 percent. Load factor, a vitally important statistic for every utility, expresses average usage by all customers during any given period as a percentage of their usage during the heaviest period of the year (or, simply, as a percentage of the utility's capacity). For electric companies today, the peak-load period often comes in midsummer, when residential consumers use their air conditioners. Thus, if the average load on a company's system is 75,000 kilowatts and the peak load 150,000, then load factor is 50 percent. Eventually TVA achieved such success that its load factor reached 70 percent, an extremely high figure among electric utilities.[33]

Such numbers are watched closely by all power companies because of the peculiar economics of the industry. Electricity, unlike most other goods and services, cannot be stored efficiently. It must be generated, transmitted, and consumed—in almost the same instant. This means that the companies must have enough generating capacity to meet not only the usual demands of their customers (average load) but also the highest demands (peak load). Since the companies are often required by law to serve all customers, whatever their demands, utility managers and regulatory commissioners have tended to assume that they themselves have little discretion in raising or lowering either the supply of electricity or the demand for it. Instead, company managers planned for the future by forecasting the total demand their customers would impose, then scheduling the construction of new generating plants to meet the pace of added demand. So the task of managing an electric utility largely amounted to planning and financing new construction. Managers gave little thought to measures that might affect consumer demand, except to promote ever greater consumption. This, in turn, had the effect of promoting more and more construction of new plants.

Utility managers acted in this way for several reasons. First, they felt the normal urge of business executives to encourage the consumption of whatever they sell. Second, and less obvious, they could factor the full cost of capital expenditures into their company's rate base and thus augment the potential revenues requested from the regulatory agency.[34] Finally, they could take advantage of the rapid rate of innovation in the technology of electric generation, particularly innovation within extremely large plants. Scale economies in this industry always seemed impressive;

in the post–World War II period, however, they looked to be unbelievably advantageous. Kahn pointed this out in one of his early papers on the subject. He said that the annual productivity increases in electric utilities averaged an astonishingly high 5.5 percent over the first half of the twentieth century. This figure dwarfed the 1.7 percent for the American economy as a whole during the same period. (At 5.5 percent per year, productivity will double every thirteen years. At 1.7 percent, it will double only every forty-one years.) The technology of electric power generation, therefore, was far outstripping innovation elsewhere in the economy—even *before* the construction of the gigantic and extremely efficient power plants that characterized the postwar period.[35]

The results of these innovations and scale economies could be read in a steady decline of the consumer's real costs. As Kahn later said, the real price of energy (not electricity alone) had dropped by 43 percent between 1951 and 1971, a period in which consumer prices as a whole rose by 56 percent.[36] Electricity seemed uniquely to be a bigger bargain every year. But then, at the close of the 1960s, this felicitous situation abruptly changed, and the real costs moved steadily higher during the 1970s and early 1980s. Inflation, stagnation, the environmental movement, rising interest rates, technological stasis, and the skyrocketing cost of fuel struck the industry simultaneously. Utilities' marginal-cost curves, which had shifted downward since the first Edison stations had opened nearly a century before, now moved ominously upward. Construction of new plants became almost prohibitively expensive. This meant that, for the first time in the industry's history, electricity coming from new plants would cost more than equivalent amounts from existing sources. Thus the declining-block rate structures in effect throughout the United States now gave exactly the wrong signals to consumers. Utility advertising campaigns, moreover, continued to urge greater consumption, which would inevitably lead to greater peak loads and increased demand for the construction of new power plants. The cycle seemed insane.

Into this setting, Kahn launched his *Economics of Regulation* in 1970 and then his own career as a regulator in 1974, when he became chairman of the New York Public Service Commission. For him the complex situation proved exhilarating rather than depressing; he knew that he had answers to the questions that baffled

d, however, they looked to be un-
pointed this out in one of his early
that the annual productivity in-
ged an astonishingly high 5.5 per-
twentieth century. This figure
American economy as a whole
ercent per year, productivity will
1.7 percent, it will double only
nology of electric power genera-
ing innovation elsewhere in the
truction of the gigantic and ex-
at characterized the postwar pe-

as and scale economies could be
sumer's real costs. As Kahn later
t electricity alone) had dropped
d 1971, a period in which con-
56 percent.[36] Electricity seemed
very year. But then, at the close
tion abruptly changed, and the
uring the 1970s and early 1980s.
nental movement, rising interest
skyrocketing cost of fuel struck
ies' marginal-cost curves, which
irst Edison stations had opened
oved ominously upward. Con-
almost prohibitively expensive.
in the industry's history, elec-
ould cost more than equivalent
Thus the declining-block rate
he United States now gave ex-
mers. Utility advertising cam-
ge greater consumption, which
eak loads and increased demand
ver plants. The cycle seemed

his *Economics of Regulation* in
regulator in 1974, when he be-
ublic Service Commission. For
d exhilarating rather than de-
ers to the questions that baffled

utility managers and other commissioners. In the last academic paper he published before taking his seat in Albany, Kahn returned to the theme of the economist's role in making policy. Clearly, Kahn felt very sure of himself, as he pointed to the place where answers would be found: "Applied microeconomics is the exciting new frontier of public policy."[37]

The New York Public Service Commission

Together with California and Wisconsin, New York for many years was acknowledged as a leader of regulatory practice. This had been the case since the early part of the twentieth century, when the movement to regulate electric and gas utilities began to spread throughout the country. Later on, a bewildering variety of other industries fell under state commissions, and in many states the same agency exercised jurisdiction over these industries as well as over electric and gas utilities. The New York commission in 1974 regulated more than forty, including telephones, buses, water supply systems, docks and wharves, and warehouses. The degree of authority actually exercised, of course, varied widely according to the industry, both in New York and elsewhere. It also varied according to the vigor and resources of the state commissions.[38]

In many other states, regulatory commissions served as dumping grounds for political hacks and cronies of the governor. So long as regulation remained unimportant—which it did, relatively speaking, during the years of steady economic growth and declining costs for utility services—membership on the commissions did not receive much public attention. Even during the boom years of increasing prosperity, however, a commissionership in one of the three leading states, and especially a chairmanship, offered a prestigious and desirable post for a talented candidate.[39]

Most state commissions had three members, but the numbers in 1974 ranged from one in Oregon to seven in Massachusetts and South Carolina. The typical term of office was six years, with staggered appointments designed to minimize the disruption from turnover and to provide some insulation from partisan politics. Governors appointed the commissioners in three-fourths of the states, voters elected them in one-fourth. Some states specified that consumer interests must be explicitly represented among the commissioners, and about half of these state agencies, like most

federal commissions, by law had to have minority party representation.[40]

The state and federal commissions were filled with lawyers, who together accounted for more than 80 percent of the total membership of some federal commissions and at no agency less than 50 percent. Their representation on state commissions was very large as well, and their domination of important regulatory jobs is a phenomenon full of significance for the study of the values reflected in the commissions' policies. In particular, lawyers and legal patterns of thought must be seen to underlie a tendency of the commissions to emphasize procedural due process rather than economic efficiency. Alfred Kahn is only one of many economists who have made this point in criticizing regulatory performance.[41]

As bureaucratic institutions, the state commissions varied greatly in size and complexity. Some were only slightly larger in 1974 than Charles Francis Adams' Massachusetts agency had been in 1874. New Mexico's commission had only 17 staff members. The Massachusetts commission, on the other hand, had grown to a total of about 120 full-time employees.[42] The New York Public Service Commission was second in size only to California's. As chairman, Kahn headed an agency of some 650 persons, with an annual budget in 1974 exceeding $12 million. Kahn received the highest salary of any regulator in the United States—about $51,000—and in addition enjoyed a chauffeur-driven limousine and many other benefits. A listing of his professional staff, together with their individual specialties, provides us with a useful index to the nature of the agency at the time Kahn took charge. Notice the dominance of engineers, accountants, and lawyers, and the minor role played by professional economists.[43]

Professional staff		*Division of labor*	
Inspectors and investigators	103	Chairman's office	17
Engineers	57	Energy division	231
Auditors	54	Acctg. and utility finance	97
Accountants	28	Communications division	92
Attorneys	21	Ofc of administration	79
Administrative staff	14	Ofc of general counsel	46
Rate analysts	13	Ofc of environmental planning	41
Hearing examiners (admin. law judges, mostly lawyers)	13	Water division	34
Economists	8	Ofc of hearing examiners	20
		Ofc of economic research	12

IST'S HOUR

to have minority party represen-

ons were filled with lawyers, who
80 percent of the total member-
s and at no agency less than 50
state commissions was very large
nportant regulatory jobs is a phe-
e study of the values reflected in
cular, lawyers and legal patterns
e a tendency of the commissions
ocess rather than economic effi-
of many economists who have
ılatory performance.[41]
the state commissions varied
me were only slightly larger in
Massachusetts agency had been
had only 17 staff members. The
other hand, had grown to a total
[2] The New York Public Service
ly to California's. As chairman,
50 persons, with an annual bud-
Kahn received the highest sal-
States—about $51,000—and in
en limousine and many other
l staff, together with their indi-
a useful index to the nature of
harge. Notice the dominance of
, and the minor role played by

Division of labor

Chairman's office	17
Energy division	231
Acctg. and utility finance	97
Communications division	92
Dfc of administration	79
Dfc of general counsel	46
Dfc of environmental planning	41
Water division	34
Dfc of hearing examiners	20
Dfc of economic research	12

Even though its economic expertise far surpassed that of regulatory agencies in most states, the New York commission did not emphasize economic analysis in its work. For Kahn this situation posed a dilemma. He could not inaugurate major new hirings because the commission's budget was practically frozen. This left two alternatives. He could attempt to overhaul the present staff, letting go some of the inspectors, investigators, engineers, accountants, and lawyers, and hiring trained economists in their places. Or he could try to convince his existing staff members that economics must be relevant to their own jobs, even though many of them had been doing their work for years without any formal training in the discipline. Neither choice seemed to provide an easy road to popularity. Even so, the prospect of retooling his commission staff appeared to Kahn entirely feasible as he looked outward at the condition of the utility industry in 1974.

The Commission's Strategy

The combined impact on New York's electric utilities of inflation, higher fuel costs, technological stasis, and other forces may be gauged in the history of rates charged by the Consolidated Edison Company, the state's largest utility. Con Edison served Greater New York City, and there residential customers saw the average monthly electric bill double quickly during the early 1970s.[44]

1965	$ 9.68
1970	10.65
1974	22.08

In 1974, even with these higher rates, Con Edison still found itself in the worst financial shape in its history. So it naturally expected to request from the Public Service Commission still another large increase in rates during 1975.

Kahn anticipated this situation and came into office with a clear idea of what he should do. As a fundamental strategy, he planned to reform rate structures so as to make them reflect true costs. Of course he wanted to do this not for Con Edison only, or even for electric utilities alone, but also for gas and telephone rates. As an economist, he knew that such free services as telephone directory assistance were in fact not free at all. They were subsidized by

other charges that subscribers who never dialed Information paid as part of their bills. Kahn believed that each consumer should pay for services actually received and for no others. Yet his studies had convinced Kahn that such subsidies were being paid on a large scale. He found the rate structures of nearly all the state's utilities to be shot through with unfair distortions, resulting in general abuse: some consumers were subsidizing others, and nearly all customers were receiving signals to buy when they should be warned to conserve. Kahn accepted the chairmanship with a conviction that only decisive action by the commission could correct these signals and encourage conservation. If the commission acted quickly, moreover, it might help slow or even reverse New York electric utilities' ominous drift toward bankruptcy. Kahn's strategy was to make electric rates coincide with the companies' accelerating current costs, and not with obsolete, mythical patterns predicated on a continuing decline in costs.

Now the question became not what to do but rather how to do it. How could Kahn convince his fellow commissioners, his 650-member staff, the utilities themselves, and eight or ten different classes of consumers that the old practices of the companies and the commission were inappropriate to current reality? Generally in the American regulatory system, commissions act as collegial bodies, led by chairmen who have little more power than do each of their colleagues. Chairmen possess almost no executive authority; they cannot compel anyone (except a member of their personal staffs) to do anything. Such use of force did not suit Kahn's style in any situation. His strength was persuasion, not dictation. For twenty-seven years he had been one of Cornell's best teachers, as his classes filled with students eager to hear his famous lectures. He excelled in small seminars as well, helped by an engaging manner, wit, and conviction. These same qualities would work for him in the commission setting, as Kahn the master teacher determined to win over a new group of students: the commission staff.

To begin, he did almost no hiring or firing but instead worked with a few carefully chosen pupils, then a few more, spreading his message in widening circles. Even those who disagreed with a marginal-cost philosophy had to respect Kahn's learning, and nearly all staff members appreciated his informal manner. A visitor from the *New York Times* found him padding around the office in his socks. Kahn spent little time behind his desk, wrote this

ıo never dialed Information paid
d that each consumer should pay
for no others. Yet his studies had
lies were being paid on a large
s of nearly all the state's utilities
distortions, resulting in general
dizing others, and nearly all cus-
ɔuy when they should be warned
chairmanship with a conviction
commission could correct these
tion. If the commission acted
slow or even reverse New York
ward bankruptcy. Kahn's strat-
coincide with the companies'
ɔt with obsolete, mythical pat-
decline in costs.
vhat to do but rather how to do
fellow commissioners, his 650-
lves, and eight or ten different
practices of the companies and
te to current reality? Generally
n, commissions act as collegial
little more power than do each
ɔssess almost no executive au-
ɔne (except a member of their
Such use of force did not suit
rength was persuasion, not dic-
had been one of Cornell's best
udents eager to hear his famous
inars as well, helped by an en-
n. These same qualities would
setting, as Kahn the master
ew group of students: the com-

g or firing but instead worked
then a few more, spreading his
those who disagreed with a
respect Kahn's learning, and
d his informal manner. A visi-
him padding around the office
e behind his desk, wrote this

Times reporter, preferring instead "the informality of a bentwood rocking chair and a pair of couches that fill a corner of the office." The chairman "is an educator at heart who believes that he can convince any rational person of the rightness of his position."[45] Small wonder that the press felt an interest in this new kind of bureaucrat. Yet Kahn was not merely putting on a show for reporters. Such informal behavior was his pattern throughout three years on the Public Service Commission. He talked endlessly with his staff about the principles of marginal-cost pricing. He delighted in teaching them at every opportunity: over lunch, in meetings, even at the daily swims he initiated. Immersed in the water, visible only from the neck up, Kahn lectured on the technicalities of cross-substitution, elasticities of demand, and marginalism. For a professor in his late fifties, he seemed amazingly youthful and vigorous and, above all, sincere.[46]

Kahn's friendly manner proved especially important in his effort to convert the commission's rate engineers. Because of the technological history of electric utilities—improved technology as a basis for the steady growth of scale economies and declining rates—engineers became much enamored of the usual system of volume discounts for businesses and declining-block rates for home consumers. In the engineers' view, large users of electricity deserved to pay less per unit consumed. On other hand, the engineers also felt close to panic over the current situation, which they clearly saw as an unprecedented crisis.[47] They defined this crisis as one of "revenue erosion" for the companies: costs were accelerating faster than revenues, and this produced a conflict between the volume-discount rate structures and the upward movement of marginal-cost curves. Here Kahn's marginalist approach provided his engineers with a convenient solution to the problem of revenue erosion. For a time, the engineers remained skeptical about marginalism because so much was left to guesswork. Kahn told them that marginalism was indeed difficult to implement, that it was full of subjective judgments. His candor seemed appealing yet, given their training, the engineers naturally preferred precise solutions over rough approximations. To meet their objections, Kahn again and again asked them, "Do you want to be precisely wrong or approximately right?" Ultimately he won them over.[48]

When approached by people from outside the commission, Kahn took a conciliatory position. He insisted that all parties for-

get their anger of the moment and take a longer view. Much as Charles Francis Adams had done a century earlier, Kahn emphasized the unity of interests between companies and customers. Also like Adams he used the *Annual Reports* of the commission to set forth his strategy in explicit terms. The commission's aim, he wrote in his first report, was to set policy not in a series of dramatic and episodic rate cases, but in a continuum—to relate the past to the present and the future. In the 1950s and '60s, Kahn wrote, rate cases were rare, problems not serious. Both producers and consumers benefited from the declining-block rate structure. The world of the 1970s was very different. Inflation, tight money, and high interest rates had brought from the utilities an endless stream of requests for rate increases, and the response by consumers had been equally reflexive. "All too often," Kahn wrote, "the proponents [of] 'consumerism' interpret their responsibility as one loudly opposing any and all rate increases." This too was understandable. But because of strong pressure from consumers, "it should not be surprising that regulators in 1974 generally squeezed utility profits harder than may be in the consumer's long-term interest." Kahn expressed his determination to regulate with an even hand, favoring neither producers nor consumers.[49]

Generic Rate Hearings

The regulatory process in the United States has been desultory in character. State and federal commissions, somewhat like courts, have seldom initiated action on their own, but instead have responded to petitions or complaints. As a consequence of this reactive role, they find it difficult to change policies quickly, especially when such changes are opposed by powerful interest groups. These groups are often ready to prevent loss of advantage by falling back on litigation calculated to delay any change.

Kahn knew that, in New York, he could not allow for these normal delays, despite the high level of controversy that surrounded his ideas. The commission must move quickly, rather than wait for utility companies to initiate proceedings, especially since nothing could be expected of the companies except additional requests for rate increases. The major problem, Kahn believed, lay not with rate levels (the total amount of revenue needed by the utilities) but rather with rate structures (the mix of charges to different

nd take a longer view. Much as
a century earlier, Kahn empha-
veen companies and customers.
ual Reports of the commission to
erms. The commission's aim, he
et policy not in a series of dra-
t in a continuum—to relate the
re. In the 1950s and '60s, Kahn
ems not serious. Both producers
declining-block rate structure.
different. Inflation, tight money,
ht from the utilities an endless
es, and the response by consum-
ll too often," Kahn wrote, "the
rpret their responsibility as one
ncreases." This too was under-
pressure from consumers, "it
tors in 1974 generally squeezed
n the consumer's long-term in-
nation to regulate with an even
or consumers.[49]

d States has been desultory in
issions, somewhat like courts,
eir own, but instead have re-
As a consequence of this reac-
ge policies quickly, especially
by powerful interest groups.
vent loss of advantage by fall-
delay any change.
could not allow for these nor-
controversy that surrounded
quickly, rather than wait for
ings, especially since nothing
except additional requests for
Kahn believed, lay not with
enue needed by the utilities)
mix of charges to different

classes of customers spread over different blocks of electric power). These structures could not be altered by the usual process of increase after increase.[50]

Confronted with the dilemma, Kahn found his answer in the device of holding not individual rate cases but a "generic hearing" instead. His hearing would amount to an intensive study of the rate question, conducted outside the heated atmosphere typical of the usual rate case. Not one company but all companies would be involved, and testimony would include evidence from environmental experts and other specialists interested in the proceedings. Best of all from Kahn's viewpoint, he himself might be able to shape the procedures and influence the outcome far more than in the usual commission hearing. In short, he viewed the generic hearing as a novel opportunity to educate all parties on the benefits to them of marginal-cost pricing. Confidently relying on his own ability to convince doubters, Kahn foresaw enormous gains and very little risk.[51]

Yet he sought to reduce the risks still further by cultivating a set of useful allies, among them the Environmental Defense Fund. For several years this organization had been intervening in regulatory proceedings throughout the United States, at first from an almost purely adversarial position. Like many other environmental groups, it tended to oppose almost all projects, especially the construction of new power plants. As time wore on, some staff members of the Fund, in particular a young lawyer named Edward Berlin, began to search for ways in which the organization could make a more positive contribution.

This quest led Berlin to the device of marginal-cost pricing for electricity. But whereas Kahn's motivation in advocating marginalist principles was to hold down the need for rate increases, and to achieve allocative efficiency in the economic sense, that of Berlin and his colleagues emphasized the use of a new price system as the means of slowing new construction of generating plants. The traditional declining-block rate structure had encouraged greater use of electricity and more new construction. But now, if utility customers could be persuaded through price signals to reduce their consumption (or to shift consumption to off-peak hours), then existing plants could better serve their needs. New construction could be delayed, perhaps defeated altogether, and the environment would be protected. This general line of thinking led the

Environmental Defense Fund to adopt a spirited advocacy of marginal-cost pricing. Kahn already knew Berlin and others in the Fund through a consulting firm of economists with which Kahn himself had been affiliated. Berlin and the consulting firm had participated in a pioneering marginal-cost case in Wisconsin.[52] Based on that experience, the Fund quickly accepted Kahn's invitation and petitioned the New York Public Service Commission to hold generic hearings. In this way, the initiative for the new hearings seemed to derive from a broader base of interest than if it came from Kahn alone.

Still, assistance from the Fund could prove a mixed blessing. If the new chairman seemed to align himself with an interested party in a rate hearing, he would be courting serious trouble—and doubly so because of Kahn's prior connection with the consulting firm, which was also expected to take part. Kahn met this difficulty by broadening his support even more. He asked the chief executive officers of New York state's seven major utilities to come to his office in Albany for a conference. Gathering them all in one room, he explained his devotion to marginalist principles, listened to their views, and went on to persuade them to petition as a group for the generic rate hearing. They agreed to his choice, and Kahn had scored a great coup. Now the most important utility companies were joining with a leading environmental group to ask the commission to do what the chairman had wished in the first place.[53]

The various companies had different reasons for joining in this petition. Several had already become interested in marginalist principles themselves as possible alternatives to declining-block structures. Others regarded a generic hearing as a harmless academic exercise, and they wanted to appear cooperative. And a few others of the seven saw the hearing as a welcome opportunity to delay more serious actions by the commission. In all, the year 1974 was a very bad one for utilities, not only financially but also because the first oil crises of the 1970s had tarnished the already poor image of oil companies and electric utilities. Everywhere consumers were angry, and companies hoped that a generic hearing might last long enough for passions to cool. They knew that the normal rate case in New York lasted no more than eleven months from the calling of the first witness to the final order of the commission. But it seemed possible that a generic hearing could go on indefinitely.

adopt a spirited advocacy of
dy knew Berlin and others in the
of economists with which Kahn
in and the consulting firm had
rginal-cost case in Wisconsin.[52]
d quickly accepted Kahn's invi-
k Public Service Commission to
the initiative for the new hear-
ader base of interest than if it

could prove a mixed blessing. If
gn himself with an interested
e courting serious trouble—and
connection with the consulting
take part. Kahn met this diffi-
en more. He asked the chief ex-
seven major utilities to come to
ce. Gathering them all in one
marginalist principles, listened
ersuade them to petition as a
They agreed to his choice, and
ow the most important utility
ing environmental group to ask
airman had wished in the first

rent reasons for joining in this
ome interested in marginalist
lternatives to declining-block
ric hearing as a harmless aca-
appear cooperative. And a few
as a welcome opportunity to
mmission. In all, the year 1974
t only financially but also be-
had tarnished the already poor
utilities. Everywhere consum-
d that a generic hearing might
l. They knew that the normal
e than eleven months from the
l order of the commission. But
aring could go on indefinitely.

Kahn assumed office in the summer of 1974; his generic rate hearing began in January 1975 and ran in intermittent session for more than eighteen months. The entire written record comprised some 5000 pages of testimony and cross-examination. In all, twenty-two parties submitted briefs, many of them extremely detailed. Among numerous witnesses called to the stand were a score of experts on the theory of marginal-cost pricing, including some who thought it impractical. Kahn opened the proceedings by warning all interested parties that this hearing was not to be an exercise conducted solely for lawyers. In language again reminiscent of Adams' approach a century earlier, the chairman told the participants, "I may call for innovations in our procedures . . . I hope we can proceed as cooperative seekers of the truth, rather than as adversaries seeking an advantage over one another."[54]

So the hearing went. The chairman himself presided, and most of the sessions resembled academic seminars more than formal rate hearings. Kahn insisted on organizing groups of witnesses into panels, then lining up each panel face to face with a similar lineup of attorneys, who sat side by side at another table. The lawyers took turns asking questions. Kahn encouraged interruptions, especially his own, after the witnesses had given their presentations. As might have been expected, some of the lawyers objected to these unusual procedures. Counsel for one group of industries filed a formal motion asking that Kahn be disqualified from the hearings because of his "preconceived notions regarding the appropriate elements of rate design" and for having "departed from his quasi-judicial role as a regulator." The chairman, his challengers argued, had "indulged in extensive cross-examination" and made "extensive extrajudicial comments on the record." In other words, Kahn had failed to behave like a judge at a courtroom trial.[55]

In response to this motion, Kahn presented a statement addressed to the whole commission:

> I have adjured all parties to look upon at least the theoretical phase of the proceedings as an intellectual exercise, to treat it in the nature of a running seminar, in which our purpose was essentially to explore certain academic ideas. That is the spirit in which I have behaved whenever I have presided. I have never pretended to play the role of a passive receiver of evidence . . . I intervened freely—attempting, however, not to interrupt the train of a lawyer's cross-examination—to make certain that I understood what a witness was saying and what he was not saying, to

test his ideas, to offer hypotheses of my own in order to get his reaction . . . I propounded problems—questions of whose answers I was myself uncertain; and when the witness was uncertain about the answer I asked him, and all the others, to think about it. No witness, of whatever point of view, was ever denied an opportunity to express his opinion, as fully as he wished.[56]

As expected, the commission ruled against the motion to disqualify Kahn. Certainly, he did not feel at all defensive about his behavior. He could not have been happier about the way the hearings went, especially since publicity remained favorable throughout. In a remarkable parallel development, Edward Berlin of the Environmental Defense Fund was appointed to the commission a few months after the hearings began. Berlin excused himself from further participation and took no official role in the hearings. Kahn, on the other hand, not only continued to preside but also evangelized about the proceedings in many speeches to outside groups. During one address to a meeting of investment analysts, he confessed, "I am having the time of my life running that seminar."[57]

The generic hearing did not convince all parties about the benefits of marginal-cost rate structures. But it convinced many. The final lineup for and against can be summarized.[58]

Strongly affirmative
Long Island Lighting Company
Environmental Defense Fund
Federal Energy Administration
City of New York
Chemung County Neighborhood Legal Services

Affirmative but less strongly so
Consolidated Edison Company
Central Hudson Company (utility)
New York State Electric and Gas Co.
Orange and Rockland Co. (utility)
Public Service Commission Staff
State Consumer Protection Board

Strongly opposed
Airco (large industrial user of electricity)
General Services Administration (federal agency)
Industrial Power Consumers Conference
Multiple Intervenors (industrial customers' group)
Niagara-Mohawk (large utility)
Rockland County Industrial Energy Users Association

Although Kahn had obviously not won all the parties to his side, he had achieved the next best thing: he had divided the potential opponents. What might have been a united front of utilities standing against his proposals had been split into three distinct groups. At

this point, the only adamant opposition to marginal principles came from large industrial and commercial users of electricity, who feared paying higher rates under time-of-day pricing schemes. Otherwise, Kahn had begun to teach his lessons to an admiring and sometimes enthusiastic group of listeners. Even so, his work had only started.

Installing New Rate Structures

The hearing on marginal-cost principles opened the way to actions on several fronts at once. Choosing their arenas carefully, Kahn and his fellow commissioners moved to put their ideas into effect as quickly as they could, for at least one large electric utility. This utility would be a model for their demonstration. All other power companies, the commission ordered, must prepare and submit plans for implementing similar rates. The model chosen for electric rate reform, and the first major utility to file under the new plan, was the Long Island Lighting Company (LILCO). As indicated in the list above, LILCO strongly supported Kahn's marginalist position. The company knew it needed help; it had a poor load factor, a heavy burden of debt, and a rapidly growing demand for its electricity during the summer months. With both company and commission anxious to institute marginal-cost-based rates, no obstacle appeared to stand in the way of a quick reform of the declining-block structure.[59]

While he recognized these advantages, Kahn remained cautious. A single mistake in implementing the plan would give support to his opponents among the large industrial users. As he mulled over this problem in one of many brainstorming sessions with his staff, Kahn came up with the idea of giving a financial guarantee to all customer classes, large industrial users included: a solid reassurance that, *as a class*, no group would pay more under the new system than they had under the old. In this way, businesses would not have to subsidize householders or vice versa. All necessary adjustments would be confined to shifts within (and not between) customer classes.[60]

While the lawyers and rate engineers on the commission staff regarded the chairman's proposal as a stroke of political genius, the economists protested that such a guarantee would require a

significant departure from pure marginalist principles. But Kahn knew that the commission needed good will to nurture its mandate; it must take care not to create additional enemies. A guarantee of no increase for any class of customer meant that no solid phalanx of opposition to the commission would develop, and "rate reform" would not be used as a political vehicle to soak business. Of course, some of the industrial users would pay more under the new system, but at the same time others would pay less; the winners and losers could not be expected to combine in a common cause against marginalism. With these anticipations, Kahn decided to move ahead, and his staff economists reluctantly agreed.[61]

The chairman presented the new commission plan to about forty industrialists at another meeting in his Albany office. This time many members of the group arrived in an angry mood. Several were already on record as having demanded Kahn's impeachment. As assistant to the chairman recalls the scene:

> Fred's handling of that meeting was simply a delight to watch . . . Somebody asked whether or not there could be other values than efficiency taken into account in setting prices, like fairness. Fred said something to the effect that we've got to set prices some way, and that setting them in accordance with cost seems the most logical way to do it. If you want to argue for something else you're going to lose. He said that—he, simply with fist in hand, said [to the business customers] that—"you're going to lose." Then he posited the question, "Why?" and answered, "because if prices are set in some fashion other than on the basis of cost, then it's the political process which will set prices and the political process asks who will gain and who will lose. And let's see who's going to gain? Schools will gain, hospitals will gain, the small business user will gain, and the residential customer will gain. And who will lose? You are going to lose . . . it's not the little guy but the industrialists that they are going to sock it to . . . you ought to stand up and cheer this proposal, because it is the only thing that will save you."[62]

Kahn's mixture of logic with unsettling prediction drove his points home, one after another. Most of the industrialists caved in.

The new LILCO rates represented a compromise between pure marginalist principles and political reality. As a model, this structure proved practical and enlightened. Marginalist thinking was reflected powerfully in time-of-day pricing differentials that penalized summer peak users and rewarded off-peak consumers. Here the chronic marginalist problem of precise measurement

marginalist principles. But Kahn
ded good will to nurture its man-
eate additional enemies. A guaran-
of customer meant that no solid
mission would develop, and "rate
political vehicle to soak business.
users would pay more under the
e others would pay less; the win-
pected to combine in a common
h these anticipations, Kahn de-
f economists reluctantly agreed.[61]
new commission plan to about
eeting in his Albany office. This
arrived in an angry mood. Sev-
ving demanded Kahn's impeach-
n recalls the scene:

simply a delight to watch . . . Some-
uld be other values than efficiency
ike fairness. Fred said something to
some way, and that setting them in
logical way to do it. If you want to
g to lose. He said that—he, simply
customers] that—"you're going to
'Why?" and answered, "because if
an on the basis of cost, then it's the
and the political process asks who
see who's going to gain? Schools
ll business user will gain, and the
ho will lose? You are going to lose
rialists that they are going to sock
eer this proposal, because it is the

ing prediction drove his points
ne industrialists caved in.
d a compromise between pure
reality. As a model, this struc-
ned. Marginalist thinking was
ay pricing differentials that
rewarded off-peak consumers.
lem of precise measurement

(which came down to a problem of installing meters that would record usage by time of day) seemed to be solved by applying the new rates at first only to LILCO's 750 largest consumers, all of them business firms. These customers could afford the cost of new meters, which ranged from $400 to $4000. Within a few years, time-of-day rates had been applied to many other customers, and the price spread between peak and off-peak had reached a ratio of twelve to one (30¢ per kilowatt-hour on a hot summer day versus 2½¢ on a winter night). Kahn's marginalist approach had been vindicated by evidence drawn from real experience.[63]

The LILCO case proved to be a landmark in the history of regulation in the United States. For the first time, after an exhaustive generic hearing followed by a brief rate case involving a single company, marginal-cost principles had been put into operation on a large scale. Chairman Kahn deserved the credit. Working assiduously over a two-year period, he artfully shaped a political consensus among unusual bedfellows: environmentalists, electric utilities, consumer groups, business firms, and residential customers. At the same time, he neutralized all significant opposition to his own strategy. Much like James Landis at the SEC, Kahn deliberately modified his thinking in order to get the policy exactly right. But then he moved on with equal care to the issue of implementation. Thinking perceptively about the nature of the opposition both inside and outside the commission, Kahn isolated the interest of every opponent in turn. One by one, he enlisted each of them in his cause, winning now by force of intellect, now by charm and cajolery, now by political compromise. It was nothing less than a tour de force of regulatory strategy.

Still, a strategy for electric utilities represented only one part of Kahn's program. Even in the midst of the generic rate hearing, the commission found time to deal with the perennial problems of Consolidated Edison, as they ordered the elimination of declining-block rate structures for that company's millions of residential customers in New York City. Simultaneously, Kahn and his colleagues demanded that all electric utilities in the state prove that their declining-block rates were cost-justified. The commission next forbade the inclusion of gas and electric charges in rental payments for new apartments. Kahn's reasoning here was that, when tenants paid lump-sum rents that included utility bills, they would have no incentive to conserve. Given the psychology of landlord-tenant

relations, some renters actually delighted in wasting energy at their landlords' expense. Under the new rules, tenants would pay utility bills separately from rents. Finally, at Kahn's behest, the commission instructed several utilities to submit their practices to systematic review, done under contract by management-consulting firms. Here the purpose was to offset the effects of the cost-plus philosophy that still permeated companies under traditional rate regulation. If rates were to be based on costs, it was important for both the utilities and the commission to understand as fully as possible the nature and extent of costs. Since the companies seemed unable to explain their costs adequately and the commission lacked the necessary staff, both needed help. Again, Kahn's strategy resembled Landis' with the SEC: where Landis used accountants to gather essential data, Kahn used consulting companies. The approach opened the way for a broader application of Kahn's regulatory philosophy.[64]

New York Telephone

For many New Yorkers, the most vivid illustration of Kahn's approach to regulation came from his two highly publicized battles over telephone rates. In one, he fought against the New York Telephone Company, trying to alter its rate structure. The other battle pitted him against consumer groups, on the issue of charges for directory assistance.

Throughout most of his career, Kahn displayed as much interest in telecommunications as in any other area of regulation. He served on the economic advisory board of American Telephone and Telegraph, where he learned that the company made a policy of bundling its charges. That is, the Bell System, partly in keeping with its slogan "The System Is the Solution," did not like to publish cost data on individual parts of its business: long distance, local telephone service, Bell Labs, Western Electric, Yellow Pages advertising, and equipment rentals. Instead, Bell preferred to price its services as a "bundle," without direct reference to their individual costs. This practice offered the company wide discretion in deciding which segments of the business would subsidize other segments. Bundling provided a valuable management tool because it permitted Bell executives to raise or lower long-distance and local-service rates as market opportunities or political

ally delighted in wasting energy at
ler the new rules, tenants would pay
rents. Finally, at Kahn's behest, the
utilities to submit their practices to
r contract by management-consult-
s to offset the effects of the cost-plus
ed companies under traditional rate
based on costs, it was important for
nmission to understand as fully as
nt of costs. Since the companies
costs adequately and the commis-
both needed help. Again, Kahn's
h the SEC: where Landis used ac-
data, Kahn used consulting com-
ne way for a broader application of

st vivid illustration of Kahn's ap-
his two highly publicized battles
ought against the New York Tele-
its rate structure. The other battle
ups, on the issue of charges for di-

Kahn displayed as much interest
y other area of regulation. He
board of American Telephone
that the company made a policy
ne Bell System, partly in keeping
e Solution," did not like to pub-
s of its business: long distance,
Western Electric, Yellow Pages
als. Instead, Bell preferred to
ithout direct reference to their
ered the company wide discre-
of the business would subsidize
d a valuable management tool
ves to raise or lower long-dis-
arket opportunities or political

pressures required. For example, Bell often held down basic monthly charges to residential users—a politically popular thing to do—while subsidizing the resulting revenue shortfalls with excessive long-distance fees. Bundling did not, however, always work to the advantage of masses of consumers. Kahn had reason to believe that New York Telephone was using the practice to subsidize its business customers at the expense of residential users, specifically by undercharging for business switchboard services.

To remedy the many abuses associated with bundling, Kahn decided to take direct action. Accordingly, when he and his commission colleagues approved a telephone rate increase in 1975, they also ordered the company to prepare detailed, unbundled cost and distribution studies before its next application. When that application, which included a $393 million rate hike, did come in 1976, no such studies were included. The commission rejected the application outright, without even taking up the merits of New York Telephone's case. The company had been forewarned, said Kahn, that it must produce the cost data. "But they didn't give that to us. Why? Because the tradition that this was management's prerogative is very strong and . . . they have never done good cost studies. They want to be free to set their rates the way they want. It just goes to show how sloppy rate-making has been in the past—totally permissive to the companies. We just aren't going to permit that any more."[65]

Though critical of management's abuses, Kahn did not speak as a special-interest consumer advocate determined to punish companies and reduce prices without any reference to costs. He insisted that consumers pay their share, especially for directory assistance, rather than receiving it free from New York Telephone. As an economist, he knew that nothing was free. Directory assisitance, in fact, could not readily be automated, and the obligation to give information tied up hundreds of operators. The service was costing New York Telephone about $100 million a year, and the company simply passed along those charges to the consumer, indiscriminately across its entire list of subscribers. Acting on the fundamental principle that every individual must pay for what he receives, Kahn insisted that "free" directory assistance had to stop.[66]

Consumers responded about as he had expected: they were loud, hostile, and abusive. Kahn did not waver. New York Tele-

phone and the commission together worked out a compromise formula under which each caller who dialed Information would be charged 10¢. All customers, however, would begin each month with three free calls. If these calls were not used, the company agreed to credit each nonuser with a 30¢ rebate. While the amounts may seem tiny, the results proved that the issue was not trivial. Within the first two months under the new system, the volume of directory-assistance calls in New York declined by more than 40 percent. Eighty-five percent of residential customers and 70 percent of the business consumers received the full 30¢ per month rebate. Total saving to the company (and the consumer) amounted to an impressive $25 million per year.[67]

Even so, Kahn was not satisfied. He wished to push the company and the commission further, toward a complete marginal-cost pricing system. Under Kahn's plan, which took advantage of the sophisticated computer systems already installed at New York Telephone, callers would pay more during peak phoning periods, less during off-peak. They would also pay for distance—more for calls stretching across five miles than across only one. The new minimum charge for intrastate toll calls would entitle a caller to talk for two minutes, not three. For all telephones—residence and business—conversations of long duration would be more expensive than brief chats. Kahn's system was full of innovations. Like the directory-assistance proposal, this new plan did not win universal acclaim. One official of the American Telephone Consumers Council denounced it as "the beginning of the end of the consumers' right to rap in New York State . . . Telephone users will be running up charges like a taxi meter." Not even Kahn could have put it better. Should a twenty-mile taxi trip cost the same as one of two blocks? Again he showed no inclination to retreat: "It is our intention (and the Company's) eventually to go to a full-blown 'Message-Minute-Mile' pricing system, according to which charges per call would vary according to the marginal costs of merely setting up a call, of minutes of additional conversation time, and of distance." The chairman's voice sounded the same, on or off the telephone.[68]

After almost three years of favorable media attention in Albany, Kahn enjoyed a national reputation as an innovative regulator. During the same three-year period, old regulatory issues had sur-

gether worked out a compromise
er who dialed Information would be
owever, would begin each month
calls were not used, the company
r with a 30¢ rebate. While the
sults proved that the issue was not
ths under the new system, the vol-
ls in New York declined by more
rcent of residential customers and
sumers received the full 30¢ per
the company (and the consumer)
million per year.[67]
d. He wished to push the company
ward a complete marginal-cost
lan, which took advantage of the
lready installed at New York Tel-
during peak phoning periods, less
pay for distance—more for calls
across only one. The new mini-
lls would entitle a caller to talk
all telephones—residence and
duration would be more expen-
em was full of innovations. Like
this new plan did not win uni-
American Telephone Consumers
nning of the end of the consum-
te . . . Telephone users will be
er." Not even Kahn could have
taxi trip cost the same as one of
nclination to retreat: "It is our
entually to go to a full-blown
system, according to which
rding to the marginal costs of
tes of additional conversation
n's voice sounded the same, on

le media attention in Albany,
n as an innovative regulator.
old regulatory issues had sur-

faced in a new way—to become a national preoccupation. This happened primarily because of the oil crisis of 1973–74, the rise of inflation, and the deep economic recession of 1974–75. These events focused attention on the cost of almost all goods and services, and consequently on the price the nation was paying for its regulatory goals. Regulation suddenly assumed a political importance it had not attained since the Progressive Era. During the presidential campaign of 1976, candidates Gerald Ford and Jimmy Carter both fixed on regulatory reform as a central concern for the next administration. When Carter won the election, it was a forgone conclusion that many new faces would appear in federal regulatory agencies.

For himself, Kahn would have preferred to serve on the Federal Communications Commission, where he might have continued his crusade for marginalist principles in telecommunication pricing. Carter had other ideas: he wanted Kahn for the Civil Aeronautics Board, where some momentum for deregulation seemed to be underway but in danger of failing. Kahn first refused Carter's offer of appointment, pleading ignorance of the airline industry. But after a second invitation, which included specific assurances of the president's full backing, he accepted the job. His years on the New York Public Service Commission had provided ample recommendation for Kahn's new federal office. But now he had to learn his way in yet another complicated industry.[69]

The Airline Industry

The American air age began in 1903, with the Wright brothers' flight at Kitty Hawk. But it was Charles A. Lindbergh's solo trip across the Atlantic in 1927 that first made Americans aware of the possibilities in commercial aviation.[70] Airline companies, which had transported only 6,000 passengers in the entire year before Lindbergh's flight, carried 48,000 in 1928, 162,000 in 1929, and 383,000 in 1930. Not even the Great Depression halted the growth of the fledgling industry. By 1938, the year in which Congress created the Civil Aeronautics Authority (later Board), passenger traffic surpassed one million. Then it reached almost four million in 1941, when World War II temporarily set back further growth by giving priority to military demands.[71] Equally, though, the war reinforced the glamour of flying and helped to make the federal

government more aware of both its potentials and its risks. As in the earlier history of the railroads, airline accidents were often spectacular, and deaths became commonplace. Safety regulation thus presented an obvious arena for government action.[72]

Commercial aviation, however, was a very different kind of industry from railroading. The business was relatively cheap and easy to enter; all anyone needed was an airplane, a few pilots, and a ticket office. So airlines could not be considered natural monopolies in the fashion of early railroads or of gas and electric utilities. In theory, dozens or even hundreds of companies could compete for passengers and freight. This ease of entry played a large role in the history of airline regulation. It forced the Civil Aeronautics Board into the dilemma of either maintaining an orderly industry with a small number of participants or allowing market forces to shake out a multitude of competitors, with only the fittest eventually surviving. By the 1930s, some competitors of the fly-by-night variety had already given that term its literal meaning. In an industry posing grave threats to the passenger's life and limb, the job of regulation seemed difficult and messy.[73]

Nor was the market for airlines so simple a thing as, say, the market for lightbulbs. Airline companies sold something like a trip—really the promise of a guaranteed seat of a certain class, on a scheduled flight between "city-pairs." Each pair of cities represented a separate market, with customers in each, and the airline market became segmented in several different ways. Some companies specialized within single states (Texas International, Air Florida); some in regions (Ozark, Piedmont, Pacific Southwest); some in hub-and-spoke networks serving national markets (American, United, Delta). Others catered to charter traffic, leasing individual airplanes to travel groups by the trip or month. Of course, none of these details made the airline industry easy to understand, much less regulate. By the time Alfred Kahn came to the Civil Aeronautics Board, most of the significant markets were served by ten major scheduled airlines. Together, these ten flew to about 430 cities with more than 90,000 possible city-pairs, of which about 58,000 actually received sheduled service.[74]

In another way, the airlines were characterized by unusual volatility. Because air travel is expensive and because a large percentage of potential passengers are vacationers—and thus subject to changes of mind about the trip when money is short—the airline

th its potentials and its risks. As in
oads, airline accidents were often
e commonplace. Safety regulation
a for government action.[72]
er, was a very different kind of in-
usiness was relatively cheap and
was an airplane, a few pilots, and
not be considered natural monop-
oads or of gas and electric utilities.
reds of companies could compete
ease of entry played a large role in
. It forced the Civil Aeronautics
r maintaining an orderly industry
ants or allowing market forces to
titors, with only the fittest even-
some competitors of the fly-by-
nat term its literal meaning. In an
the passenger's life and limb, the
and messy.[73]
es so simple a thing as, say, the
mpanies sold something like a
anteed seat of a certain class, on
pairs." Each pair of cities repre-
stomers in each, and the airline
eral different ways. Some com-
states (Texas International, Air
Piedmont, Pacific Southwest);
erving national markets (Ameri-
to charter traffic, leasing indi-
y the trip or month. Of course,
ne industry easy to understand,
ed Kahn came to the Civil Aer-
ant markets were served by ten
, these ten flew to about 430
ble city-pairs, of which about
ervice.[74]
characterized by unusual vola-
e and because a large percent-
ationers—and thus subject to
n money is short—the airline

business has always had violent ups and downs. It remains among the most cyclical of industries. The historical fluctuations in the prices of airline securities on the New York Stock Exchange illustrate this characteristic: in the early 1960s, the average price of a share of airline common stock stood at about $5. The subsequent national economic boom, however, quickly drove prices up by a factor of nine—to an average of $47 a share in 1966. By the recession year of 1970, the price had dropped back down to $13.[75]

Nonetheless, the salient trend of the industry from the 1930s to 1977 was its enormous growth. Every indicator displayed the same message.[76]

Year	*Persons employed*	*Number of aircraft*	*Seats per aircraft*	*Revenues ($thousand)*	*Revenue (passenger-miles)*
1938	13,274	311	14.2	$57,997	0.533 mil.
1958	152,510	1,899	57.0	2,243,964	31,499 mil.
1977	310,674	2,420	148.1	19,212,228	187,681 mil.

The Civil Aeronautics Board

By 1977, when Kahn became chairman of the CAB, the airline industry was still growing. But it had also developed a number of chronic problems, chief among them a depressed load factor. For all flights by all major airlines in 1977, the composite load factor stood at only 55.5 percent, which meant that on average each plane was flying a little more than half full. Critics of airline regulation contended that this unsatisfactory performance could be traced directly to the policies of the CAB. To explain how this had happened, they cited the unusual circumstances in which the board had been created.[77]

The first important attempts to bring order to the industry began during the 1920s, under the stimulus of Secretary of Commerce Herbert Hoover. Safety rules were legislated in 1926, and Congress began to appropriate federal subsidies to airlines for the carrying of mail. By 1933, the postmaster general's administration of these subsidies had led to a concentration of the industry in a handful of important firms. For reasons of its own convenience, the Post Office placed nearly all of its twenty airmail contracts with three holding companies, and these three became the ancestors of today's Big Four airlines: United, American, Eastern, and

TWA. Because of this concentration, and more particularly because of the apparent evasion of competitive bidding requirements, the Senate conducted an extensive investigation which turned up such a mass of damning evidence that President Roosevelt canceled all airmail contracts. Roosevelt said that the Army Air Corps, not commercial airlines, would now carry the mail. This too proved unworkable, and in 1934 a new round of bidding began. Again the three holding companies walked off with most of the lucrative routes. Meanwhile, competition for shorter routes became very keen, and a consensus in Congress began to develop that the industry needed a comprehensive system of regulation for the management of all passenger-fare levels, airmail subsidies, and route structures. In 1934, the first New Deal bills for economic regulation of airlines were introduced, and in 1938 Congress passed the Civil Aeronautics Act.[78]

The principles expressed in the act of 1938 closely resembled those embodied in the Act to Regulate Commerce of 1887 and the Motor Carrier Act of 1935, legislation that had begun the economic regulation of railroads and trucking. In fact, had the Interstate Commerce Commission itself not been overburdened with these other two industries, Congress might well have vested the ICC with airline regulation as well. One congressman complained that the government was taking a big chance in starting a new agency. "Once you establish a commission . . . you have the devil's own time passing any act abolishing it."[79]

A brief report on the new legislation, issued by the Senate Committee on Commerce, explained that the bill provided for "the usual system of economic regulation," according to "the recognized and accepted principles of the regulation of public utilities, as applied to other forms of transportation." This language suggested that the committee regarded airlines, like railroads or electric utilities, as a natural-monopoly industry. Thus a mistaken economic assumption seems to have formed the foundation of the bill. The Senate report went on to say that "competition among air carriers is being carried to an extreme."[80] In this judgment the House report agreed. Instead of being awarded on the basis of ability to serve, said the House, airline routes went to the lowest bidder for air-mail contracts. As a result, "the air carriers, in their desire to secure the right to carry the mail over a new route, have made absurdly low bids, indeed, have virtually evinced a willing-

tration, and more particularly be-
n of competitive bidding require-
an extensive investigation which
ing evidence that President Roose-
acts. Roosevelt said that the Army
lines, would now carry the mail.
nd in 1934 a new round of bidding
companies walked off with most of
e, competition for shorter routes
asus in Congress began to develop
rehensive system of regulation for
-fare levels, airmail subsidies, and
irst New Deal bills for economic
roduced, and in 1938 Congress
t.[78]

ne act of 1938 closely resembled
gulate Commerce of 1887 and the
slation that had begun the eco-
l trucking. In fact, had the Inter-
elf not been overburdened with
ress might well have vested the
ll. One congressman complained
a big chance in starting a new
nmission . . . you have the devil's
ng it."[79]

gislation, issued by the Senate
ined that the bill provided for
ulation," according to "the rec-
f the regulation of public utili-
transportation." This language
arded airlines, like railroads or
poly industry. Thus a mistaken
e formed the foundation of the
say that "competition among
treme."[80] In this judgment the
ng awarded on the basis of abil-
routes went to the lowest bid-
sult, "the air carriers, in their
ne mail over a new route, have
ve virtually evinced a willing-

ness to pay for the privilege of carrying the mail over a particular route." In addition, the House committee was told by the president of the Air Transport Association (the industry's trade group) that $120 million of private investment funds had been poured into the existing system, and that half of that sum had simply been lost. "He further testified," said the committee report, "that unless legislation is enacted which would give the carriers reasonable assurance of the permanency of their operation and would protect them from cutthroat competition, a number of the air lines would soon be in serious financial trouble." Prospects for the industry seemed bleak.[81]

Clearly, in passing the Civil Aeronautics Act, Congress intended to bring stability to airlines. What is not clear is whether the legislature intended to cartelize the industry. Yet this did happen. During the forty years between passage of the act of 1938 and the appointment of Kahn to the CAB chairmanship, the overall effect of board policies tended to freeze the industry more or less in its configuration of 1938. One policy, for example, forbade price competition. Instead the CAB ordinarily required that all carriers flying a certain route charge the same rates for the same class of customer. This rule conformed to a basic principle of public-utility regulation, and, however odd the policy appeared later on, it flowed logically from the concerns expressed by Congress in 1938. A second policy had to do with the CAB's stance toward the entry of new companies into the business. Charged by Congress with the duty of ascertaining whether or not "the public interest, convenience, and necessity" mandated that new carriers should receive a certificate to operate, the board often ruled simply that no applicant met these tests. In fact, over the entire history of the CAB, no new trunkline carrier had been permitted to join the sixteen that existed in 1938. And those sixteen, later reduced to ten by a series of mergers, still dominated the industry in the 1970s. All these companies participated in the immense growth shown in the table above. All developed into large companies under the protective wing of the CAB. None wanted deregulation.[82]

What the airlines did want was new routes. And since the CAB declined to permit either rate competition or new entry, its regulatory activities came to focus on the question of which airlines would receive new routes. At the same time, the board exercised responsibility for the development of sound route structures for all

companies. This meant that profitable long hauls must be mixed with less lucrative short hauls, and that only a few companies—sometimes just one—should be allowed to fly any particular route: that is, a monopoly in some city-pair markets would be necessary to compensate the airline for other, unprofitable routes it was required to fly elsewhere.

To maintain this complex balancing act, the board was ultimately drawn into the adjudication of trivial decisions at the lowest levels of airline management. The CAB came to function more and more along the lines of a court, and its members began to think of themselves as judges, not as proponents of economic efficiency.[83] James Landis treated this problem in his 1960 report to Kennedy, citing inordinate delays as a characteristic of the CAB's proceedings. Landis went on to denounce the agency's failure to do "forward planning of the type necessary to promote our air commerce to its desired level of efficiency" and added that the Board's regulatory efforts were frustrated by a courtroom-style routine that prevented sensible resolution of issues.[84] The board's usual pattern of lengthy cross-examination, Landis concluded, was "a wasteful manner of establishing many of the basic facts." In making awards, the board "selects a route pattern for reasons that it frequently cannot even articulate." In contrast to the SEC of Landis' own design, the CAB simply had no strategy.[85]

The particular questions the board took upon itself to decide tended to preclude the development of an overall strategy. What difference did it make to public policy whether the third or fourth carrier selected to serve a particular city-pair was Eastern, Delta, or American? On what basis should such a decision be made? There was none, other than giving some desirable route to a carrier as compensation for an undesirable one. In such circumstances of arbitrariness the CAB, in writing its decisions, could rationalize its own cartel-like policies only through arbitrary lines of reasoning. Given the emphasis on procedure so characteristic of American administrative law, together with the wide substantive discretion usually enjoyed by regulatory agencies, almost any line of reasoning was likely to be upheld by appellate courts, provided only that the CAB's procedures had been according to form. This meant that the CAB could do almost anything it wanted so long as it went through the proper motions. By contrast, should it actually articulate its practice of cartelization, or openly acknowledge its

rofitable long hauls must be mixed
, and that only a few companies—
allowed to fly any particular route:
y-pair markets would be necessary
ther, unprofitable routes it was re-

alancing act, the board was ulti-
cation of trivial decisions at the
ment. The CAB came to function
of a court, and its members began
not as proponents of economic ef-
this problem in his 1960 report to
ys as a characteristic of the CAB's
denounce the agency's failure to
pe necessary to promote our air
f efficiency" and added that the
frustrated by a courtroom-style
esolution of issues.[84] The board's
mination, Landis concluded, was
ing many of the basic facts." In
s a route pattern for reasons that
late." In contrast to the SEC of
ply had no strategy.[85]
oard took upon itself to decide
ent of an overall strategy. What
olicy whether the third or fourth
lar city-pair was Eastern, Delta,
ould such a decision be made?
g some desirable route to a car-
able one. In such circumstances
g its decisions, could rationalize
rough arbitrary lines of reason-
lure so characteristic of Ameri-
r with the wide substantive
atory agencies, almost any line
d by appellate courts, provided
d been according to form. This
t anything it wanted so long as
By contrast, should it actually
on, or openly acknowledge its

implicit compensatory policies, then substantive challenges might arise and threaten the board's very foundation.[86]

Still another difficulty grew from mismatch between the CAB's courtlike atmosphere and the issue of *"ex parte* considerations." Whereas conventional judges must not consort with plaintiffs and defendants, regulatory commissioners sometimes had to make nonlegal types of decisions, especially on economic matters. If CAB members could not converse with airline executives, how would they learn about the industry? One of Kahn's colleagues on the CAB, himself a former judge, put the dilemma this way: "In some respects, we are held to the same rigid standards that a court is held, with regard to making decisions, and yet, we are determining policy in which all sorts of inputs should be received before you can make very much of a quality decision, and where I can obtain that it is a bit of a problem without some contact with the industry."[87] Over the years, several board members had resigned, citing frustration caused by the mixed roles they were expected to play. Yet, in this awkward situation, legal experience proved invaluable. If the primary role of the CAB was to be not the framing of a regulatory strategy but rather the assurance of a fair hearing and complete record, then legal procedures seemed natural as the stock in trade of the board. And lawyers did dominate its membership: of the thirty-four members who served between 1938 and the mid-1970s, twenty-four were trained in law. The second-place profession, engineering, accounted for only four.[88]

The Ferment of Reform at the CAB

When Alfred Kahn came to the CAB in 1977, change was in the air. Academic studies had long since established beyond much doubt that an airline cartel existed in America, as a result of CAB policies. These studies argued convincingly that, by restricting economic competition, the board encouraged greater competition in frills: fancier in-flight food and drink, more movies, additional attendants—all minor forms of service to the customer. Much more important, the board's policies also induced the airlines to schedule too many flights. This happened because, once a carrier had been "certificated" by the board to fly between a pair of cities, it was left free to fly as many trips along that route as it

wished. Since airline managers held as an article of faith that travelers gravitated to the company with the most departures at the most convenient times, competing airlines scheduled more and more flights. With the number of customers constant, they were forced to fly emptier airplanes. As a result, the industry drifted into its woeful load factor of 55.5 percent. For several years the CAB had responded to this situation by imposing an implicit route moratorium. That is, in addition to forbidding rate competition and denying all applications for entry into the industry, the board also refused to grant any new routes to the existing carriers. The route moratorium had loosened up a bit just before Kahn's arrival in Washington, but the practice of restricting new routes lingered as evidence of the board's single-minded opposition to competition.[89]

By the mid-1970s, several major airlines were in serious financial trouble. Much as in the electric utility industry, a series of converging problems—the skyrocketing price of fuel, the economic recession, and an expensive inventory of wide-body aircraft (Boeing 747s, Lockheed L-1011s, Douglas DC-10s)—had caught the airlines in a trap of rising costs and declining revenues. The CAB's inflexibility prevented rapid adjustment by the companies themselves. It was not that the board had caused all these problems, but rather that its opposition to any real competition made it impossible for the industry to adjust through normal market mechanisms.[90]

Public indictments of the CAB began to grow. In 1975, a subcommittee chaired by Senator Edward M. Kennedy subjected the industry and the board to searching scrutiny. The stage manager of the Kennedy hearings was Stephen Breyer, then a professor at Harvard Law School and later a federal circuit judge. A specialist in regulation and a man of vivid imagination and agile mind, Breyer wanted to demonstrate in a public arena that the CAB form of regulation did violence not only to the principles of competition but even to the administrative process it seemed designed to serve. Senator Kennedy, to whom Breyer fed dozens of "zinger" questions for a lineup of witnesses from the board and the industry, responded with a virtuoso performance. It was Kennedy's finest hour as a legislator, and his participation guaranteed the hearings wide publicity.[91] The clincher in the case against the CAB proved to be the example of airlines that operated intrastate

held as an article of faith that trav-
y with the most departures at the
eting airlines scheduled more and
of customers constant, they were
. As a result, the industry drifted
5.5 percent. For several years the
tion by imposing an implicit route
on to forbidding rate competition
entry into the industry, the board
outes to the existing carriers. The
up a bit just before Kahn's arrival
of restricting new routes lingered
e-minded opposition to competi-

jor airlines were in serious finan-
ctric utility industry, a series of
ocketing price of fuel, the eco-
e inventory of wide-body aircraft
, Douglas DC-10s)—had caught
sts and declining revenues. The
id adjustment by the companies
oard had caused all these prob-
n to any real competition made it
st through normal market mech-

began to grow. In 1975, a sub-
ward M. Kennedy subjected the
ng scrutiny. The stage manager
hen Breyer, then a professor at
ederal circuit judge. A specialist
d imagination and agile mind,
a public arena that the CAB
t only to the principles of com-
tive process it seemed designed
n Breyer fed dozens of "zinger"
from the board and the indus-
ormance. It was Kennedy's fin-
participation guaranteed the
ncher in the case against the
irlines that operated intrastate

routes beyond board jurisdiction. Two companies in particular, Southwest Airlines in Texas and Pacific Southwest in California, had developed successful business strategies that combined extremely low fares with high load factors. Breyer and Kennedy demonstrated startling differences between the fares customers paid in 1974 in city-pair markets regulated by the CAB and those in Texas and California, where price competition was permitted.[92]

City–pair	*Miles*	*Fare*	*No. of passengers*
Los Angeles–San Francisco	338	$18.75	7,483,419
Chicago–Minneapolis (CAB)	339	$38.89	1,424,621
New York–Pittsburgh (CAB)	335	$37.96	975,344
Houston–San Antonio	191	$13.89	490,000
Boston–New York (CAB)	191	$24.07	2,493,882
Reno–San Francisco (CAB)	192	$25.93	312,811

The Texas and California airlines achieved these remarkable results by offering numerous flights at cut rates. They started with the assumption that the market for air travel was much bigger than the trunklines or the CAB imagined—that the barrier to increased traffic was simply the high price of an airline ticket. They eliminated first-class accommodations and crowded as many additional seats into the cabins as possible without seriously interfering with passengers' comfort. As the Kennedy subcommittee pointed out, Pacific Southwest Airlines "puts 158 seats in a Boeing 727-200 jet aircraft and fills approximately 60 percent of these seats on average. American Airlines puts 121 seats in the same plane and flies it on average 55 percent full. Thus, when flying PSA, 95 passengers must share the cost of flying the airplane, while, on an American plane, 66 passengers must share the same cost." Obviously, the price of a ticket could be cut dramatically, and the price cut in turn would bring in new categories of customers. Explaining the phenomenon to the Kennedy subcommittee, an official from the Texas Aeronautics Commission testified: "These [passengers] are people who are coming to the airline instead of going to the bus . . . you kind of wait for them to tie the chicken coop on top of the airplane."[93]

The remarkable results of the cut-rate fares in Texas and California had been available to any interested observer long before Kennedy's 1975 hearings. Kahn, in fact, included an analysis of the Pacific Southwest story in the second volume of his *Economics of*

Regulation, published in 1971. He viewed the case histories as "the closest thing to a 'controlled experiment' in public policy," and especially appreciated the marginal-cost aspects of the experiment. As Kahn knew, the cost of flying a plane between a pair of cities was more or less fixed, no matter how many passengers made the trip. Obviously the airline could not give away tickets, but it could cut rates on a trial-and-error basis—charging less, for example, for off-peak travel. In a situation of depressed load factor and industry distress, the point of marginalism was to furnish a rationale for any sort of radical price cut. Once fares went down, new travelers would be induced to fly in such numbers that the airlines might soon reach an advantageous load factor.[94]

In all, the Texas and California experiences provided powerful ammunition to the Kennedy subcommittee and to other proponents of deregulation as well. A General Accounting Office study estimated that actual fares in national airline markets exceeded hypothetical fares derived by methods similar to those in Texas and California by 22 to 52 percent. Passengers traveling under the hypothetical rates would have saved between $1.4 billion and $1.8 billion annually during the years 1969–1974. The GAO study added that the lowered fares would have persuaded so many new travelers to fly that the total saving would have been more than $2 billion a year.[95]

By the time of Kahn's arrival in Washington, a broad and strikingly mixed coalition had already begun to lobby for deregulation. One group included a number of strange bedfellows: the National Association of Manufacturers, Common Cause, Sears Roebuck, the American Association of Retired Persons, the Aviation Consumer Action Project, the National Taxpayers Union, the Cooperative League of the U.S.A., the American Conservative Union, and the Public Interest Economics Group. "There is some amount of culture shock," conceded one member of this unusual alliance, "but we do all agree on this issue." A writer in *Fortune* called the deregulation advocates "an odd coalition of academic economists, Naderite consumerists, liberal Democrats, and conservative Republicans." Diverse as this group seems, they were already gathering momentum and political power.[96]

Shortly after Kahn's appointment, the Carter Administration held a "reform gala" at the White House to underscore its commitment to deregulation. Kahn took a prominent part. Holding

He viewed the case histories as
led experiment' in public policy,"
marginal-cost aspects of the ex-
st of flying a plane between a pair
no matter how many passengers
rline could not give away tickets,
and-error basis—charging less, for
situation of depressed load factor
f marginalism was to furnish a ra-
rice cut. Once fares went down,
to fly in such numbers that the
antageous load factor.[94]

a experiences provided powerful
committee and to other propo-
General Accounting Office study
ational airline markets exceeded
ethods similar to those in Texas
t. Passengers traveling under the
ed between $1.4 billion and $1.8
rs 1969–1974. The GAO study
ld have persuaded so many new
g would have been more than $2

Washington, a broad and strik-
begun to lobby for deregulation.
strange bedfellows: the National
mmon Cause, Sears Roebuck, the
Persons, the Aviation Consumer
payers Union, the Cooperative
an Conservative Union, and the
"There is some amount of cul-
r of this unusual alliance, "but
writer in *Fortune* called the
alition of academic economists,
mocrats, and conservative Re-
seems, they were already gath-
ver.[96]

nt, the Carter Administration
House to underscore its com-
k a prominent part. Holding

forth later on to a *New York Times* reporter, he explained why the movement united so many disparate interests:

> First of all, I guess it has been this experience of the last 10 years of disappointment with the notion that you solve your problems by passing a law and then going away. The second I suspect has been the sheer proliferation of regulations. I mean, we get new regulatory agencies every year, and it does grow kind of astronomically. A third has been a kind of pendulum effect . . . So you have these real conservatives who have always said, "We don't want the Government messing in here," joining with the liberals of the Ralph Nader kind who say, "Well, where competition could work, you should leave it to competition."[97]

Of course, not everyone wanted airline deregulation. The opponents still held the upper hand, even though two years had passed since the Kennedy hearings. Kahn realized that a crucial part of his job would be to convert skeptical majorities in several constituencies, including Congress and even the CAB itself. The final measure of his success would come from what he could do within his agency and from his attempts to break the logjam on Capitol Hill, where deregulation bills had been stalled for months. During the Kennedy hearings, the airline industry had presented a solid phalanx against deregulation. Without exception, top executives had testified in favor of continued regulation, many of them in vehement tones. Now, two years later, some tiny fissures in the proregulation front had begun to appear, in the representatives of Hughes Airwest and Frontier Airlines; and mighty United Airlines was showing signs of wavering. But a proregulation majority controlled the industry.

Ironies abounded. Delta, the most profitable of all airlines and by common agreement one of the nation's best-managed corporations, liked to profess from its Atlanta headquarters a free-enterprise, antiunion philosophy. Yet, in Washington, Delta remained the most vocal proponent of regulation. Its outspoken chairman denounced the deregulation movement as a wolf in sheep's clothing. Under the banner of "free enterprise" and "less government regulation," he said, the movement actually promised more regulation and perhaps eventual nationalization."[98] Industry trade papers offered equally conspiratorial theories. One journal outlined its answer to the "most mystifying question" of "why air transport regulation, eminently successful by any yardstick, has been singled out for sustained attack." A two-stage plan, said the

paper, had been hatched in the executive branch. First, deregulation would get the independent CAB out of the picture. The way would then be clear for manipulation by operatives from the White House and Department of Transportation. Yet in point of fact, the Department of Transportation stood on the side of the airlines. Secretary Brock Adams was an energetic advocate of regulation, and later on he became a problem for Kahn when the two men battled for influence over national transportation policy.[99]

During Kahn's early months as CAB chairman, his most difficult tasks lay within the board itself and with Congress. In the House, the chief obstacle to Kahn's program was Democratic Representative Elliott Levitas of Atlanta, who held a key committee post. (Journalists, mindful of Levitas' services to his Delta Airlines constituents, referred to him as a "Deltacrat.") Other congressmen also responded to the intense proregulation stance of the airline industry.[100] As things happened, the most solid support of continued tight regulation came not from airlines but from labor unions; and the unions put even heavier pressure on their representatives to shield them from deregulation. Airline employees, assisted by the cost-plus thinking and protectionist policies of the CAB, had come to receive exceptionally high pay. In 1976, trunkline workers—including all categories from baggage handlers to pilots—earned an average wage of $19,000, which put them at the very top of all employee groups in the United States. Not surprisingly, then, the industry's labor force, led by the Air Line Pilots' Association and including the unions of flight engineers, transport workers, machinists, and aerospace workers, conducted an active campaign against deregulation. Their well-publicized power in Washington presented Kahn with a problem unlike any he had encountered at the New York Public Service Commission.[101]

The Early Strategy

At first Kahn felt overwhelmed by the complex task of moving the airlines toward deregulation while at the same time lobbying Congress for new legislation.[102] But, as in New York, he quickly learned his way. One of the first things he did was to lay down the law to the CAB about the language it used in orders and correspondence. Over the years, the agency had involved itself in so many petty details, so many arbitrary decisions, that it seemed

executive branch. First, deregula-
CAB out of the picture. The way
ulation by operatives from the
f Transportation. Yet in point of
rtation stood on the side of the
was an energetic advocate of reg-
problem for Kahn when the two
national transportation policy.[99]
CAB chairman, his most difficult
nd with Congress. In the House,
am was Democratic Representa-
who held a key committee post.
ervices to his Delta Airlines con-
Deltacrat.") Other congressmen
regulation stance of the airline
he most solid support of contin-
n airlines but from labor unions;
ressure on their representatives
. Airline employees, assisted by
ionist policies of the CAB, had
h pay. In 1976, trunkline work-
n baggage handlers to pilots—
0, which put them at the very
United States. Not surprisingly,
by the Air Line Pilots' Associa-
ight engineers, transport work-
vorkers, conducted an active
heir well-publicized power in
a problem unlike any he had
ic Service Commission.[101]

he complex task of moving the
t the same time lobbying Con-
as in New York, he quickly
ngs he did was to lay down the
e it used in orders and corre-
ency had involved itself in so
ary decisions, that it seemed

unable to write convincing explanations and opinions. As Kahn read through the files, he became incredulous, then furious, with what seemed to be intentional obfuscation. Aware that he might be risking the success of his chairmanship, he nevertheless decided to launch a campaign for clarity. The opening gun was a memorandum to the CAB staff:

> One of my peculiarities, which I must beg you to indulge if I am to retain my sanity (possibly at the expense of yours!) is an abhorrence of the artificial and hyper-legal language that is sometimes known as bureaucratese or gobbledygook . . .
>
> May I ask you, please, to try very hard to write Board orders and, even more so, drafts of letters for my signature, in straightforward, quasi-conversational, humane prose—as though you are talking to or communicating with real people. I once asked a young lawyer who wanted us to say "we deem it inappropriate" to try that kind of language out on his children—and if they did not drive him out of the room with their derisive laughter, to disown them.[103]

Bureaucrats who doubted the new chairman's seriousness found their drafts repeatedly bounced back for revision. Letters were rewritten four and five times, as drafts with Kahn's corrections came back to writers with instructions to revise. Board employees said that the experience of writing for Kahn was like preparing a college term paper.[104]

His critics questioned whether the expenditure of all this energy was the best way for an agency head to be spending his time. Kahn, however, remained adamant: "If you can't explain what you are doing to people in simple English, you are probably doing something wrong." Part of the problem came from lawyers' domination of the regulatory process. "One cannot hope over night to wipe out the effects of three years of law school, or decades of non-lawyers trying badly to imitate lawyers (some of whom, by the way, write extremely well)." But, he emphasized, the point was not one of style alone. "I really have certain very profound not only esthetic but philosophical objections to people in Government hiding behind a cloud of pompous verbiage which creates a gulf between them and the people." Reporters enjoyed hearing such messages from the head of a bureaucracy, and the crusade for clarity received wide coverage.[105]

Kahn's second target in the early days of his chairmanship was the CAB's crushing workload. Almost eighteen years after the

Landis report, with its criticism of the agency's backlog, Kahn determined to learn why the workload remained such a persistent problem. He found that the CAB, by insisting on courtroom routine, frittered away time on "cumbersome procedures required to assure due process to all affected parties." Substantively, moreover, the board was adjudicating not only the important decisions that compelled due process, but a mass of trivia as well.[106] Here what Kahn said about the "picayune decisions" that the CAB had to make concerning airlines applied with equal accuracy to the ICC's regulation of trucking and to the Federal Power Commission's oversight of the natural gas industry:

> May a freight forwarder receive commissions from a cargo carrier? To how many travel agents may a tour operator give free passage to inspect an all-inclusive tour? And must those agents then visit and inspect every one of the accommodations in the package? May an air taxi acquire a 50-seat plane? May a supplemental carrier carry horses from Florida to somewhere in the Northeast? Should we let a scheduled carrier pick up stranded charter customers and carry them on seats that would otherwise be empty at charter rates? May an air taxi operate a single round-trip passenger charter flight between two points in substitution for a supplemental? Should we take review of an order by our Bureau of Enforcement dismissing this or that complaint, even though no party has appealed the dismissal? May a carrier introduce a special fare for skiers that refunds the cost of their ticket if there is no snow? May the employees of two financially affiliated airlines wear similar-looking uniforms? . . . Is it any wonder that I ask myself every day: is this action necessary? Is this what my mother raised me to do?[107]

Despite the disarming final question, Kahn was teaching a much larger lesson: "the inexorable tendency for regulation in the competitive market to spread." What he said applied to economic regulation in general:

> Control price, and the result will be artificial stimulus to entry. Control entry as well, and the result will be an artificial stimulus to compete by offering larger commissions to travel agents, advertising, scheduling, free meals, and bigger seats. The response of the complete regulator, then, is to limit advertising, control scheduling and travel agents' commissions, specify the size of the sandwiches and seats and the charge for inflight movies. Each time the dyke [sic] springs a leak, plug it with one of your fingers; just as a dynamic industry will perpetually find ways of opening new holes in the dyke, so an ingenious regulator will never run out of regulatory fingers.[108]

of the agency's backlog, Kahn de-
rkload remained such a persistent
AB, by insisting on courtroom rou-
mbersome procedures required to
ed parties." Substantively, more-
g not only the important decisions
t a mass of trivia as well.[106] Here
yune decisions" that the CAB had
plied with equal accuracy to the
d to the Federal Power Commis-
s industry:

mmissions from a cargo carrier? To
operator give free passage to inspect
e agents then visit and inspect every
package? May an air taxi acquire a
carrier carry horses from Florida to
l we let a scheduled carrier pick up
them on seats that would otherwise
air taxi operate a single round-trip
points in substitution for a supple-
n order by our Bureau of Enforce-
plaint, even though no party has
r introduce a special fare for skiers
there is no snow? May the employ-
irlines wear similar-looking uni-
sk myself every day: is this action
ised me to do?[107]

ion, Kahn was teaching a much
lency for regulation in the com-
ne said applied to economic reg-

rtificial stimulus to entry. Control
n artificial stimulus to compete by
gents, advertising, scheduling, free
of the complete regulator, then, is
g and travel agents' commissions,
l seats and the charge for inflight
gs a leak, plug it with one of your
perpetually find ways of opening
s regulator will never run out of

The master teacher knew how to hold an audience. It remained for him to make the CAB practice what he preached.

The New CAB

The Civil Aeronautics Board had been in ferment for some two years before Kahn arrived, ever since the Kennedy hearings of 1975. Kahn was the agency's fourth chairman in four years. His immediate predecessor, John Robson, had spoken out in favor of competitive new rate structures and more liberal entry policies. But beyond Robson's rhetorical "one-man reform crusade" (as a trade paper called it), he had not been an effective chairman. He was unpopular with much of the CAB staff; a number of legislators disliked him; and many airline executives despised him. Two highly regarded industry chiefs, Frank Borman of Eastern and Robert Six of Continental, were quoted as saying that Robson was perhaps the worst chairman in CAB history.[109]

This situation benefited Kahn. Not only did he step into the shoes of an unpopular Republican chairman, but as a Democrat he entered office with a board majority on his team. President Carter strengthened Kahn's hand by naming as a Republican member another deregulation-minded economist, Elizabeth E. Bailey, a young veteran of research at Bell Labs. As board colleagues, Bailey and Kahn sometimes disagreed on noneconomic matters, such as smoking by airline passengers. (Bailey took a tough antismoking approach, whereas Kahn favored local option on the grounds that the airlines themselves should respond to customers' preferences.) But on the important questions of regulatory policy, such as freer entry and competitive fares, the two thought alike.[110]

With the backing of his two Democratic colleagues plus Bailey, Kahn took quick steps to reorganize the board. Whereas in New York he had not had this option, in Washington he saw no alternative. He was convinced that the excessive influence of lawyers and the absence of first-rate economists made it impossible for the agency to respond to the economic crisis besetting the industry.[111] In size the CAB was only a little larger than the New York Public Service Commission. Its staff of some 800 was divided between 438 professional, technical, and research personnel, of whom about 120 were lawyers or persons "trained in law," and a remainder of nonprofessionals. The organization included nine staff offices and six line bureaus, each with the power to act:

Enforcement, Economics, Accounts and Statistics, International Affairs, Operating Rights, and Administrative Law Judges. The board's headquarters, located on Connecticut Avenue in Washington, conveniently housed the entire organization.[112] Under Kahn's reorganization plan, the board would retain three of the existing six bureaus (Accounts and Statistics, International Affairs, and Administrative Law Judges) and abolish the others. In their stead, two new bureaus would be formed and reinforced with specialists in economics: Pricing and Domestic Aviation, and Consumer Protection.[113]

More important than any of these was another Kahn brainchild, an Office of Economic Analysis. In asking for additional personnel to staff this unit, Kahn wrote to the chairman of the Civil Service Commission, "I find it simply incredible that the Board has had no genuine Bureau of Economics: the Bureau that until recently had this title was actually concerned only with fares and tariffs and was and is run entirely by lawyers." Kahn elaborated in a letter to a former student who was also a prominent economist. "The reason I set up an Office of Economic Analysis is that I wanted to have objective economists watching carefully what we are doing and how it works out, prepared to identify problems, rather than simply to shut our eyes and rely on faith." Kahn added that "liberals like me" had been too prone in the past to rely on government to solve all problems. Now, he wrote, "I do not want . . . to fall into the opposite error of simply substituting the cliche 'leave it to the market' to take the place of using my own eyes."[114]

Kahn's next step was to bring in a cadre of young bureau chiefs devoted to deregulating the airlines. To head the Office of Economic Analysis, he appointed Darius Gaskins, a well-trained economist with prior experience at the Federal Trade Commission. As general counsel, he hired Philip Bakes, who, as Stephen Breyer's deputy, had played an important role in the Kennedy hearings. And as chief of the Bureau of Pricing and Domestic Aviation, Kahn brought in Michael E. Levine, who twelve years earlier had written for the *Yale Law Journal* the pioneering article on the experience of Pacific Southwest Airlines. Entitled "Is Regulation Necessary?" Levine's article had anticipated with uncanny accuracy the national developments of the succeeding decade.[115]

These appointments of deregulation partisans left no question of Kahn's resolve to make things happen at the CAB. As one of the

unts and Statistics, International
Administrative Law Judges. The
Connecticut Avenue in Washing-
tire organization.[112] Under Kahn's
would retain three of the existing
ics, International Affairs, and Ad-
bolish the others. In their stead,
ed and reinforced with specialists
stic Aviation, and Consumer Pro-

ese was another Kahn brainchild,
n asking for additional personnel
he chairman of the Civil Service
edible that the Board has had no
e Bureau that until recently had
only with fares and tariffs and
." Kahn elaborated in a letter to
prominent economist. "The rea-
ic Analysis is that I wanted to
ng carefully what we are doing
identify problems, rather than
faith." Kahn added that "liber-
the past to rely on government
ote, "I do not want . . . to fall
bstituting the cliche 'leave it to
ng my own eyes.'"[114]
a cadre of young bureau chiefs
s. To head the Office of Eco-
s Gaskins, a well-trained econ-
Federal Trade Commission. As
kes, who, as Stephen Breyer's
ole in the Kennedy hearings.
cing and Domestic Aviation,
who twelve years earlier had
pioneering article on the ex-
nes. Entitled "Is Regulation
icipated with uncanny accu-
e succeeding decade.[115]
n partisans left no question of
n at the CAB. As one of the

new appointees himself put it, "All the bomb throwers are here and in place. You have to judge this agency starting from this point forward; now there are no excuses." A new Civil Aeronautics Board had been born.[116]

At least at one level, the mission for Kahn and his new CAB seemed clear: to create a competitive airline industry in place of the forty-year-old noncompetitive model, so largely defined by public-utility regulation. To do this, the CAB must first melt a frozen rate structure and then encourage competition between airline companies on the basis of price. Routes also had to be made genuinely competitive, so that carriers could choose to serve or not serve particular city-pairs. Finally, new entry into the industry must be invited from all qualified applicants. Each of these tasks for the CAB flowed from a single source: the study of economic reasoning to which Kahn had devoted his professional life.

What remained less clear was the exact method by which he should proceed. Difficult questions of implementation constantly nagged at Kahn, much as they had plagued James Landis and his SEC colleagues during the New Deal. But whereas Landis had devised a successful strategy to impose a regulatory regime on an industry accustomed to laissez faire, Kahn had to do just the opposite. He was about to impose competition as a replacement for overregulation. But where should he begin, and at what pace could he move? Should deregulation come gradually, so as to minimize trauma, or in one "big bang," so as to reach his target quickly? Should Kahn focus his attention on Congress and try to get the existing statutes changed? Or, since the present laws seemed to permit a good deal of tinkering, might it not be better to work within the CAB itself? These questions seemed quite enough to confound any new chairman. Kahn had little time for reflection, however, because the immediate question pressed: should his first move come on rates, routes, or entry? All three must be liberalized—economic theory was clear on that—but in what order?

His pragmatic answer grew out of what happened. The issue of rates drilled the first hole in the aging dike, and reform, if not revolution, had begun. Shortly before Kahn came to Washington in 1977, Texas International Airlines had proposed an off-peak "Peanuts" fare for some of its city-pairs within Texas. The company

also flew routes outside the state, and for that reason it was subject to CAB jurisdiction in all of its operations. The Peanuts fare was designed to compete with the low-cost rates already being offered by Southwest Airlines, the intrastate carrier that had played a starring role in the Kennedy hearings. A few weeks after Texas International's Peanuts application, American Airlines proposed a "Super Saver" coach fare between New York and the west coast, with discounts ranging from 35 to 40 percent, depending on the day of travel. In the last weeks of the Robson chairmanship, the CAB launched an investigation of both these proposals. Then, in a significant reversal of policy, the board agreed to let the proposed rates become effective, pending the outcome of the full investigation.[117]

Now, with Kahn on the scene, the dike burst. As the CAB's *Annual Report* declared, in the kind of understatement typical of such documents, "Thereafter, discounts became more widespread as competing carriers either matched these [Super Saver] proposals or initiated promotional fares of their own. Before long, other reduced fares—'Simple Saver,' 'Super Coach,' 'Super-APEX,' and 'Budget'—proliferated across the Nation and the North Atlantic." Once it became apparent that load factors were indeed climbing rapidly—just as theory had predicted—discount fever swept through the industry. By the summer of 1978, one year after Kahn's arrival, about half of all coach-class revenue-passenger-miles in the United States were being flown at discount rates, with effects especially evident during summer vacation months.[118]

Month	*Percentage of total fares subject to discount*	*Month*	*Percentage of total fares subject to discount*
October 1977	25.9%	April 1978	35.7%
November	24.6	May	36.8
December	31.8	June	41.0
January 1978	31.5	July	56.9
February	32.0	August	56.0
March	35.3	September	48.0

Load factor for the trunklines exhibited its largest jump in history, climbing from 55.5 percent for the year ending in September 1977 to 60.7 percent for the year ending in September 1978. This gain was extremely significant. It meant that on average nearly 10 per-

nd for that reason it was subject
erations. The Peanuts fare was
-cost rates already being offered
tate carrier that had played a
gs. A few weeks after Texas In-
American Airlines proposed a
New York and the west coast,
40 percent, depending on the
the Robson chairmanship, the
oth these proposals. Then, in a
oard agreed to let the proposed
e outcome of the full investiga-

e dike burst. As the CAB's *An-*
of understatement typical of
unts became more widespread
ed these [Super Saver] propos-
their own. Before long, other
er Coach,' 'Super-APEX,' and
ation and the North Atlantic."
factors were indeed climbing
icted—discount fever swept
mer of 1978, one year after
oach-class revenue-passenger-
g flown at discount rates, with
nmer vacation months.[118]

nth	*Percentage of total fares subject to discount*
ril 1978	35.7%
y	36.8
e	41.0
y	56.9
gust	56.0
tember	48.0

ed its largest jump in history,
ar ending in September 1977
n September 1978. This gain
at on average nearly 10 per-

cent more passengers were flying on each plane, but at practically no additional expense to the companies. Even with the discount fares, therefore, the positive impact on airline earnings proved to be dramatic. Operating profits nearly doubled for the trunklines as a whole, climbing from $490 million for the year ending in September 1977 to $905 million for that ending in September 1978.[119] From Kahn's viewpoint, of course, this was the best possible outcome. Even so, what had happened was not quite as simple as the numbers alone seemed to suggest, and some troubling questions persisted. How long would the airlines' prosperity continue? Would load factors continue to climb? And what was the effect on the quality of service in ever more crowded airplanes?[120]

For the fifteen months between Kahn's arrival in Washington and the reporting of these September 1978 figures, several things stand out. One is his determination to make the experiment go forward. "Historically," Kahn said in one speech, "the Board has insisted on second-guessing decisions by individual carriers to offer price reductions." That role, he made clear, had ended. Now carriers could not only reduce prices on their own, but in applying for rate increases they could use projected rather than historical costs as a basis for their application. This represented a major departure from traditional regulatory practice, and for Kahn it repeated one of the changes he had earlier pushed through at the New York Public Service Commission. In a time of inflation, the use of projected rather than historical costs was not merely a more realistic policy; it was also a device calculated to reduce the number of new applications for rate increases, thus cutting the CAB's workload. The board's endorsement of this point, by a vote of 5–0, had major implications for all American industries subject to rate-of-return regulation.[121]

A second concern is evident in Kahn's speeches and in letters to his friends. He became fascinated with the new system of rates proposed by the airlines, in part because they did not evolve in the way that economic theory had predicted. Instead of across-the-board cuts for all passengers, the companies rushed to offer a bewildering variety of special fares on particular days of the week, available to passengers on a first-come-first-served basis. "I realize that all this makes for a messy fare structure," Kahn wrote. "Before coming to the Board, I confess, I regarded all these variations as an abomination." Yet to him they now represented a decided

improvement over the traditional "rigid, non-competitive, uniformly high fare level." What still worried him, at least theoretically speaking, was that the crowded condition of the airplanes might create a new type of discriminatory situation. As he put it to an economist friend, "As load factors rise, I don't quite see how the market process will work to satisfy the demands of people who are willing to pay fares equivalent to the cost of providing service at, say, an average 55% load factor, yet are getting service at 75% or 80%, with the difference this implies in the availability of reservations up to flight time." Here Kahn's institutionalist background helped a bit. "I come from a tradition in which it was considered important to recognize that competition is rarely perfect, and typically works extremely imperfectly."[122]

There were also some signs that basic fares might come down, along with the special rates. Competition might not be working perfectly, but certainly it was working well. If the board had prohibited discriminatory price cutting in the form of special fares (and discrimination indeed violated the rules of classical public-utility regulation), there would have been no breakthrough at all. As Kahn wrote to a law professor who had objected to this discrimination, "Observe the fact that the Super Savers are now available between all major cities of the country; observe the Chickenfeed fare, which is available to anyone who calls in time, regardless of race, creed, previous condition of servitude, or length of hair; and observe, finally, and most satisfactory, the beginnings of competition in the basic fares themselves."[123]

Everything considered, Kahn was having a wonderful time, just as he did in New York. When Barry Goldwater wrote him to complain about the reduced quality of life aboard crowded airplanes, Kahn replied that some discomfort was inevitable. "When a cartel-like regime begins to break up, it breaks up grudgingly, selectively, sloppily ... When you have further doubts about the efficiency of a free market system, please do not hesitate to convey them to me. I also warmly recommend some earlier speeches and writings of one Senator Barry Goldwater." In response to a similar letter from one of his own best friends, who had complained about the experience of flying to Denver seated next to what the friend called a "hippy," Kahn wrote that the experience need not be unpleasant for everyone: "Since I have not received any complaints from the hippy, I assume the distaste was not reciprocated."[124]

ional "rigid, non-competitive, uni-
still worried him, at least theoreti-
crowded condition of the airplanes
criminatory situation. As he put it to
factors rise, I don't quite see how
satisfy the demands of people who
ent to the cost of providing service
ctor, yet are getting service at 75%
implies in the availability of reser-
Kahn's institutionalist background
adition in which it was considered
petition is rarely perfect, and typ-
etly."[122]

hat basic fares might come down,
mpetition might not be working
orking well. If the board had pro-
ting in the form of special fares
ted the rules of classical public-
ave been no breakthrough at all.
who had objected to this discrimi-
e Super Savers are now available
untry; observe the Chickenfeed
who calls in time, regardless of
servitude, or length of hair; and
tory, the beginnings of competi-
."[123]

as having a wonderful time, just
y Goldwater wrote him to com-
life aboard crowded airplanes,
was inevitable. "When a car-
it breaks up grudgingly, selec-
ve further doubts about the
lease do not hesitate to convey
end some earlier speeches and
vater." In response to a similar
ds, who had complained about
eated next to what the friend
he experience need not be un-
not received any complaints
ste was not reciprocated."[124]

Even in the midst of the revolution in rate competition, Kahn and his fellow board members still had to confront the question of how to open up entry into the airline industry by new competitors. Within the CAB, debates broke out over the best way to coordinate these two basic parts of the overall strategy for making the industry competitive. As it turned out, the rapid pace of rate competition forced an acceleration of new entry. As Kahn put it, coordinating rates and entry was "like equalizing the two sides of a mustache: one can do it much more rapidly by cutting down on the longer side than by extending the shorter one!" His answer sounds easier, though, than events made the change seem at the time.[125]

Liberalization of entry, which was only one side of the mustache, included within itself two different possibilities. On the one hand, existing carriers could apply for new routes, and some 600 such applications were pending before the board, many of them dating back several years. As noted before, this backlog reflected the agency's inability during the pre-Kahn era to deal adequately with its assigned responsibilities. Some of the 600 were "totally insincere," said Kahn; others were "actively sought for and prosecuted." But all had to be dealt with, and the prospect of taking them up piecemeal, through the laborious hearings typical of CAB procedure, did not seem pleasant.[126]

On the other hand, a second form of entry could also occur, through a new company's application for admission to the club. Although the CAB had admitted no new trunk carriers in its forty-year history, it had certificated scores of new regional airlines. Once the board began to encourage rate competition, both would-be new entrants and enterprising executives of existing regional airlines started making big plans. Working feverishly, they calculated how they might cut prevailing rates, steal some of the business from trunk carriers, and create new classes of passengers, on the Texas and California models. This frenetic activity within the industry presented the board with some vexing problems, but also with an unusual opportunity to showcase its new policy of competition. "I am reasonably persuaded," said Kahn, "that if we are to make genuine progress toward effective competition, we have to institute some system of automatic, discretionary entry into markets." Only in this way would airline executives be forced to think like other business managers—to plan which services

their companies should provide and which should be left for competitors; and to determine how fare mixtures and route structures might be rationalized, so as to forestall every competitive challenge. Here Kahn's goal led him to inaugurate a policy of granting permissive and nonexclusive entry to airlines applying for new city-pair markets. "If two carriers are applying for a particular route, the traffic on which, it appears, is large enough to justify only one, I suggest that we should carefully be considering *permitting both* but *requiring neither.*" Kahn's idea represented a double reversal of traditional CAB practice. But it would discourage airlines from making preemptive bids for particular markets in order to prevent others from gaining a toehold.[127]

An opportunity to implement these principles came in the form of two dramatic cases involving underused airports in Chicago and Oakland. In the Chicago case, two different applicants asked the CAB for permission to fly routes between Midway Airport and several cities in the Middle West. Midway, situated in the heart of Chicago, was much more convenient for local travelers than was the giant O'Hare Airport located on the city's outskirts. But the major carriers did not like to fly out of Midway because they wanted to build additional traffic through connecting flights with their own scheduled services to other cities, services for which O'Hare provided the center of their hub-and-spoke systems. Since the new applicants had no such networks, they saw an opportunity to create a market niche for themselves in flights between Midway and several medium-sized midwestern cities. Both airlines quoted rates to the CAB 50 percent below those of existing carriers. As soon as these new entrants filed, the carriers already licensed to serve Chicago announced that they would reduce fares in line with the prospective new competition. This step raised the question of whether either of the two applicants could survive in a war with incumbent airlines.[128]

Because of the precedent that any CAB decision would set, the issue of survival held significance beyond the case at hand. As Kahn described it later, "Several civic parties urged us to protect one or both of the innovators by giving them for a year or two the exclusive right to service Midway Airport; some of them originally proposed that we also prohibit incumbent carriers even from matching the low fares at O'Hare. The innovators, they argued, needed and deserved a period of exclusive right to exploit their

and which should be left for com-
fare mixtures and route structures
forestall every competitive chal-
to inaugurate a policy of granting
try to airlines applying for new
ers are applying for a particular
ppears, is large enough to justify
l carefully be considering *permit-*
Kahn's idea represented a double
ice. But it would discourage air-
ls for particular markets in order
toehold.[127]

hese principles came in the form
nderused airports in Chicago and
o different applicants asked the
between Midway Airport and
Midway, situated in the heart of
ent for local travelers than was
on the city's outskirts. But the
out of Midway because they
through connecting flights with
other cities, services for which
ir hub-and-spoke systems. Since
works, they saw an opportunity
elves in flights between Midway
tern cities. Both airlines quoted
w those of existing carriers. As
he carriers already licensed to
ey would reduce fares in line
tion. This step raised the ques-
pplicants could survive in a war

y CAB decision would set, the
beyond the case at hand. As
vic parties urged us to protect
ing them for a year or two the
irport; some of them originally
ncumbent carriers even from
The innovators, they argued,
xclusive right to exploit their

new idea." If the innovators did not get this protection, the incumbents might drive them out of business, then "drift back to O'Hare" in order to maximize connecting reservations. For Kahn, the Midway affair also illustrated his objections to gradual deregulation on a case-by-case basis. "Despite our use of extraordinarily expedited procedures, these applications had been pending for almost two years," during which the incumbents, who already operated over the routes at issue, had the advantage.[129]

Confronted with this situation, said Kahn, "We grasped the opportunity to make our first major grant of universal authority to all applicants, in the belief that this would ensure the fullest and most rapid possible exploitation of the market." In sorting out winners and losers, "the competitive market would do a better job than we." But in order to give the new entrants some breathing room, the board went beyond the case at hand, which involved six city-pairs, and extended multiple permissive authority to include seventeen additional markets. This was designed to prevent the incumbents from blanketing all routes and thereby preempting the potential business of the new companies. "The idea was to open up so many [opportunities that] the incumbents would simply run out of blankets." The new companies embraced this idea, even though during the case they had insisted that they needed temporary exclusive authority. One executive commented, "It's going to be harder for [the incumbents] to grab us in a bigger fishbowl." Added Kahn: "Precisely as we intended."[130]

The Oakland case was conducted along the same lines as Midway, with expedited procedures, multiple permissive entry, and no special protection for innovators. If some companies failed, then so be it. As the CAB's 65-page proposal for Oakland concluded, "We cannot agree to define healthy competition as that state where the fortunes of the competitors fluctuate but no competitor ever goes to the wall." This manifesto expressed a fundamental difference between the policies of the Kahn board and those of the old CAB. Whereas traditionally the CAB had looked on the prospect of an airline bankruptcy with horror, Kahn regarded bankruptcy as a normal result of competitive business pressures: "In healthy competition, producers who are inefficient or make bad decisons may fail, but efficient and well-managed producers can operate profitably." The CAB's achievement in Oakland, together with similar ones at Midway and elsewhere,

made 1978 the year in which, as the agency's *Annual Report* put it, "the CAB route program entered its most active phase in the history of the Board." In the process, Kahn had given up all faith in the merits of gradual deregulation. He had shifted instead to deregulation at a breakneck pace, and the board's policy of proceeding on several fronts simultaneously seemed to be working beyond anyone's wildest expectation. The airlines were enjoying their most prosperous business in many years. And the CAB, said the *Annual Report*, in an explosion of polysyllables but with full accuracy, had "introduced unprecedented substantive and procedural innovations."[131]

Due Process and Competition

These gains did not come easily. The CAB had cut its procedural decision-making time in half, Kahn wrote a close friend, but there had been "blood on the floor." Overall, the chairman reported, the board's efforts to cut red tape "have come under attack from much of the practicing bar." In no case, however, had the CAB abandoned its traditional hearings process, and the repeated suggestions to the contrary always angered Kahn.[132]

Looking back now, it seems clear that the experience of the CAB in 1977 and 1978 provides an exceptionally vivid example of change along one of the main currents in American regulatory history: tradeoffs between economic efficiency and procedural due process. From the very beginning, as the Massachusetts experience of Charles Francis Adams demonstrated, all attempts to regulate economic behavior toward the goal of greater efficiency encountered obstacles based on traditional values of American life, liberty, and property—protection of which was guaranteed under the Bill of Rights and the Fourteenth Amendment. In the 1870s, Adams had sidestepped this difficult question by refusing to assert regulatory powers that would have interfered with the constitutional rights of persons and thus have drawn his commission into court. The Massachusetts Board of Railroad Commissioners emphasized publicity and shunned coercion. In that way it remained out of court, its powers ironically maximized through its own policy of restraint. But the tradeoffs between economic efficiency and due process continued long after Adams' time. In some ways, the entire history of responsible regulation is encapsulated in the ongoing effort to strike a proper balance between the two.

s the agency's *Annual Report* put
tered its most active phase in the
ocess, Kahn had given up all faith
lation. He had shifted instead to
ce, and the board's policy of pro-
neously seemed to be working be-
ion. The airlines were enjoying
n many years. And the CAB, said
ion of polysyllables but with full
ecedented substantive and proce-

The CAB had cut its procedural
n wrote a close friend, but there
erall, the chairman reported, the
ve come under attack from much
e, however, had the CAB aban-
ocess, and the repeated sugges-
ed Kahn.[132]

lear that the experience of the
exceptionally vivid example of
rrents in American regulatory
ic efficiency and procedural due
as the Massachusetts experience
trated, all attempts to regulate
l of greater efficiency encoun-
al values of American life, lib-
which was guaranteed under
nth Amendment. In the 1870s,
t question by refusing to assert
e interfered with the constitu-
ve drawn his commission into
Railroad Commissioners em-
rcion. In that way it remained
aximized through its own pol-
ween economic efficiency and
lams' time. In some ways, the
ion is encapsulated in the on-
ce between the two.

For Louis D. Brandeis, in contrast to Adams, the keys to regulatory definition making and standard setting did not emerge as a result of informal commission rulings, but rather from court decisions and procedures. For him, the essence of regulatory routine could be found in established legal rules of evidence, testimony, and cross-examination. The adversarial theory—two strong advocates arguing for their versions of truth before impartial judges and juries—lay at the heart of the Anglo-American conception of liberty, an ideal that Brandeis would not willingly undercut. Brandeis admonished the first members of the Federal Trade Commission not to give advance advice to business managers, but to rely instead on established judicial procedures as the best method for setting the limits of competition. This devotion to cherished principles symbolized not only Brandeis' stand but also the collective view of the American bar toward regulation itself.

In the early years of administrative regulation, American courts took a stern stance toward the upstart commissions. Partly from jealous guardianship of power, partly from unfamiliarity with administrative needs, judges often limited regulatory discretion so severely that the commissions had to return to the legislatures again and again for grants of clarifying powers. By the time of the New Deal, however, the discretion of administrative agencies had begun to spread beyond previous boundaries, as the powers of commissions and boards multiplied. James Landis celebrated this phenomenon in *The Administrative Process*, which caught the tenor of the times. Unlike Brandeis, Landis embraced advance advice and made it the normal routine of the SEC. By the end of World War II, then, the advocates of wide regulatory discretion and minimal judicial review were in command. For a brief moment the "conservative" opponents of this discretion—usually found in bench and bar—seemed to have lost the fight.

At just this point in American legal history, the old establishment staged a counterattack, the traditional viewpoint having been strengthened by two recent developments. One was a wave of national conservatism, a common aftermath of wars. The second brought to the foreground a reinforcing battalion of "liberal" lawyers who were growing uncomfortable with government threats to civil liberties. Conscious of the rise of totalitarianism in the 1930s and of its persistence in eastern Europe during the 1940s, civil libertarians now joined with the old opponents of

commission power to oppose broad governmental discretion. The result was an effective political coalition that pushed the Administrative Procedure Act of 1946 through Congress.[133]

That act proved to be a milestone in the history of American administrative government. Over the next generation, not only regulatory decision making but nearly all administrative action came under the new rules of notice, reasonableness, and opportunity for all affected parties to give evidence and testimony. Later, in the mid-1960s, still another judicial revolution moved regulatory practice even farther down the track of procedural safeguards. This was the revolution in "standing," which brought new participants and issues into regulatory proceedings. Now matters of environmental impact, affirmative action, and rights of other affected parties added new layers of procedural requirements to the already sizable burden of the regulatory process.[134] In all of this, of course, the influence of lawyers on regulation—always extremely powerful—reached its historical zenith. Lawyers seemed indispensable, and the corporation or agency that tried to do its business without expert legal advice was simply being foolish.

Alfred Kahn viewed this situation with displeasure when he undertook to reform the regulatory scene. In New York, his chief response took the practical shape of the generic rate hearing. At the CAB, Kahn launched a frontal assault on what he regarded as the flagrant and broad-gauged abuse of due process, by public and private sectors alike. "It seems to this layman," he said, "that 'due process' is defined in an asymmetrical fashion: it seems inherently to give protection to the parties who benefit from delay, and to be injurious to the parties—typically the public at large—who are *adversely* affected by delay . . . In short, the requirements of *legal* due process, interposing the heavy hand of government between an idea and its application in the market, are directly antithetical to competition."[135]

Kahn favored decision making in the open; thus he championed the sunshine laws enacted by Congress in the late 1970s. But he knew that the basic problem transcended the issue of openness. Rather it had to do, as he wrote the chairman of the House Subcommittee on Aviation, with "being placed in the position of having to tell a businessman to wait two years until we bureaucrats have shuffled enough papers to permit us to reach a decision

IST'S HOUR

ad governmental discretion. The coalition that pushed the Admin- hrough Congress.[133]

tone in the history of American r the next generation, not only nearly all administrative action ce, reasonableness, and opportu- e evidence and testimony. Later, dicial revolution moved regula- the track of procedural safe- "standing," which brought new tory proceedings. Now matters tive action, and rights of other rs of procedural requirements he regulatory process.[134] In all lawyers on regulation—always s historical zenith. Lawyers rporation or agency that tried legal advice was simply being

n with displeasure when he un- ene. In New York, his chief re- he generic rate hearing. At the ult on what he regarded as the f due process, by public and is layman," he said, "that 'due al fashion: it seems inherently benefit from delay, and to be the public at large—who are ort, the requirements of *legal* hand of government between rket, are directly antithetical

he open; thus he championed ess in the late 1970s. But he ended the issue of openness. chairman of the House Sub- placed in the position of hav- o years until we bureaucrats mit us to reach a decision

which probably shouldn't be any of our concern in the first place."[136] Kahn's best opportunity for a full expression of his thoughts on due process came when the American Bar Association invited him to speak to its members in New York. As a title for the session, planners had selected "Regulatory Reform at the Civil Aeronautics Board—With or Without Legislation—With or Without Due Process." Their provocative gesture gave Kahn the opening he had been waiting for. His speech, despite its manifest passion, represented his mature thoughts on the issue, framed after a career of careful writing about regulation and after more than four years' experience as chairman of two important regulatory agencies.

Ever the showman, Kahn began his address by quoting, in Scots dialect, four stanzas from Robert Burns's satiric poem, "To a Mouse." Such a "wee, sleekit, cowrin, tim'rous beastie" had devised "the inhospitable, smart-alecky title." Having captured the attention of the assembled lawyers, Kahn moved on to an analysis of their motives. Referring to route and entry procedures, "where we encounter by far the most complaints from some members of the aviation bar," he said that he and his colleagues had tried to substitute innovative methods for the "Perry Masonisms that characterize the typical CAB proceeding." The bar, deprived of long and "lucrative" procedures, had protested. And the lawyers' real objections, Kahn suggested, were not procedural but substantive; they did not wish to see so much new entry into the industry. "Indeed, I cannot help feeling that some among you, determined to resist our present policies with all the weapons at your command, have seized upon procedural arguments because you really can't refute our new policies substantively—just as in the past some of you used laws designed to protect the environment or to encourage energy conservation as devices to shield your clients from competition."[137]

Kahn continued his address, blistering the captive audience with the heat of his powerful attack:

> Are we, in removing the restraints that for 40 years have kept people out of the airline industry, in proposing to open up markets to all fit applicants, and relieving incumbents of burdensome restrictions on their operating rights, are we running afoul of the Fifth Amendment's injunction against depriving persons of "life, liberty or property without due process of law"? . . . Are we in so doing depriving the incumbent carriers

of property, with or without due process? I find no justification in either the Constitution or the Federal Aviation Act for the assumption that the certificates of public convenience and necessity that we issue under the Act for providing air service over particular routes need be exclusive, or that the Board is under the slightest constitutional obligation to safeguard their value, as protected property under the Fifth Amendment. I have been told by people who have been at the CAB a long time . . . that in the past the Board would often choose among competing applicants for the right to operate a particular route in secret sessions, held in a closed room from which all staff were rigidly excluded; that somehow out of that process emerged a name attached to the route in question; that the Chairman—or perhaps his assistant—would then pick up the telephone and call the General Counsel and tell him who the lucky winner was, and nothing more; that then a lawyer on the General Counsel's staff, amply supplied with blank legal tablets and a generous selection of cliches—some, like "beyond-area benefits," "route strengthening" or "subsidy need reduction," tried and true, others the desperate product of a feverish imagination—would construct a work of fiction that would then be published as the Board's opinion. Need I add that any resemblance between it and the Board's actual reasons for its decision would be purely coincidental? And then the courts solemnly reviewed these opinions, accepting the fiction that they truly explained the Board's decision, to determine whether the proffered reasons were supported by substantial evidence of record.

Well, we have come to grips with the institutional decision. The Sunshine law has helped force us to do so, but I would like to take some small credit too . . . I am particularly proud, for example, of our decision in the Midway case—not mainly because it is well written, although I think it is, but because it lays out, step by painful step, the actual agonizing process we went through in deciding to certificate all applicants, and to protect nobody from anybody . . . I believe that one substantive regulatory principle on which we can all agree is the principle of minimizing coercion: that when the government presumes to interfere with peoples' freedom of action, it should bear a heavy burden of proof that the restriction is genuinely necessary . . . The dispensation of favors to a selected few is a political act, not a judicial one . . . None of this exempts a regulatory commission from the requirement to be scrupulously fair. But due process in the fashioning of economic *policy* is not the same as due process in a criminal trial, and the attempt to hedge it about with the same kinds of procedural restrictions perpetrates all sorts of unfairnesses, in the name of due process.[138]

The discomfort among the audience can only be imagined, though many listeners must have admired Kahn's candor.

process? I find no justification in either
viation Act for the assumption that the
and necessity that we issue under the
particular routes need be exclusive, or
test constitutional obligation to safe-
operty under the Fifth Amendment. I
been at the CAB a long time . . . that
choose among competing applicants
ar route in secret sessions, held in a
vere rigidly excluded; that somehow
e attached to the route in question;
s assistant—would then pick up the
nsel and tell him who the lucky win-
n a lawyer on the General Counsel's
al tablets and a generous selection of
benefits," "route strengthening" or
rue, others the desperate product of
truct a work of fiction that would
inion. Need I add that any resem-
ctual reasons for its decision would
he courts solemnly reviewed these
hey truly explained the Board's de-
offered reasons were supported by

he institutional decision. The Sun-
but I would like to take some small
for example, of our decision in the
is well written, although I think it
ful step, the actual agonizing pro-
certificate all applicants, and to
lieve that one substantive regula-
ree is the principle of minimizing
resumes to interfere with peoples'
y burden of proof that the restric-
spensation of favors to a selected
. . None of this exempts a regula-
to be scrupulously fair. But due
olicy is not the same as due pro-
to hedge it about with the same
rates all sorts of unfairnesses, in

can only be imagined, though
ahn's candor.

The CAB's Constituencies

Like Adams and Landis before him, Kahn considered it vitally important that his policies be made clear to his various constituencies. He spent an enormous amount of time making speeches, writing letters, and cultivating the press. In fact, one of his greatest strengths—perhaps his greatest—was as communicator and educator. Seldom did he mince words or try to sweet-talk hostile interest groups. Convinced of the correctness of his cause, Kahn attempted to explain his position, point out the inconsistencies of opposing arguments, and persuade through reasoned argument. As a teacher, he never retired.

More than any other group, the airline labor unions learned Kahn's lessons the hard way. Quite accurately sensing that wages would decline if the industry suddenly became competitive, the unions did not want to surrender the cartel-like protection afforded them by the old CAB. Kahn, despite the prolabor sympathies characteristic of his background as a liberal Democrat, met their objections head on. He conceded that regulation did raise the compensation received by labor, and not just airline labor. The reason for this, Kahn believed, could be found in the cost-plus character of traditional regulation, which induced companies to pass along input costs to their customers and which discouraged them from effective searches for cost reduction. Regulators, for their part, permitted such a policy because they wanted to keep peace within the industry and because they themselves were accustomed to cost-plus ways of thinking.[139]

After voicing his lack of sympathy with this view, Kahn was deluged with hostile mail from labor. He proved more than ready to answer his critics. In his typically open and didactic manner, he responded to one pilot who had protested against Kahn's statements about excessive pay:

> You argue in rebuttal that being a pilot requires a high degree of skill, long training, and great responsibility and entails arduous working conditions. That is absolutely correct. From these facts, you conclude that the present high wages and short hours are justified. I disagree. The sort of value-of-service pricing you suggest is not the way that wages are set in the competitive sectors of our economy. Wages, like the prices of other goods and services, are determined on the basis of supply and demand. The long training and skill required to be a successful pilot will

always limit the supply, and thus justify wages markedly higher than average in our economy—but not necessarily as much higher as today.[140]

Again, Kahn told a protesting executive of the Air Line Pilots Association that he was "badly misinformed" about what the CAB was trying to do. After denying that he himself was antilabor, Kahn insisted: "If I'm anti-anything, I'm anti-excessive government interference . . . And I am *particularly* against government being used to protect powerful business interests by giving them special grants of monopoly privilege." His dander up, Kahn added that he resented "the cheap argument you repeat about my having tenure at Cornell . . . I don't *need* tenure at Cornell." But the central lesson was, "Lower prices induced by more competition mean *more* jobs, not fewer: don't you forget that when you say it is you who speak for labor, and not I."[141]

Nor did Kahn limit his candor to distant correspondents or lone dissenters. Informed that Pan American World Airways had flouted the CAB's advice on discount tickets, he said, "I'm inclined to tell Pan Am to go to hell." When Jimmy Carter reversed the CAB's recommendation about an international route award, Kahn openly criticized the president. "There have been three major international decisions, and he has overturned me on all three." Expressing himself as thoroughly disappointed, Kahn told reporters that Carter "is the President and has the right to make a judgment, and I have a right to disagree with it, which I do." The chairman said later, on a television program, that Carter's decision "casts a shadow on the integrity of the [CAB] process."[142] Even so, throughout his tenure at the CAB, Kahn's relationship with the president remained warm and close. Kahn usually communicated with the White House on only a few kinds of issues, such as international aviation, where the president possessed much broader regulatory authority than over domestic policies. A related issue concerned the attempts of Secretary of Transportation Brock Adams to move into the domain of both the CAB and the State Department (which led American negotiations on international airline matters). Kahn vigorously repulsed Adams' foray.[143]

A third area of communication between Kahn and the White House concerned the appointment of new board members. In 1978, the terms of his two Democratic colleagues ended, and Kahn

was concerned about suitable replacements. Not only his party majority but also his policies were at stake. "Above everything else," he wrote to Hamilton Jordan, "what I need on the Board is professionalism. Every step on the path to regulatory reform is politically charged. The *only* way we can persevere is if each Board appointee has a firm, independent professional background and qualifications, and is in a postion to make strong, intellectually-grounded professional judgments." So Kahn took an active hand, proposing specific names for President Carter's consideration. "I know you already recognize that my job in months and years ahead will be impossible if you do not actively involve me in this process."[144] A little later in 1978, Kahn sketched for the White House the general situation:

> Remember we have a nervous Congress; our decisions are subject to Court review; and the airlines and the financial community are constantly demanding assurances that we are not a bunch of wild-eyed ideologues, and that we know what we are doing . . . [We have adopted] genuinely novel procedural and substantive policies. That process can work well only if each Member participates actively . . . What kind of people do I need, specifically? I need people with special skills in making highly technical public economic policy—with training and/or experience in the law, economics, regulation. I don't need politicians. Maybe I can stand one—two, absolutely not.[145]

In the end, Carter's appointments met with Kahn's approval. The president was on his side, in part because of the chairman's careful attention to White House relations.

Lobbying the Congress

Senators and representatives provided yet another set of constituents about whom Kahn must worry. In fact, because legislation to deregulate the industry was pending on Capitol Hill throughout his chairmanship, he spent more time dealing with Congress than with any other group except for the board itself.[146] The road to legislative change wound tortuously around the special interests opposing deregulation. The coalition of industry and labor spokesmen alone seemed an almost unbeatable opposition, even without their allies in the Department of Transportation and among remaining dissidents in the CAB. A related problem seemed the sheer weight of history. Over time, Congress had enacted an enor-

mous amount of regulatory legislation, beginning with the Act to Regulate Commerce of 1887. And in the ninety years since that beginning, the trend had all been one way: toward more of the same. Congress had never taken anything like the giant step backward that Kahn and his allies were now urging. Even the word "deregulation" had entered the national vocabulary only recently, and so far there was little besides bombast to stand behind it. Numerous deregulation bills had been introduced; but, as a trade paper reported late in 1977, "after three years of elephantine rhetoric," the lack of action made deregulation look like a mouse. Powerful presidential support would have helped, but Jimmy Carter was preoccupied with his energy legislation.[147]

Already Kahn had achieved spectacular success within the CAB, with his policies of rate competition, open entry, and new route authority. The industry responded with lower fares, higher earnings, and service initiatives. Yet this very success seemed to be giving ammunition to Kahn's opponents, who argued that the CAB's turnabout made new legislation unnecessary.[148] For Kahn himself, no argument could have sounded more ironic. The real fight, he knew, had just begun. For one thing, the board's innovative procedures must still meet the test of judicial review. The challengers who had appealed the CAB's Midway and Oakland decisions might well win because they had "40 years of CAB precedent to back them up." Not only that, but the appointment of different board members could quickly reverse the progress already made. Therefore Congress must act. A well-designed deregulation bill, Kahn concluded, will "secure these advances against a change of agency policy, and it will surely avoid a lot of difficult litigation challenging the legality of the reforms we have already introduced."[149]

Many members of Congress balked at deregulation because of their uncertainty about future airline service to small cities once deregulation was on the statute books. These legislators were acutely sensitive to their constituents' wishes for big-time airline service, a concern augmented by their own dependence on frequent jet flights for quick trips to and from home. Hundreds of legislators, particularly those from rural districts, were loath to tamper with the existing system. As noted earlier, the CAB's forty-year pattern of dealing with local service had been to maintain a balancing act among routes with heavy and light traffic.

ation, beginning with the Act to
d in the ninety years since that
n one way: toward more of the
nything like the giant step back-
ere now urging. Even the word
itional vocabulary only recently,
bombast to stand behind it. Nu-
een introduced; but, as a trade
three years of elephantine rhet-
leregulation look like a mouse.
ould have helped, but Jimmy
energy legislation.[147]

spectacular success within the
mpetition, open entry, and new
onded with lower fares, higher
et this very success seemed to be
ponents, who argued that the
ation unnecessary.[148] For Kahn
sounded more ironic. The real
r one thing, the board's innova-
he test of judicial review. The
e CAB's Midway and Oakland
hey had "40 years of CAB prec-
hat, but the appointment of dif-
ly reverse the progress already
t. A well-designed deregulation
these advances against a change
avoid a lot of difficult litigation
eforms we have already intro-

ked at deregulation because of
ine service to small cities once
books. These legislators were
nts' wishes for big-time airline
their own dependence on fre-
d from home. Hundreds of leg-
rural districts, were loath to
As noted earlier, the CAB's
ocal service had been to main-
s with heavy and light traffic.

Confronted with this issue, and with the fears on Capitol Hill, Kahn took the same line of attack that had served him so well in the past. He acknowledged the reality of the problem, laid out a theory for its solution, and then sought by reasoned analysis to change the minds of skeptics. In addition to his many appearances before subcommittees of both houses, he talked with scores of legislators and their staff assistants, called them repeatedly on the telephone, and wrote one letter after another in response to specific queries. Even under the existing system, Kahn told one senator, the airlines were flying more than they had to under the terms of their certificates. "There is absolutely no reason to doubt that the same would be true under the automatic entry provisions." Fares would drop, traffic would grow, and the frequency of service might actually increase. "Is this prediction merely hypothetical, merely based on deductive reasoning? I submit it is not. It is based on the lessons of economic history; this is how a competitive market operates, and you can see proof of it everywhere about you."[150]

The chairman's own congressman, representing the Cornell district in New York, wrote him to protest the CAB's decision permitting Allegheny Airlines (later U.S. Air) to reduce its service to Ithaca. Kahn replied that eventually Ithaca and similarly sized cities would receive better service from small commuter airlines than the CAB could ever force Allegheny to offer. True, the market adjustment would take some time, and gaps would occur during which there might be no service at all. But Kahn saw no alternative, given the overall goal of making the industry competitive: "Telling carriers they must compete and cannot look to the government for protection is totally inconsistent with telling them also that they must provide unremunerative services at their own expense."[151] The chairman lobbied endlessly on this point, and he tried to enlist the help of local airlines themselves. "In almost every conversation I have had with Congressmen," he said in a speech to the Commuter Airlines Association, "I have encountered a tendency to deprecate the value of service by small aircraft. They and their constituents seem to think it is somehow demeaning to lose service by large jets once or twice a day, and receive instead service by the obviously more suitable and efficient smaller commuter aircraft, even when that means service four and five times a day—this in the face of all the objective evi-

dence that travelers respond positively to such substitutions. I think you have a major public relations job here."[152]

Kahn himself, of course, excelled at public relations. He turned every contact with members of Congress into an opportunity for further lobbying. In one letter he sent to every member of the Senate, he noted that the CAB unanimously supported the deregulation bill, enclosed two pages summarizing key issues, attached fifteen pages of relevant testimony, and closed with an offer of further help: "I would like to extend to you an offer of my services and those of my staff to answer whatever questions you may have about the need for the legislation or any of its provisions. In particular, I know you are probably concerned about the provision of air service to the smaller communities within your state . . . If you would like information about that or any other aspect of the bill, please don't hesitate to call on me."[153]

Kahn was an effective lobbyist in part because he received such a good press. Congressmen liked to talk with him; he was interesting and considerate of their problems, and the media were making him into a national celebrity. He granted interviews freely and spent a good deal of time talking to reporters. Kahn understood their needs and prejudices, and played directly to both. He made a point of self-deprecation, but seldom failed to give each interviewer something new, some small exclusive. As a result, he received extremely wide coverage, nearly all of it favorable. Detailed feature articles about him appeared in the *New York Times*, the *Wall Street Journal*, the *Washington Post*, *Fortune*, *Forbes*, *Barron's*, *National Journal*, and many others. He was written up regularly in such trade publications as *Airline Reports*, *Aviation Daily*, and *Travel Weekly*. He appealed to even broader audiences, in writeups for *People* magazine and on television programs such as the "MacNeil-Lehrer Report" and William F. Buckley's "Firing Line." He was always a hit. After being told that the MacNeil-Lehrer producers had received a record number of requests for transcripts of his appearance, Kahn wrote a friend, "Maybe I should throw up my present job and do what I really would love to do—play musical comedy on whatever stage will accept me."[154] But in fact he stood on the right stage already. When a student who had taken his courses at Cornell thirty years before wrote him about his new celebrity, Kahn replied that he "was awfully pleased to hear your recollections of me as a teacher.

sitively to such substitutions. I
ations job here."[152]
d at public relations. He turned
Congress into an opportunity for
e sent to every member of the
animously supported the dereg-
ummarizing key issues, attached
, and closed with an offer of fur-
l to you an offer of my services
natever questions you may have
r any of its provisions. In partic-
cerned about the provision of air
es within your state . . . If you
or any other aspect of the bill,
."[153]
n part because he received such
talk with him; he was interest-
ms, and the media were making
granted interviews freely and
to reporters. Kahn understood
yed directly to both. He made a
dom failed to give each inter-
ll exclusive. As a result, he re-
, nearly all of it favorable.
m appeared in the *New York*
he *Washington Post*, *Fortune*,
and many others. He was writ-
ublications as *Airline Reports*,
. He appealed to even broader
nagazine and on television pro-
rer Report" and William F.
ways a hit. After being told that
l received a record number of
earance, Kahn wrote a friend,
esent job and do what I really
omedy on whatever stage will
od on the right stage already.
courses at Cornell thirty years
elebrity, Kahn replied that he
ecollections of me as a teacher.

In a way, I feel that I am still in that profession—but giving my lectures from a slightly different platform."[155]

The Act of 1978

In October 1978, Congress finally passed the Airline Deregulation Act. It formalized all the principles Kahn had been enforcing administratively. Now, at last, the future of these principles seemed secure against adverse judicial challenge. Kahn's only regret, he said later, was that the passage of the act denied him the opportunity of defending the CAB's policies at the Supreme Court, where he would have "presented the ultimate Brandeis brief." The new legislation made the setting of fares competitive, gave the carriers almost unlimited route authority, and opened up the airline business to free entry by new companies. In a gesture calculated to emphasize that the act meant business, Congress added a provision calling for the disappearance of the Civil Aeronautics Board after a suitable transition period, defined by the act to expire in 1985.[156]

For all these changes, it is unrealistic to credit Kahn alone. Many hands helped, and some had been toiling long before Kahn came to Washington. The Kennedy hearings of 1975, planned and executed by Stephen Breyer, certainly began the groundswell of support for deregulation. The subsequent joint efforts of Naderites, conservative Republicans, and liberal Democrats amounted to a rare spectacle of cooperation by diverse allies. And the persistent lesson of experience—the examples of success without tight regulation in California and Texas—provided the necessary demonstration without which deregulation perhaps never would have arrived.

Kahn's primary contributions lay in two areas. First, by setting an example through powerful administrative action, he made it impossible for the opposition to paint a horrible picture of a deregulated future. During his sixteen months at the CAB, the airlines enjoyed the most prosperous economic times in their recent history. Their load factors climbed rapidly, their profits doubled, and they could no longer keep claiming that deregulation meant disaster. One by one, the airlines began to soften their stance. Led by United, the largest of the carriers, a few major companies broke ranks and went over to Kahn's side. Seeing deregulation as likely

to come despite their campaigns against it, these defecting airlines decided on a policy of trying to shape the specific package enacted by Congress.

Second, having neutralized the opponents, Kahn moved to consolidate the supporters and mobilize them in favor of new legislation. He did this by a masterly orchestration of diverse forces. Like a gifted conductor managing an intricate composition, he brought every player, every instrument, into the piece at the appropriate time. He made sure that the movements of the symphony did not get out of proper sequence, as they were forever threatening to do. Kahn managed the media, the Congress, the White House, and most important of all the CAB itself, giving each its individual cues, its required up- or downbeat. Exploiting the momentum that had been building since the early 1970s, he said all the right words, called in all the right clichés.[157]

When the act finally passed, the magazine *Aviation Week and Space Technology* editorialized that Kahn had shaken the CAB out of its torpor. In an outburst of mixed metaphors, the magazine praised his tenure at the head of a board that had been "manned largely by political lame ducks and operated by a swollen, legalistic bureaucracy, was still flying through a DC-3 environment that regulated the airlines down to a minimal survival diet and denied the ingredients vital for healthy growth. Surgery always is drastic, and Mr. Kahn's actions induced a certain post-operative shock. But he effectively removed the palsied hand of the CAB from the airlines' growth throttle."[158]

On the day the deregulation act was signed, Kahn wrote several members of Congress to thank them for their support. To one senator he said, "I can't begin to tell you how happy I am that [the Act] has been passed or how confident I am that with it we can create a truly competitive airline industry that is genuinely responsive to the needs of consumers and better, too, for airlines and their employees." He added a handwritten postscript. "This is the last letter I will sign as Chairman of the CAB. As you may have read, the President has persuaded me to try to help him with the problem of inflation. I will try to apply in that job the same philosophy I've tried to apply to air transport." President Carter informed the CAB staff that Kahn was leaving with extreme reluctance and that he himself was taking the chairman away only because even more important tasks beckoned. "You at the Board,"

gainst it, these defecting airlines
pe the specific package enacted

ppponents, Kahn moved to con-
ze them in favor of new legisla-
estration of diverse forces. Like
tricate composition, he brought
to the piece at the appropriate
ments of the symphony did not
were forever threatening to do.
ngress, the White House, and
self, giving each its individual
Exploiting the momentum that
1970s, he said all the right
s.[157]

magazine *Aviation Week and*
Kahn had shaken the CAB out
ixed metaphors, the magazine
board that had been "manned
operated by a swollen, legalis-
ough a DC-3 environment that
nimal survival diet and denied
wth. Surgery always is drastic,
certain post-operative shock.
ied hand of the CAB from the

vas signed, Kahn wrote several
for their support. To one sen-
you how happy I am that [the
lent I am that with it we can
industry that is genuinely re-
nd better, too, for airlines and
written postscript. "This is the
f the CAB. As you may have
ne to try to help him with the
pply in that job the same phi-
ansport." President Carter in-
s leaving with extreme reluc-
ing the chairman away only
eckoned. "You at the Board,"

Carter wrote, "have presented my Administration with one of its great success stories."[159]

A number of his friends expressed surprise when Kahn accepted the anti-inflation job as head of the Council on Wage and Price Stability. Indeed he managed to achieve little more success in it than had his predecessor, Robert Strauss. As administrator of a voluntary control program, the chief inflation fighter had few weapons. Within the administration, Kahn had to vie for influence with other heavyweights: Treasury Secretary Michael Blumenthal, White House domestic policy chief Stuart Eizenstat, Council of Economic Advisers Chairman Charles Schultze, and Office of Management and Budget Director James McIntyre, Jr. Several of these rivals had been administration insiders since Carter's inauguration. Even within his own council, Kahn had to compete for influence with Director Barry Bosworth. For months, a freeze on new federal hiring frustrated Kahn's attempts to recruit even a small staff to assist him.[160]

In office, Kahn continued to receive a good press, but the politics of his position made it impossible to avoid costly struggles. Almost immediately, he became embroiled in disagreements with AFL-CIO chief George Meany, who argued that the administration's economic program favored business at the expense of labor. On another occasion, when Kahn suggested that consumers might boycott stores whose price increases exceeded the guidelines, he came under severe attack in the business press. Journalists continued to praise his forthrightness, but noted that this very quality caused "teeth-gnashing" within the administration.[161]

In the 1970s, Kahn had been very good at pointing out areas in which industry-specific protectionist arrangements were promoting inflation and costing consumers money. As chief inflation fighter, he continued his campaign against inappropriate regulation in particular industries; the Carter Administration's program for trucking deregulation, for example, was effectively managed from Kahn's office. But for the country at large, the control of inflation represented a special macroeconomic problem surrounded by a good deal of uncertainty. No rigorous theory of inflation existed, at least none comparable to the long-tested theories of price and entry that guided Kahn's CAB policies. The idea of wage-and-price guidelines seemed to contradict the very reliance on market mechanisms that had formed the basis for his great campaigns at

both the CAB and the New York Public Service Commission. Success for Kahn in the role of chief inflation fighter was just not in the cards. He acquitted himself well, but the odds defeated him as they had defeated Strauss and others.[162]

Kahn's Achievement

Kahn had gone from Cornell to the New York Public Service Commission in 1974 and had remained at that post for a little less than three years. He arrived in Washington in 1977 and held the CAB chairmanship for about a year and a half. The four and a half years of his agency chairmanships is still too recent to allow for mature historical perspective. The utility and the airline stories are far from over. Each industry has been powerfully affected by subsequent events, especially by the absence of general economic prosperity in the years after Kahn's departure.

He had left both the New York PSC and the CAB, for example, prior to the Iranian revolution and the "second oil crisis" of 1979. These events shook the world economy and contributed to the start of another prolonged recession, which in turn struck hard at both electric utilities and airlines. For utilities, the recession meant diminished demand for electricity. This was not entirely bad news, given the industry's upward-shifting marginal-cost curve. But the decline in demand growth was so unusual that utilities actually began canceling construction projects long underway, thereby accepting writeoffs of hundreds of millions of dollars. Around America, abandoned construction sites stood as silent reminders of unrealistic assumptions about growth as the natural order of things—ghost towns of a lost prosperity.

In such a situation, marginal-cost principles assumed even greater significance than they had during Kahn's tenure in New York. The nationwide movement toward the right kinds of price signals had begun even before the second oil shock, and in that movement Kahn's pioneering played an important role. His generic rate hearings were copied in several other states, as intervenors and commissions sought to educate companies and consumers about the potential benefits from marginal-cost rate structures.

Of particular importance was the Public Utility Regulatory Policies Act of 1978, which Congress passed partly to induce com-

T'S HOUR

ıblic Service Commission. Suc-
nflation fighter was just not in
l, but the odds defeated him as
rs.[162]

he New York Public Service
ned at that post for a little less
shington in 1977 and held the
and a half. The four and a half
is still too recent to allow for
utility and the airline stories
s been powerfully affected by
e absence of general economic
departure.
SC and the CAB, for example,
the "second oil crisis" of 1979.
nomy and contributed to the
, which in turn struck hard at
. For utilities, the recession
tricity. This was not entirely
upward-shifting marginal-cost
owth was so unusual that util-
struction projects long under-
hundreds of millions of dollars.
uction sites stood as silent re-
about growth as the natural
st prosperity.
ost principles assumed even
during Kahn's tenure in New
ward the right kinds of price
second oil shock, and in that
ed an important role. His ge-
several other states, as inter-
to educate companies and
efits from marginal-cost rate

Public Utility Regulatory Pol-
passed partly to induce com-

panies and state commissions to use marginalist principles in rate-making. The staff of the New York Public Service Commission directly influenced the content of this legislation, and the commission's own position, of course, derived from Kahn's earlier tenure in Albany. The act imposed a statutory deadline (November 1981) by which all fifty states must follow certain standards in setting rates. One of these standards prohibited a utility from using declining-block rates unless it could demonstrate that its costs declined as its customers' consumption increased, a provision identical to one Kahn had imposed on New York utilities during his PSC chairmanship. Even though national progress toward implementing marginal principles lagged and the 1981 deadline was not universally met, the revolution in utility pricing went forward. All over the country in the early 1980s, rate hearings began to recapitulate the New York experience. Few innovative principles emerged that had not been anticipated by Kahn in the generic rate hearings of 1975–76. Again, the real question was whether state regulatory bodies could adapt quickly enough: whether they could look beyond their own inclination to discipline utilities by reflexive denials of requests for rate increases. As the industry entered one of the most critical stages in its history, some observers began to predict serious power shortages by the late 1980s.[163]

In the airline industry, the post-Kahn era did not appear to be so ominous, but still it was full of uncertainty. The prosperity of the 1977–78 period hardly lasted beyond Kahn's departure, as the oil crisis hit the airlines, doubling fuel prices and making existing fleets uneconomical. The companies had purchased aircraft designed under assumptions of low fuel costs, and the jump in price upset all cost estimates. A new generation of fuel-efficient airplanes would have to be designed and built. But in a period of general economic recession—which always affects this industry in an exaggerated way—where were the airline companies to find the money to pay for the new equipment?[164]

Despite such problems, the early returns on deregulation looked very favorable. Even during the recession, passenger traffic held fairly steady, drawn by special rates. Overall rate levels climbed in response to spiraling costs—particularly of fuel—but this had nothing to do with deregulation. An authoritative early study, produced by the Harvard Faculty Project on Regulation, found that the overall results of deregulation remained strongly positive

through 1980, the cutoff date for the study. Later investigations, including an intensive analysis by the CAB itself (carried through the year 1982), confirmed the same result. In all studies, only two classes of "losers" could be identified: small cities not yet served by new commuter airlines and business travelers who received poorer service than they wanted and were willing to pay for (because of higher load factors, congested airports, and new classes of passengers).[165]

One major airline, Braniff, declared bankruptcy, but by common agreement Braniff's troubles derived from having overextended itself in an attempt to take advantage of deregulation. Under the open-entry provisions of the act of 1978, Braniff attempted to fly dozens of new routes for which it was ill equipped. In its effort to win traffic from competitors, Braniff slashed its rates, only to see other carriers match the cuts. At that point, as one Wall Street analyst remarked, "It became a bleeding contest. And Braniff bled to death faster." Kahn had predicted this kind of outcome. Poor management decisions and bankruptcies, he had argued, were routine occurrences in business. Competitive wars separated good managers from bad and afforded the opportunity for even established companies to make poor decisions. The only way to avoid all business failures was for the government to neutralize all competitive advantages, including superior management, by protecting participants and barring new entrants. Again, Kahn had been one of the few advocates of airline deregulation to engage this question openly. In the years before his arrival in Washington, fear of bankruptcies had imposed a major barrier to deregulation. Even Kahn's free-market-minded predecessor as CAB chairman, John Robson, had been reluctant to liberalize fare competition and route awards to the point that a major company might fail. Kahn himself, when Jimmy Carter's envoys urged him in 1977 to accept the CAB chairmanship, specifically asked, "What if Eastern Airlines goes bankrupt? Is the president going to pretend then that he doesn't know me?" For Kahn knew that, sooner or later, some important companies would perish. Under a system of free competition, mistakes by management could prove fatal; and, even with good management, the heavily unionized trunk carriers would be pressed hard by upstart airlines that employed nonunion labor.[166]

Still, during his tenure as CAB chairman, Kahn never had the

the study. Later investigations,
the CAB itself (carried through
e result. In all studies, only two
fied: small cities not yet served
usiness travelers who received
nd were willing to pay for (be-
sted airports, and new classes of

lared bankruptcy, but by com-
derived from having overex-
ke advantage of deregulation.
of the act of 1978, Braniff at-
s for which it was ill equipped.
competitors, Braniff slashed its
atch the cuts. At that point, as
"It became a bleeding contest.
Kahn had predicted this kind of
ions and bankruptcies, he had
in business. Competitive wars
l and afforded the opportunity
make poor decisions. The only
vas for the government to neu-
, including superior manage-
d barring new entrants. Again,
cates of airline deregulation to
he years before his arrival in
ad imposed a major barrier to
narket-minded predecessor as
een reluctant to liberalize fare
the point that a major com-
n Jimmy Carter's envoys urged
airmanship, specifically asked,
rupt? Is the president going to
v me?" For Kahn knew that,
npanies would perish. Under a
s by management could prove
ement, the heavily unionized
d by upstart airlines that em-

hairman, Kahn never had the

unpleasant duty of explaining such an actual failure. It is clear in retrospect that he came to Washington at an unusually opportune moment. Arriving in the midst of a stalled deregulation movement but with overall economic prosperity still running high, he found the setting ideal for his purposes. No airline would likely plunge into bankruptcy, at least for a while. Kahn himself saw with remarkable clarity how fortunate his timing had been: "I came into the airline situation at precisely the perfect time—with demand recovering sharply relative to capacity, with a large number of empty seats simply begging to be priced at marginal costs, with the whole political atmosphere ripe for a relaxation of unnecessary protectionist and cartelist restrictions, and I have simply been doing what, I think, is the logical thing." The same point might be applied to the timing of his earlier experience in New York. Had Kahn attempted to institute time-of-day pricing in, say, 1954 or 1964 instead of 1974, it is difficult to see how he could have succeeded.[167]

Yet good timing in no sense diminishes the importance of his contributions. In regulatory strategy as in other types of business and political strategy, timing often does determine success or failure. Adams had proved that in the 1870s, and so had James Landis in the 1930s. Kahn's triumph, like theirs, was to see the opportunity clearly and to take advantage of it, acting with full commitment and conviction.

CHAPTER 8

Regulation Reconsidered

IF THIS WERE A BOOK of pictures rather than words, it would contain three different types of photographs. The biographical sections on Adams, Brandeis, Landis, and Kahn would be detailed closeup portraits, each showing a single strategist who succeeded or failed in making regulation work. The short connecting chapters would appear as medium-range photographs depicting a regional or national landscape that was undergoing slow but significant change, such as the change through the seasons from spring to winter. Now, in this final section of the book, I want to add a third perspective: a satellite photograph of the broad regulatory scene, expressed in a few general conclusions about the history of regulation. Most of these have been foreshadowed earlier in the book; others make explicit what has so far been only implied. I bring them together here to form a brief panoramic commentary on the significance of the regulatory experience in America.

As the historical record shows, the regulatory tradition has been adapted to many different ends and purposes. Regulation has served as a versatile tool whose handle has been seized at different times by reformers, business managers, bureaucrats, and lawyers—and manipulated as often for the particular interests of one of these special groups as for the general interest of the American public.

Over time, regulation has performed not only economic tasks, but political, legal, and cultural ones as well. Among the many particular functions that regulation has been used to serve are the functions of:

(a) disclosure and publicity (SEC, Adams' sunshine commission);
(b) protection and cartelization of industries (ICC, FCC, CAB before Kahn);
(c) containment of monopoly and oligopoly (FPC, FTC, Antitrust Division, state utility commissions);
(d) promotion of safety for consumers and workers (Consumer Product Safety Commission, Occupational Safety and Health Administration);
(e) legitimization of the capitalist order (SEC, Environmental Protection Agency).

Obviously such a list could be longer or differently stated. The general point is that regulation has served a variety of purposes, some of which (such as items b and c above) have been mutually inconsistent.

In view of these diverse and sometimes contradictory functions, all overarching theories and heroic generalizations about "Regulation" (with a capital R) run an extremely high risk of being in error. No single theory from any academic discipline can predict precisely which industries will be regulated and which will not. Some industries that in other market economies tend toward cartelization are, in America, regulated—but not all. Some regulated industries in America have social-overhead functions and are "affected with a public interest"—but not all. Some are "natural monopolies," with sharply declining costs to scale—but not all. Much of the American transportation industry is regulated—but not all of it.

Like the application of regulation to industries, the behavior of regulatory commissions, once they have been created, shows no clear single pattern. All agencies do not follow a standard "life cycle," for example, going from youthful exuberance to middle age, then finally to geriatric decrepitude. Instead, young agencies sometimes behave sluggishly (as did the early FTC) and old ones vigorously (the CAB under Alfred Kahn). No stage-by-stage evolution, nor any other assured expectation of agency behavior, can be predicted on the basis of actual regulatory history.[1]

The single constant in the American experience with regulation has been controversy. Here the reason why is not hard to find. Many of the diverse functions assigned to regulatory commissions were regarded by legislatures as essential tasks, but very difficult for existing governmental institutions to perform. Because legisla-

tors did not wish to burden themselves with such duties, they passed the responsibility to specialized agencies. But whatever agency received the assignment was also forced to accept the intrinsic controversy that had created each task in the first place. Almost by definition, therefore, controversy became attached to regulation like a Siamese twin. For the same reason, issues common to regulatory agencies are unlikely ever to be settled, once and for all, so long as the United States remains an open, democratic society.

As in so many other aspects of American politics, the fundamental controversy underlying the history of regulation has been an ongoing need to work out the inevitable tradeoffs between the good of the whole society, on the one hand, and the rights of the individual, on the other. In regulation, these tradeoffs have appeared most clearly as ways of relieving the persistent tension between the forces seeking to implement economic efficiency for the broad benefit of American society, and those dedicated to guaranteeing the observance of legal due process for every individual member of that society. At different times in our history, each party to these fundamental tensions has established a clear advantage over the other. On balance, however, it seems clear that the concern about legal process has controlled the outcome of regulation more often than has the concern about the substance of economic efficiency. In economists' language, this means that the concern for equity has generally triumphed over the quest for efficiency. In lawyers' terms, it means that in regulation the judicial model has usually triumphed over the legislative and administrative model. In cultural terms, it means that the concern for fairness and for the protection of the diverse interests of all affected individuals has most often won out over the concern for overall growth in the national economy. More generally in political terms, it means that regulation is best understood as a political settlement, undertaken in an effort to keep peace within the polity.

Overall, the conclusion appears inescapable that regulation in America has more often functioned as a protective device rather than as a promotional or developmental one. Of course, protection was not always inappropriate. By holding in check socially destructive forms of behavior, protective regulation often cushioned the impact of rapid industrial change. In America, in contrast to older societies, so many other forces consistently acted to promote

pell-mell economic growth that regulation can hardly be condemned for not always doing so.

Because the appropriate balance between economic efficiency and legal due process has seldom been self-evident, individual persons and particular ideas have mattered a great deal in regulatory history. Thus, most of this book has explored the roles of particular persons, and I rest that part of my case on the biographies of Adams, Brandeis, Landis, and Kahn. The more general role of ideas in the history of regulation, however, deserves some additional comment. As the political scientist James Q. Wilson has written, "We must be struck at every turn by the importance of ideas. Regulation itself is such an idea; deregulation is another . . . To the extent [that] an agency can choose, its choices will be importantly shaped by what its executives learned in college a decade or two earlier."[2]

Ideas about regulation, as Wilson implies, vary with time. During the 1930s, national policymakers generally held the powerful conviction that market mechanisms left to themselves would produce widespread injustice and even inefficiency. Hence they believed that an active federal government was essential for the protection of the public interest. So these political activists created a broad portfolio of new, independent agencies: the SEC, the FCC, the CAB, and so on. A few decades later, during the 1960s and 1970s, a new generation of policymakers embraced a very different idea. Rather than applauding the old activism, they became convinced that many of the independent commissions created during the 1930s had since been captured by the very interests that these agencies had been set up to regulate.

Partly as a result of the capture idea, there arose during the 1960s a curious two-pronged reform movement: pointing, on the one hand, toward deregulation and, on the other, toward a new wave of large-scale social and environmental regulation. These new rules were to be enforced not by independent commissions of the 1930s variety, which usually administered brief general statutes designed to give broad discretion to a group of commissioners acting collegially; but rather by an entirely different type of agency, with a single executive at its head (who could be held individually responsible for success or failure) and an agenda set in advance by the explicit provisions of extremely detailed legislation. New laws such as the Clean Air Act and the Occupational Safety

and Health Act, often running to scores of pages in length, were calculated to minimize administrative discretion and to close all possible loopholes. Meanwhile, on the other prong, the deregulation movement—whose basic intellectual premise was that economic markets *do* work well—also advanced, simultaneously but contradictorily, gaining momentum alongside the companion movement toward growth of regulation in the areas of social and environmental policy.

The result, by the 1980s, presented a most peculiar spectacle. In an ironic historical example of the ways in which ideas can move policymakers in opposite directions, significant deregulation had been instituted for such industries as airlines, trucking, railroads, financial markets, and telecommunications. At the same time, additional social and environmental regulation had become firmly embedded in the structure of state and federal government in such a form as to make any capture by regulated interests very difficult, if not impossible.

The movement of ideas alone, of course, had not produced this ironic result. Despite the power of thought in the history of regulation, ideas in themselves could not determine concrete outcomes. Instead, ideas had to interact with particular economic and political circumstances to form a reciprocal relationship in which one or both might be altered. Nor, in any absolute sense, did the ideas themselves have to be demonstrably true in order to exert strong influence. We have seen, for instance, how Louis Brandeis' flawed idea of competition moved the hearts of his contemporaries. To cite a second example, the disparate sets of ideas underlying the initial imposition of regulation in airlines and trucking during the 1930s, and the later deregulation of these same industries in the 1970s and 1980s, could not both have been correct, in the absolute sense. Yet both sets of ideas became institutionalized. What had changed was the historical context in which opposing ideas about the legitimacy and actual performance of economic markets were defined.

During the 1930s, a period not only of depression but also of economic *de*flation, policymakers searched for some way to stabilize prices, as a means of preventing further economic decline. By the 1970s, however, deflation no longer provided the historical filter; indeed, it had become almost inconceivable as a problem for policy to solve. Instead, *in*flation was now the pressing issue, and thus the same protectionist regulations that had been applied in

the 1930s to combat deflation now seemed inappropriate to the new economic context. Both ideas remained alive, but a different time meant a different choice for public policy. To state the same point in a more general sense, it is clear that in American history both the producer-oriented protectionist tradition, on the one hand, and the consumer-oriented anticartelist tradition on the other have remained hostage to immediate economic conditions. The strengths of each tradition have ebbed and flowed in response to several external forces: the business cycle, the different degrees of maturity reached by different product markets, and the conditions of international war and peace.

In speculating about the future, it is difficult to foresee with much additional precision what new historical contexts for regulation might develop. But if the past is any guide, a good deal of caution is in order. What I have called in this book the "economist's hour" of the 1970s and 1980s, for example, represents a phenomenon of unpredictable duration. Certainly the economist's hour in the history of regulation came relatively late, long after other notably different hours during which the muckraker and the lawyer alternately held center stage. This history makes it seem unlikely that any single approach to regulation will ever triumph. Therefore, although we may live in the golden years of regulatory economics and its practitioners, we should be in no hurry to crown the economist as permanent king of the regulatory hill.

Economic analysis, however, will always remain directly relevant to regulatory policy. This is true because every industry, whether regulated or not, does possess a certain underlying economic structure: characteristics that make it different from other industries and that help to shape the internal conditions for regulatory opportunities and constraints. *More than any other single factor, this underlying structure of the particular industry being regulated has defined the context in which regulatory agencies have operated.* Sometimes the differences between industry structures can be radical: the railroad industry, with its huge fixed costs and enormous scale economies, could hardly differ more fundamentally from the securities industry, with its paper assets and labor-intensive structure. In other cases the differences can be more subtle, as in the contrast between center and peripheral firms, and the related distinction between tight and loose forms of horizontal combination.

Because the underlying characteristics of the industry so often

shape the limits of governmental action, the industry may be regarded as the dog, the regulatory agency only as the tail. Yet many students of regulation have assumed that tails wag dogs and, further, that one standard type of tail can wag whatever breed of dog may be attached. Such observers, by focusing primarily on the similarities of regulatory commissions (most of which were bipartisan, appointed by the executive, expert in their fields, and so on), have missed a larger truth: the industries that these similarly structured commissions regulated were extremely diverse. Thus these observers have duplicated the errors made historically by many regulators themselves, who often paid more attention to legal processes and administrative procedures than to the greater task of framing strategies appropriate to the particular industries they were regulating. For all parties who seek to understand regulation, the most important single consideration is the appropriateness of the regulatory strategy to the industry involved.[3]

The process of fitting regulatory strategies to particular industries is a difficult task, partly because industrial structures, like regulatory ideas, can change over time. The railroad industry represented a true natural monopoly when the Interstate Commerce Commission first emerged to regulate it during the 1880s. But several decades later, this natural monopoly status of railroads had disappeared before the rise of alternative modes of transportation—the automobile, truck, and airplane. Clearly, by the 1930s, some central assumptions behind the whole scheme of national railroad regulation needed to be revised, and regulatory policy adjusted accordingly. Yet until the 1970s little was done, as assumptions remained those of the 1880s. In the meantime, the Interstate Commerce Commission kept rates inflexible, prevented industry rationalization by blocking truck-rail mergers, and delayed for years the widespread application of unit-train technology. The ICC took so much time to recognize the revolutionary changes in the transportation industries that regulatory policy lagged badly behind market reality, causing unintended injury to the very railroad industry the commission was trying to protect.

Elsewhere, a similar process of unacknowledged change occurred in the communications industries. When Congress created the Federal Communications Commission in 1934, legislators acted on an assumption, valid at the time, that the electromagnetic spectrum (what physicists used to call the "ether") was fi-

action, the industry may be re
gency only as the tail. Yet many
ed that tails wag dogs and, fur
can wag whatever breed of dog
by focusing primarily on the
ons (most of which were bipar
expert in their fields, and so on),
ndustries that these similarly
were extremely diverse. Thus
ne errors made historically by
often paid more attention to
procedures than to the greater
ate to the particular industries
s who seek to understand regu
nsideration is the appropriate-
ne industry involved.[3]
strategies to particular indus-
ause industrial structures, like
me. The railroad industry rep-
vhen the Interstate Commerce
te it during the 1880s. But sev-
nopoly status of railroads had
ernative modes of transporta-
rplane. Clearly, by the 1930s,
he whole scheme of national
evised, and regulatory policy
1970s little was done, as as-
80s. In the meantime, the In-
pt rates inflexible, prevented
g truck-rail mergers, and de-
lication of unit-train technol-
o recognize the revolutionary
ustries that regulatory policy
causing unintended injury to
nission was trying to protect.
unacknowledged change oc-
tries. When Congress created
mmission in 1934, legislators
ne time, that the electromag-
d to call the "ether") was fi-

nite. The lawmakers reasoned that if too many stations used the ether at once, radio signals would become garbled and communication would be impossible. Thus competitors had to be limited in number, through regulatory allocation of different parts of the spectrum to different broadcasting stations. Later on, however, new technology completely altered the situation. Through the use of satellite communications and dish receivers, community television companies in effect created vast new amounts of ether, thereby accommodating dozens of additional broadcast stations. When that occurred, the market power of the three major television networks diminished rapidly, and television broadcasting as an industry began to drift away from center status and toward peripheral.

To cite still another example, a situation of natural monopoly prevailed for many years in long-distance telephoning, based on the once-valid principle that a single set of transcontinental wires could most economically serve consumers' needs. But in the 1960s and 1970s, a technological revolution in microwave communication destroyed that premise and ended the natural monopoly in long-distance telephoning. As the significance of this technological shift became clear, new companies emerged to compete for long-distance telephone business, and just as quickly a movement to deregulate the telephone industry began. By 1984, the giant Bell System, once the most conspicuous natural monopoly in America, had divided itself into a number of much smaller companies. What had been a thoroughgoing center industry (telephoning) now became part center (local telephone service, heavy equipment manufacturing) and part peripheral (long-distance service, high-technology research and development, and light manufacturing). As a result of these seismic changes in industry structure, the regulation of telecommunications became during the 1980s one of the most publicized and controversial problems of state and federal government.[4]

For scholars, the evolution of both the telephone industry and television broadcasting provided outstanding examples of the protean nature of industrial organization. Not since the early emergence of center firms out of the advanced production technology of the late nineteenth century had there appeared such clear instances of the relationship between scientific change and subsequent shifts in the structure of existing industries. Traditionally,

such shifts had been from peripheral to center status, but the communications revolution showed how the movement could work in the opposite direction as well. The implications for regulators were profound, and the task of framing effective regulatory strategies, always one of the most difficult of governmental arts, became in these industries still more challenging.

In thinking about the future of regulation, whether in broadcasting, telephones, or any other industry, it is important to keep in mind the ambiguous record of the past. Even though much of regulatory history is tinged with apparent failure, regulation cannot properly be said either to have "failed" or "succeeded" in an overall historical sense. Instead, individual regulatory experiments and episodes must be judged against a standard true to the particular historical moment. Many observers hold a contrary view and insist on a single overriding verdict of failure. Because of this prevailing opinion in our time, it becomes useful to speculate about ways in which the same judgment might be applied to other parts of government. Can it be said with equal justice, for example, that legislation in general has failed historically, or that the court system has failed, or that the office of the presidency has failed—without specifying exactly which legislation, which court on what case, and which president on what issue? Although the answer might seem self-evident, the fact remains that in popular perceptions over the last three decades regulation has been regarded as a synonym for failure. Even in some of the best scholarship on regulation, failure has often been applied not merely as a conclusion but also as a premise, a tacit assumption hidden behind apparently scholarly explanations presented in theoretical forms: the theories of capture, of public choice, of taxation by regulation, and several others.[5]

To weigh against these multiple theories premised on failure, we have only one premised on success. But it is a very useful one: the theory of "public use of private interest." According to this idea, regulators should always exploit the natural incentives of regulated interests to serve particular goals that the regulators themselves have carefully defined in advance.[6] And, in fact, the historical record suggests that regulation in America has succeeded best when it has respected these incentives instead of ignoring them; when it has based its strategies less on some idealized

ral to center status, but the com-
ow the movement could work in
The implications for regulators
aming effective regulatory strate-
ult of governmental arts, became
lenging.

egulation, whether in broadcast-
ustry, it is important to keep in
e past. Even though much of reg-
parent failure, regulation cannot
iled" or "succeeded" in an over-
dual regulatory experiments and
a standard true to the particular
rs hold a contrary view and insist
ailure. Because of this prevailing
seful to speculate about ways in
be applied to other parts of gov-
l justice, for example, that legis-
rically, or that the court system
e presidency has failed—without
ion, which court on what case,
ue? Although the answer might
ns that in popular perceptions
tion has been regarded as a syn-
f the best scholarship on regula-
d not merely as a conclusion but
otion hidden behind apparently
n theoretical forms: the theories
xation by regulation, and several

le theories premised on failure,
ccess. But it is a very useful one:
ate interest." According to this
xploit the natural incentives of
cular goals that the regulators
l in advance.[6] And, in fact, the
egulation in America has suc-
d these incentives instead of ig-
strategies less on some idealized

vision of what the economy should do and more on a clear understanding of what the economy actually is doing. Regulatory strategies framed in ignorance or disregard of real economic conditions and market incentives—and the number of such attempts has been legion—have usually led only to unfortunate results. By contrast, strategies framed with these conditions and incentives in mind have often produced strikingly successful outcomes, as the stories of Adams, Landis, and Kahn demonstrate so clearly.

Ronald H. Coase

The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 1991

Prize Lecture

Lecture to the memory of Alfred Nobel, December 9, 1991

The Institutional Structure of Production

In my long life I have known some great economists but I have never counted myself among their number nor walked in their company. I have made no innovations in high theory. My contribution to economics has been to urge the inclusion in our analysis of features of the economic system so obvious that, like the postman in G.K. Chesterton's Father Brown tale, *The Invisible Man*, they have tended to be overlooked. Nonetheless, once included in the analysis, they will, as I believe, bring about a complete change in the structure of economic theory, at least in what is called price theory or microeconomics. What I have done is to show the importance for the working of the economic system of what may be termed the institutional structure of production. In this lecture I shall explain why, in my view, these features of the economic system were ignored and why their recognition will lead to a change in the way we analyse the working of the economic system and in the way we think about economic policy, changes which are already beginning to occur. I will also speak about the empirical work that needs to be done if this transformation in our approach is to increase our understanding. In speaking about this transformation, I do not wish to suggest that it is the result of my work alone. Oliver Williamson, Harold Demsetz, Steven Cheung, among others, have made outstanding contributions to the subject and without their work and that of many others, I doubt whether the significance of my writings would have been recognized. While it has been a great advantage of the creation of the Prize in Economic Sciences in Memory of Alfred Nobel that, by drawing attention to the significance of particular fields of economics, it encourages further research in them, the highlighting of the work of a few scholars, or, in my case, one scholar, tends to obscure the importance of the contributions of other able scholars whose researches have been crucial to the development of the field.

I will be speaking of that part of economics which has come to be called industrial organization, but to understand its present state it is necessary to say something about the development of economics in general. During the two centuries since the publication of *The Wealth of Nations* the main activity of economists, it seems to me, has been to fill the gaps in Adam Smith's system, to correct his errors and to make his analysis vastly more exact. A principal theme of *The Wealth of Nations* was that government regulation or centralised planning were not necessary to make an economic system function in an orderly way. The economy could be co-ordinated by a system of prices (the "invisible hand") and, furthermore, with beneficial results. A major task of economists since the publication of *The Wealth of Nations*, as Harold Demsetz has explained[1], has been to formalize this proposition of Adam Smith. The given factors are technology and the tastes of consumers, and individuals, who follow their own interest, are governed in their choices by a system of prices. Economists have uncovered the conditions necessary if Adam Smith's results are to be achieved and where, in the real world, such conditions do not appear to be found, they have proposed changes which are designed to bring them about. It is what one finds in the

textbooks. Harold Demsetz has said rightly that what this theory analyses is a system of extreme decentralization. It has been a great intellectual achievement and it throws light on many aspects of the economic system. But it has not been by any means all gain. The concentration on the determination of prices has led to a narrowing of focus which has had as a result the neglect of other aspects of the economic system. Sometimes, indeed, it seems as though economists conceive of their subject as being concerned only with the pricing system and that anything outside this is considered as no part of their business. Thus, my old chief and wonderful human being, Lionel Robbins, wrote, in *The Nature and Significance of Economic Science*, about the "glaring deficiencies" of the old treatment of the theory of production with its discussion of peasant proprietorships and industrial forms: "It suggests that from the point of view of the economist 'organisation' is a matter of internal industrial (or agricultural) arrangement - if not internal to the firm, at any rate internal to 'the' industry. At the same time it tends to leave out completely the governing factor of all productive organisation - the relationship of prices and cost..."[2]. What this comes down to is that, in Robbins' view, an economist does not interest himself in the internal arrangements within organisations but only in what happens on the market, the purchase of factors of production and the sale of the goods that these factors produce. What happens in between the purchase of the factors of production and the sale of the goods that are produced by these factors is largely ignored. I do not know how far economists today share Robbins' attitude but it is undeniable that microeconomics is largely a study of the determination of prices and output, indeed this part of economics is often called price theory.

This neglect of other aspects of the system has been made easier by another feature of modern economic theory - the growing abstraction of the analysis, which does not seem to call for a detailed knowledge of the actual economic system or, at any rate, has managed to proceed without it. Holmstrom and Tirole, writing on *The Theory of the Firm* in the recently published *Handbook of Industrial Organization*, conclude at the end of their article of 63 pages that "the evidence/theory ratio... is currently very low in this field"[3]. Peltzman has written a scathing review of the *Handbook* in which he points out how much of the discussion in it is theory without any empirical basis[4]. What is studied is a system which lives in the minds of economists but not on earth. I have called the result "blackboard economics". The firm and the market appear by name but they lack any substance. The firm in mainstream economic theory has often been described as a "black box". And so it is. This is very extraordinary given that most resources in a modern economic system are employed within firms, with how these resources are used dependent on administrative decisions and not directly on the operation of a market. Consequently, the efficiency of the economic system depends to a very considerable extent on how these organisations conduct their affairs, particularly, of course, the modern corporation. Even more surprising, given their interest in the pricing system, is the neglect of the market or more specifically the institutional arrangements which govern the process of exchange. As these institutional arrangements determine to a large extent what is produced, what we have is a very incomplete theory. All this is beginning to change and in this process I am glad to have played my part. The value of including such institutional factors in the corpus of mainstream economics is made clear by recent events in Eastern Europe. These ex-communist countries are advised to move to a market economy, and their leaders wish to do so, but without the appropriate institutions no market economy of any significance is possible. If we knew more about our own economy we would be in a better position to advise them.

What I endeavoured to do in the two articles cited by the Royal Swedish Academy of Sciences was to attempt to fill these gaps or more exactly to indicate the direction in which we should move if they are ultimately to be filled. Let me start with *The Nature of the Firm*. I went as a student to the London School of Economics in 1929 to study for a Bachelor of Commerce degree, specialising in the Industry group, supposedly designed for people who wished to become works managers, a choice of occupation for which I was singularly ill-suited. However, in 1931, I had a great stroke of luck. Arnold Plant was appointed Professor of Commerce in 1930. He was a wonderful teacher. I began to attend his seminar in 1931, some five months before I took the final examinations. It was a revelation. He quoted Sir Arthur Salter: "The normal economic system works itself'. And he explained how a competitive economic system coordinated by prices would lead to the production of goods and services which consumers valued most highly. Before being exposed to Plant's teaching, my notions on how the economy worked were extremely woolly. After Plant's seminar I had a coherent view of the economic system. He introduced me to Adam Smith's "invisible hand". As I had taken the first year of University work while still at High School, I managed to complete the requirements for a degree in two years. However, university regulations required three years of residence before a degree could be granted. I had therefore a year to spare. I then had another stroke of luck. I was awarded a Cassel travelling scholarship by the University of London. I decided to spend the year in the United States, this being treated as a year's residence at the London School of Economics, the regulations being somewhat loosely interpreted.

I decided to study vertical and lateral integration of industry in the United States. Plant had described in his lectures the different ways in which various industries were organised, but we seemed to lack any theory which would explain these differences. I set out to find it. There was also another puzzle which, in my mind, needed to be solved and which seemed to be related to my main project. The view of the pricing system as a co-ordinating mechanism was clearly right but there were aspects of the argument which troubled me. Plant was opposed to all schemes, then very fashionable during the Great Depression, for the co-ordination of industrial production by some form of planning. Competition, according to Plant, acting through a system of prices, would do all the co-ordination necessary. And yet we had a factor of production, management, whose function was to co-ordinate. Why was it needed if the pricing system provided all the co-ordination necessary? The same problem presented itself to me at that time in another guise. The Russian Revolution had taken place only fourteen years earlier. We knew then very little about how planning would actually be carried out in a communist system. Lenin had said that the economic system in Russia would be run as one big factory. However, many economists in the West maintained that this was an impossibility. And yet there were factories in the West and some of them were extremely large. How did one reconcile the views expressed by economists on the role of the pricing system and the impossibility of successful central economic planning with the existence of management and of these apparently planned societies, firms, operating within our own economy?[5]

I found the answer by the summer of 1932. It was to realise that there were costs of using the pricing mechanism. What the prices are has to be discovered. There are negotiations to be undertaken, contracts have to be drawn up, inspections have to be made, arrangements have to be made to settle disputes, and so on. These costs have come to be known as transaction costs. Their existence implies that methods of co-ordination, alternative to the market, which are themselves costly and in various ways imperfect, may nonetheless be preferable to relying on the pricing

mechanism, the only method of co-ordination normally analysed by economists. It was avoidance of the costs of carrying out transactions through the market that could explain the existence of the firm in which the allocation of factors came about as a result of administrative decisions (and I thought it did). In my 1937 article, I argued that in a competitive system there would be an optimum of planning since a firm, that little planned society, could only continue to exist if it performed its co-ordination function at a lower cost than would be incurred if it were achieved by means of market transactions and also at a lower cost than this same function could be performed by another firm. To have an efficient economic system it is necessary not only to have markets but also areas of planning within organizations of the appropriate size. What this mix should be we find as a result of competition. This is what I said in my article of 1937. However, as we know from a letter I wrote in 1932, which has been preserved, all the essentials of this argument had been presented in a lecture I gave in Dundee at the beginning of October, 1932[6]. I was then twenty-one years of age and the sun never ceased to shine. I could never have imagined that these ideas would become some 60 years later a major justification for the award of a Nobel Prize. And it is a strange experience to be praised in my eighties for work I did in my twenties.

There is no doubt that the recognition by economists of the importance of the role of the firm in the functioning of the economy will prompt them to investigate its activities more closely. The work of Oliver Williamson and others has led to a greater understanding of the factors which govern what a firm does and how it does it. And we can also hope to learn much more in future from the studies of the activities of firms which have recently been initiated by the Center for Economic Studies of the Bureau of the Census of the United States. But it would be wrong to think that the most important consequence for economics of the publication of *The Nature of the Firm* has been to direct attention to the importance of the firm in our modern economy, a result which, in my view, would have come about in any case. What I think will be considered in future to have been the important contribution of this article is the explicit introduction of transaction costs into economic analysis. I argued in *The Nature of the Firm* that the existence of transaction costs leads to the emergence of the firm. But the effects are pervasive in the economy. Businessmen in deciding on their ways of doing business and on what to produce have to take into account transaction costs. If the costs of making an exchange are greater than the gains which that exchange would bring, that exchange would not take place and the greater production that would flow from specialisation would not be realised. In this way, transaction costs affect not only contractual arrangements but also what goods and services are produced. Not to include transaction costs in the theory leaves many aspects of the working of the economic system unexplained, including the emergence of the firm, but much else besides. In fact, a large part of what we think of as economic activity is designed to accomplish what high transaction costs would otherwise prevent or to reduce transaction costs so that individuals can freely negotiate and we can take advantage of that diffused knowledge of which Hayek has told us.

I know of only one part of economics in which transaction costs have been used to explain a major feature of the economic system and that relates to the evolution and use of money. Adam Smith pointed out the hindrances to commerce that would arise in an economic system in which there was a division of labour but in which all exchange had to take the form of barter. No-one would be able to buy anything unless he possessed something that the producer wanted. This difficulty, he explained, could be overcome by the use of money. A person wishing to buy something in a barter system has to find someone who has this product for sale but who also wants some of the

goods possessed by the potential buyer. Similarly, a person wishing to sell something has to find someone who both wants what he has to offer and also possesses something that the potential seller wants. Exchange in a barter system requires what Jevons called "this double coincidence". Clearly the search for partners in exchange with suitable qualifications is likely to be very costly and will prevent many potentially beneficial exchanges from taking place. The benefit brought about by the use of money consists of a reduction in transaction costs. The use of money also reduces transaction costs by facilitating the drawing up of contracts as well as by reducing the quantity of goods that need to be held for purposes of exchange. However, the nature of the benefits secured by the use of money seems to have faded into the background so far as economists are concerned and it does not seem to have been noticed that there are other features of the economic system which exist because of the need to mitigate transaction costs.

I now turn to that other article cited by the Swedish Academy, *The Problem of Social Cost*, published some 30 years ago. I will not say much here about its influence on legal scholarship which has been immense but will mainly consider its influence on economics, which has not been immense, although I believe that in time it will be. It is my view that the approach used in that article will ultimately transform the structure of microeconomics - and I will explain why. I should add that in writing this article I had no such general aim in mind. I thought that I was exposing the weaknesses of Pigou's analysis of the divergence between private and social products, an analysis generally accepted by economists, and that was all. It was only later, and in part as a result of conversations with Steven Cheung in the 1960s that I came to see the general significance for economic theory of what I had written in that article and also to see more clearly what questions needed to be further investigated.

Pigou's conclusion and that of most economists using standard economic theory was, and perhaps still is, that some kind of government action (usually the imposition of taxes) was required to restrain those whose actions had harmful effects on others, often termed negative externalities. What I showed in that article, as I thought, was that in a regime of zero transaction costs, an assumption of standard economic theory, negotiations between the parties would lead to those arrangements being made which would maximise wealth and this irrespective of the initial assignment of rights. This is the infamous *Coase Theorem*, named and formulated by Stigler, although it is based on work of mine. Stigler argues that the Coase Theorem follows from the standard assumptions of economic theory. Its logic cannot be questioned, only its domain[7]. I do not disagree with Stigler. However, I tend to regard the Coase Theorem as a stepping stone on the way to an analysis of an economy with positive transaction costs. The significance to me of the Coase Theorem is that it undermines the Pigovian system. Since standard economic theory assumes transaction costs to be zero, the Coase Theorem demonstrates that the Pigovian solutions are unnecessary in these circumstances. Of course, it does not imply, when transaction costs are positive, that government actions (such as government operation, regulation or taxation, including subsidies) could not produce a better result than relying on negotiations between individuals in the market. Whether this would be so could be discovered not by studying imaginary governments but what real governments actually do. My conclusion; let us study the world of positive transaction costs.

If we move from a regime of zero transaction costs to one of positive transaction costs, what becomes immediately clear is the crucial importance of the legal system in this new world. I explained in *The Problem of Social Cost* that what are traded on the market are not, as is often supposed by economists, physical entities but the rights to

perform certain actions and the rights which individuals possess are established by the legal system. While we can imagine in the hypothetical world of zero transaction costs that the parties to an exchange would negotiate to change any provision of the law which prevents them from taking whatever steps are required to increase the value of production, in the real world of positive transaction costs such a procedure would be extremely costly, and would make unprofitable, even where it was allowed, a great deal of such contracting around the law. Because of this, the rights which individuals possess, with their duties and privileges, will be, to a large extent what the law determines. As a result the legal system will have a profound effect on the working of the economic system and may in certain respects be said to control it. It is obviously desirable that these rights should be assigned to those who can use them most productively and with incentives that lead them to do so and that, to discover and maintain such a distribution of rights, the costs of their transference should be low, through clarity in the law and by making the legal requirements for such transfers less onerous. Since this can come about only if there is an appropriate system of property rights, and they are enforced, it is easy to understand why so many academic lawyers (at least in the United States) have found so attractive the task of uncovering the character of such a property rights system and why the subject of "law and economics" has flourished in American law schools. Indeed, work is going forward at such a pace that I do not consider it over-optimistic to believe that the main outlines of the subject will be drawn within five or ten years.

Until quite recently most economists seem to have been unaware of this relationship between the economic and legal systems except in the most general way. Stock and produce exchanges are often used by economists as examples of perfect or near-perfect competition. But these exchanges regulate in great detail the activities of traders (and this quite apart from any public regulation there may be). What can be traded, when it can be traded, the terms of settlement and so on are all laid down by the authorities of the exchange. There is, in effect, a private law. Without such rules and regulations, the speedy conclusion of trades would not be possible. Of course, when trading takes place outside exchanges (and this is almost all trading) and where the dealers are scattered in space and have very divergent interests, as in retailing and wholesaling, such a private law would be difficult to establish and their activities will be regulated by the laws of the State. It makes little sense for economists to discuss the process of exchange without specifying the institutional setting within which the trading takes place since this affects the incentives to produce and the costs of transacting. I think this is now beginning to be recognized and has been made crystal-clear by what is going on in Eastern Europe today. The time has surely gone in which economists could analyze in great detail two individuals exchanging nuts for berries on the edge of the forest and then feel that their analysis of the process of exchange was complete, illuminating though this analysis may be in certain respects. The process of contracting needs to be studied in a real world setting. We would then learn of the problems that are encountered and of how they are overcome and we would certainly become aware of the richness of the institutional alternatives between which we have to choose.

Oliver Williamson has ascribed the non-use or limited use of my thesis in *The Nature of the Firm* to the fact that it has not been made "operational", by which he means that the concept of transaction costs has not been incorporated into a general theory. I think this is correct. There have been two reasons for this. First, incorporating transaction costs into standard economic theory which has been based on the assumption that they are zero, would be very difficult and economists who, like most scientists, as Thomas Kuhn has told us, are extremely conservative

in their methods, have not been inclined to attempt it. Second, Williamson has also pointed out that although I was correct in making the choice between organization within the firm or through the market the center piece of my analysis, I did not indicate what the factors were that determined the outcome of this choice and thus made it difficult for others to build on what is often described as a "fundamental insight". This also is true. But the interrelationships which govern the mix of market and hierarchy, to use Williamson's terms, are extremely complex and in our present state of ignorance it will not be easy to discover what these factors are. What we need is more empirical work. In a paper written for a conference of the National Bureau of Economic Research I explained why I thought this was so. This is what I said: "An inspired theoretician might do as well without such empirical work, but my own feeling is that the inspiration is most likely to come through the stimulus provided by the patterns, puzzles and anomalies revealed by the systematic gathering of data, particularly when the prime need is to break our existing habits of thought"*. This statement was made in 1970. I still think that in essentials it is true today. Although much interesting and important research was done in the seventies and eighties and we certainly know much more than we did in 1970, there is little doubt that a great deal more empirical work is needed. However, I have come to the conclusion that the main obstacle faced by researchers in industrial organization is the lack of available data on contracts and the activities of firms. I have therefore decided to do something about it. Believing that there is a great deal of data on contracts and the activities of firms in the United States available in government departments and agencies in Washington, D.C., and that this information is largely unknown to economists, I organized a conference at the University of Chicago Law School in the Summer of 1990 at which government officials presented papers in which they described what data was available and how to get access to it and also reported on some of the research being carried out within their departments. The audience consisted of academic economists. It was, as a colleague remarked, a case of supply meeting demand. The proceedings of this conference will be published in a special issue of the *Journal of Law and Economics*. Another development with which I am associated is the establishment of the Center for the Study of Contracts and the Structure of Enterprise at the Business School of the University of Pittsburgh. This Center will make large-scale collections of business contracts and will prepare databases which will be made available to all researchers, whatever their institution. Nor should we forget the work now getting started at the Center for Economic Studies of the Bureau of the Census. This greater availability of data and the encouragement given to all researchers working on the institutional structure of production by the award to me of the Nobel Prize, should result in a reduction in that elegant but sterile theorizing so commonly found in the economics literature on industrial organization and should lead to studies which increase our understanding of how the real economic system works.

My remarks have sometimes been interpreted as implying that I am hostile to the mathematization of economic theory. This is untrue. Indeed, once we begin to uncover the real factors affecting the performance of the economic system, the complicated interrelations between them will clearly necessitate a mathematical treatment, as in the natural sciences, and economists like myself, who write in prose, will take their bow. May this period soon come.

I am very much aware that many economists whom I respect and admire will not agree with the opinions I have expressed and some may even be offended by them. But a scholar must be content with the knowledge that what is false in what he says will soon be exposed and, as for what is true, he can count on ultimately seeing it accepted, if only he lives long enough.

1. Harold Demsetz, *Ownership, Control and the Firm* Volume I, page 145.

2. Lionel Robbins, *The Nature and Significance of Economic Science* (1932), page 70.

3. Richard Schmalensee and Robert D. Willig (editors), *Handbook of Industrial Organization*, page 126.

4. Sam Peltzman, "The Handbook of Industrial Organization: A Review Article", *Journal of Political Economy*, February, 1991, pages 201-217.

5. A fuller account of these events will be found in Oliver E. Williamson and Sidney G. Winter (editors), *The Nature of the Firm, Origins, Evolution and Development*, pages 34-47.

6. Ibid, pages 34-35.

7. George J. Stigler, Two Notes on the Coase Theorem", *Yale Law Journal*, December, 1989, pages 631-633.

8. R.H. Coase, *The Firm, the Market and the Law*, page 71.

From *Nobel Lectures, Economics 1991-1995*, Editor Torsten Persson, World Scientific Publishing Co., Singapore, 1997

Annu. Rev. Law Soc. Sci. 2005. 1:369–96
doi: 10.1146/annurev.lawsocsci.1.031805.111122

First published online as a Review in Advance on August 19, 2005

WHY LAW, ECONOMICS, AND ORGANIZATION?

Oliver E. Williamson
Walter A. Haas School of Business, University of California, Berkeley, California 94720; email: owilliam@haas.berkeley.edu

Key Words governance, transaction costs, law school teaching

■ **Abstract** This review shows that a combined law, economics, and organization theory approach leads to different and deeper understandings of the purposes served by complex contract and economic organization. The business firm for these purposes is described not in technological terms (as a production function) but in organizational terms (as an alternative mode of governance). Firm and market are thus examined comparatively with respect to their capacities to organize transactions, which differ in their complexity, so as to economize on transaction costs. The predictive theory of economic organization that results has numerous ramifications for public policy toward business and for teaching and research in the law schools.

INTRODUCTION

Whereas law and economics began as the application of economic reasoning to antitrust and regulation, it has since been expanded to bring economic analysis to bear (in varying degree) on every facet of the law school curriculum. Occasional dissents notwithstanding, law and economics is widely regarded as a success story.

I concur with this favorable assessment but would observe that economic analysis comes in more than one flavor. As between the two main branches—the science of choice and the science of contract—law and economics scholarship mainly works out of the science of choice tradition. All well and good for many purposes but not, I contend, for all. Specifically, those parts of the law and economics enterprise that are centrally concerned with issues of economic organization ought to be informed, additionally or instead, by the science of contract perspective.[1]

This involves, among other things, supplanting the neoclassical theory of the firm-as-production function (which is a technological construction) with the theory of the firm-as-governance structure (which is an organizational construction). A critical concession, which many law and economics scholars are loathe to make,

[1] Areas of the law that are most in need of a more veridical theory of economic organization include antitrust, regulation, corporations, labor law, corporate governance, agency, administrative law, property, contract, secured transactions, and torts. But the science of contract branch of economics has ramifications to the law quite generally.

is that the orthodox theory of the firm was never designed with reference to (and, hence, is often poorly suited to interpret) nonstandard and unfamiliar contractual practices and organizational structures.

I begin with a brief discussion of the sciences of choice and of contract and of the differing needs of each for a theory of the firm. I then turn in the next section to what I regard as the chief lessons of organization theory for a theory of the firm-as-governance structure. The comparative contractual approach to economic organization, of which the theory of the firm-as-governance structure is a part, is then sketched in the section on Comparative Contractual Analysis. Applications to public policy analysis are set out in the next section, and the lessons of the comparative contractual approach to economic organization for the teaching of contract law are developed in the final section. Concluding remarks follow.

CONCEPTUAL FRAMEWORKS

Choice and Contract

Although orthodox economic theory, with its emphasis on scarcity and efficient resource allocation, is widely regarded as an all-purpose theory, it is more properly regarded as the "dominant paradigm" (Reder 1999, p. 43). Plainly, dominant paradigms command more respect. Often, however, their uses are much more apt for some types of problems than they are for others.

Lionel Robbins captured the emerging consensus of what economics was all about in his description of economics as "the science which studies human behavior as a relation between ends and scarce means which have alternative uses" (Robbins 1932, p. 16)—or as Reder puts it, economics deals with "the allocation of scarce resources among alternative uses for the maximization of want satisfactions" (Reder 1999, p. 43). The theory of consumer behavior and the theory of the firm are the two key building blocks upon which this science rests: The consumer seeks to maximize utility subject to a budget constraint, and the firm is a production function that transforms inputs into outputs, with efficiency realized through the choice of optimal factor proportions. All well and good for the study of supply and demand, prices and output. The economist working out of such a setup decidedly does not, however, address himself to issues of firm and market organization except in narrowly delimited ways.[2] The firm, for all intents and purposes, is a "black box."

James Buchanan has declared this science of choice perspective as a "wrong turn" (Buchanan 1975, p. 225), but I put it somewhat differently. Economics

[2] As Ronald Coase has put it, in the Robbins conception of economics, the economist "does not interest himself in the internal arrangements within organizations but only in what happens on the market" (Coase 1992, p. 714).

became unduly preoccupied with the science of choice to the neglect of the science of contract. Rather than deal with contract and exchange, economics became the science of constrained optimization.

As perceived by Buchanan, the principal needs for a science of contract are found in the field of public finance and take the form of social ordering: "Politics is a structure of complex exchange among individuals, a structure within which persons seek to secure *collectively* their own privately defined objectives that cannot be efficiently secured through simple market exchanges" (Buchanan 1987, p. 296; emphasis added). By contrast, I see the needs for a science of contract primarily with reference to the field of industrial organization and in the context of private ordering.

Compared with the politics of collective action, private ordering is accomplished through the individual efforts of the immediate parties to an exchange. Out of awareness of the limitations of spot-market contracting and the impossibility of comprehensive contracting, the immediate parties to an exchange craft governance structures that permit them to realize mutual gains.

The role of the courts, for such a purpose, is very different from that projected under the science of choice perspective.

Firms

"Any standard economic theory, not just neoclassical, starts with the existence of firms. Usually, the firm is a point or at any rate a black box. . . . But firms are not points. They have internal structure. This internal structure must arise for some reason" (Arrow 1999, p. vii). The contrast between the science of choice and the science of contract in this respect is fundamental. As Harold Demsetz has put it, "It is a mistake to confuse the firm of economic theory with its real-world namesake. The chief mission of neoclassical economics is to understand how the price system coordinates the use of resources, not to understand the inner workings of real firms" (Demsetz 1983, p. 377). By contrast, the science of contract is expressly concerned with the attributes of firms, especially in relation to the attributes of alternative modes of governance, as these bear on the management of transactions. As against a technological view of the firm, the firm (and other modes of governance) are described as governance structures. John R. Commons's prescient conception of economics is broadly congruent with the science of contract perspective: "[T]he ultimate unit of activity. . . must contain in itself the three principles of conflict, mutuality, and order. This unit is a transaction" (Commons 1932, p. 4). Not only does transaction cost economics (TCE) concur that the transaction is the basic unit of analysis, but it views governance as the means by which to infuse order, thereby mitigating conflict and realizing mutual gains.

As developed below, implementing the private ordering branch of the science of contract is a much more microanalytic project than is the science of choice approach to economics. Hitherto neglected attributes of both transactions and governance structures now need to be uncovered and their ramifications worked

out. In the process, a whole series of public policy differences between the choice and contract perspectives emerge.

ORGANIZATION THEORY

Organization theory is a vast field to which sociology, psychology (cognitive, social, evolutionary), aspects of political science, economics, and cultural anthropology all relate. W. Richard Scott's (1987) influential text distinguishes three main branches: rational, natural, and open systems—where the rational systems approach places primary emphasis on formal structure, the natural systems approach features informal organization, and the open systems approach examines shifting coalitions within the organization and in relation to their environment. All have a role to play in understanding complex organization. Of these three, I place primary emphasis on the contributions of rational systems theory, although provision is also made for the spontaneous forces of informal organization and the intertemporal transformations that relate thereto. Chester Barnard [1962 (1938)], Herbert Simon (1947), and March & Simon (1958) are especially prominent to the rational systems tradition. Of the many contributions that originate with this tradition, the five that I regard as most relevant to the science of contract approach to economic organization are (*a*) human actors, (*b*) adaptation, (*c*) intertemporal transformations, (*d*) choice of the unit of analysis, and (*e*) discrete structural features.[3]

If, as I contend, organization theory is important to the study of economic organization in these five and other respects, the puzzle is why organization theory has not been more fully incorporated within economics. The chief reasons, I think, are these: (*a*) organization theory has less relevance to the science of choice than to the science of contract, and most economists have been content to work out of the "dominant paradigm"; (*b*) organization theorists mainly deliver a negative message (the science of choice is wrongheaded) rather than relate to the opportunities opened up by the incipient science of contract; and (*c*) leaders of the law and economics movement, such as Richard Posner, who were votaries of orthodoxy, were dismissive of organization theory: "[O]rganization theory. . . [adds] nothing to. . .economics that the literature on information costs had not added much earlier" (Posner 1993, p. 84).

Be that as it may, my sense is that a theory of economic organization that aspires to deal with real firms and, more generally, with economic organization in an uncontrived way cannot ignore or dismiss the contributions of organization theory named above—which are not the main issues with which the "literature on information costs" has been concerned (even now, to say nothing of "much earlier").

[3]Other important contributions include (*f*) weak form selection, (*g*) informal organization, (*h*) cognitive specialization, and (*i*) bureaucracy.

Human Actors

Simon advised social scientists that "[n]othing is more fundamental in setting our research agenda and informing our research methods than our view of the nature of the human beings whose behavior we are studying" (Simon 1985, p. 303). The two attributes of human actors that are especially relevant to the economics of governance are cognition and self-interestedness.

Simon took early exception with the idea that human actors are supremely rational, and he proposed instead that human actors be described as boundedly rational, by which he meant that they are "intendedly rational, but only limitedly so" (Simon 1957a, p. xxiv). Human actors are thus neither nonrational nor irrational but are attempting effectively to cope.

TCE agrees that scholars' view of the human beings whose behavior they are studying has profound ramifications for the research agenda. It also concurs that human actors are subject to bounded rationality. Rather than dwell on the lessons of bounded rationality for the science of choice (where the use of maximizing apparatus was contested), however, TCE turns to the science of contract and takes the chief lesson of bounded rationality for the study of economic organization to be that all complex contracts are unavoidably incomplete.

Contractual incompleteness by itself, however, does not a serious problem of contracting make. Governance problems are posed when incomplete contracts (to include unforeseen contingencies) are combined with opportunism. The conflicts to which Commons referred now appear, especially during contract execution and at the contract renewal interval.

Note that TCE does not dispute that most people will do what they say (and some will do more) without self-consciously asking whether the effort is justified by expected discounted net gains. But while accurate descriptions of what is going on "most of the time" are important, much of what is interesting about human behavior in general and contract in particular has reference not to routines but to exceptions. Faced with unanticipated disturbances for which an incomplete contract makes inadequate or incorrect provision (by reason of gaps, errors, and omissions), such disturbances will push the parties to an incomplete contract off of the contract curve. Strategic considerations now come into play if, rather than frailty of motive, opportunism is the operative condition.[4] Contractual breakdowns by reason of defection from the spirit of cooperation and reliance on the letter of the contract are now in prospect.

Inefficiencies of all kinds nevertheless invite relief. Out of awareness of prospective hazards, parties to a contract have incentives to craft ex ante safeguards in a

[4]Interestingly, opportunism makes an appearance in the natural system treatment of sociologists. As Scott puts it, "there is frequently a disparity between. . .the professed or official goals that are announced and the actual or operative goals that can be observed to govern the activities of participants" (Scott 1987, p. 52). Whereas rational system theorists emphasize the normative structure of ex ante decisions, natural system theorists stress the behavioral structure of ex post outcomes (Scott 1987, p. 53).

cost-effective degree. Rather than postulate either myopia or omniscience, TCE assumes that human actors have the capacity for "feasible foresight," which is a rational spirit construction. George Schultz speaks to the point as follows: "my training in economics has had a major influence on the way I think about public policy tasks, even when they have no particular relationship to economics. Our discipline makes one think ahead, ask about indirect consequences, take note of variables that may not be directly under consideration" (Schultz 1995, p. 1). But economists do not have a lock on this. As the evolutionary biologist Richard Dawkins (1976) observes, the "capacity to simulate the future in imagination. . . [saves] us from the worst consequences of the blind replicators" (p. 200). Practitioners, consultants, and public policy analysts who possess the skills for and practice the art of feasible foresight will look ahead, discern potential hazards, and fold these into the ex ante design.

Adaptation

Interestingly, both the economist Hayek (1945) and the organization theorist Barnard [1962 (1938)] are in agreement that adaptation is the central problem of economic organization. The adaptations to which they have reference, however, differ. Hayek had reference to the adaptations of autonomous economic actors who adjust spontaneously to changes in the market (mainly as signaled by changes in relative prices). By contrast, Barnard appealed to intentionality. He featured cooperative adaptation made by economic actors with the assistance of hierarchy within firms. Although adaptation of each type is important and can be studied separately, TCE is interested in markets and hierarchies (rather than markets alone, or hierarchies alone). TCE therefore deals with adaptations of both kinds (and mixtures thereof). Specifically, TCE holds that choice of contractual mode should be derived by recognizing that the adaptive needs of transactions (in autonomous and cooperative respects) vary with the attributes of transactions and that the adaptive capacities of alternative modes of governance also differ. The upshot is that efficiency gains are realized by aligning transactions with governance structures so as to effect an economizing outcome. Pushing the logic of autonomous and cooperative adaptation to completion thereby leads to a predictive theory of comparative economic organization (Williamson 1991).

Intertemporal Transformations

That internal organization has a life of its own has been evident to sociologists of organization for a long time. There is more to it, moreover, than simply being alerted to hitherto neglected regularities. Once disclosed, the ex ante organizational design ramifications of these regularities need to be worked out.

Robert Michels' 1911 book on *Political Parties* focused on the intertemporal transformations that regularly attended democratic efforts at political organization. The most important such intertemporal transformation is summarized by the

famous Iron Law of Oligarchy: "It is [hierarchical] organization which gives birth to the dominion of the elected over the electors, of the mandatories over the mandators, of the delegates over the delegators. Who says organization, say oligarchy" (Michels 1962, p. 365). Michels traced the source of these oligarchical tendencies to "the nature of the human individual,. . . the nature of the political struggle,. . . and the nature of organization" (p. 6).

Michels, moreover, had a very farsighted view of his findings: "The sociologist should aim. . . at the dispassionate exposition of tendencies and counter-operating forces, of reasons and opposing reasons, at the display, in a word, of the warp and the woof of social life" (Michels 1962, p. 6). Unless we are alert to the intertemporal propensities of organization, we will be needlessly victimized by them: "[N]othing but a serene and frank examination of the oligarchical dangers of democracy will enable us to minimize these dangers" (Michels 1962, p. 370). Thus, although the oligarchical propensities of democratic organization may have been poorly understood by academics and some practitioners until Michels clarified the issue, the lurking hazards of oligarchy should no longer come as a surprise. Today's organizational designers presumably take the Iron Law of Oligarchy into account in the initial design calculus.

Selznick characterized "Michels' theory about democratic organization. . . as a *special case* of the general recalcitrance of the human tools of action. The tendency for goals to be subverted through the creation of new centers of interest and motivation *inheres in all organizations*" (Selznick 1950, p. 162; emphasis added). The study of unanticipated consequences of all kinds—of which oligarchy is but one example—thus describes the larger research agenda.

Akin to the discussion of feasible foresight in the section on Human Actors, above, TCE responds in a three-part way. First, be alert to all the significant, unanticipated consequences and bureaucratic propensities that students of internal organization uncover. Second, take the logic to completion. For each unanticipated effect, ask from where it arises, what are the mechanisms through which it operates, what are the effects on contract and organization, and what are the ramifications for ex ante design (thereby mitigating unwanted consequences and enhancing beneficial effects). Third, upon taking a farsighted view of contract and organization, do not rely entirely on the reports by organization theorists of unanticipated consequences. Given contractual incompleteness (by reason of bounded rationality) and the possibility of defection from agreements (by reason of opportunism), practitioners of TCE look ahead to ascertain whether and when predictable contractual hazards will accrue. If and as such hazards can be projected, the governance ramifications need to be worked out. [An illustration is the Fundamental Transformation, by which a large numbers bidding competition is (sometimes) transformed into a small numbers supply relation during contract execution and at the contract renewal interval (Williamson 1985, pp. 61–63). As developed in the section on Applications to Public Policy, below, contractual safeguards and (possibly) vertical integration arise to mitigate such hazards.]

Unit of Analysis

TCE adopts the purposive perspective of John R. Commons by naming the transaction as the unit of analysis. But that is merely the first step. Naming a unit of analysis needs to be followed by providing operational content. The proponents of many would-be units of analysis never undertake this second step or founder upon reaching it.

Identifying the critical dimensions with respect to which transactions differ is facilitated by asking which attributes, among the countless ways in which transactions differ, have consequential transaction cost effects. Some transactions are simple while others are complex. What are the distinguishing features? Older style institutional economics never asked, hence never answered, this question.

The obvious place to begin is with the ideal transaction in law and economics—namely, contracts that take place between faceless economic actors, where continuity is unimportant because the identity of the parties does not matter. Then ask the question, "What attributes of transactions are responsible for the breakdown of this contractual ideal?" Relevant attributes for describing transactions between parties where identity does matter include asset specificity in its various forms (which gives rise to bilateral dependency), uncertainty (for which consciously coordinated adaptations to disturbances may be needed), and frequency (which has a bearing on the future value of preserving a continuing relation and on the incentive to incur the cost of specialized governance).

Discrete Structural

If alternative modes of organization differ in discrete structural ways, then marginal analysis can be supplanted by discrete structural analysis, which is purportedly easier to implement (Simon 1978, pp. 6–7).[5] As a comparative contractual matter, however, the real import of the proposition that moving from one generic form of organization to another is attended by discontinuities is that alternative modes of governance have different strengths and weaknesses by reason of these discontinuities. As with the transaction, moreover, there is a need to go beyond this first step to ascertain the critical attributes with respect to which governance structures differ. The question to be asked and answered here is this: How do alternative modes of governance differ in contract implementation and enforcement respects?

One device for getting at this is to pose the puzzle of selective intervention: Can a firm replicate the market mode for all state realizations for which market procurement works well and intervene always but only when expected net gains can

[5]Because marginal analysis is actually easy to implement, economists can be thought of as analytical satisficers: They use workable apparatus that (often) is "good enough." Also note that the use of marginal analysis and discrete structural analysis can be joined, as in Riordan & Williamson (1985), where discrete structural differences give rise to first-order effects and marginal analysis introduces second-order refinements.

be projected. If feasible, then large firms will always do as well as a collection of small firms (through replication) and will sometimes do better (by selective intervention). As I have developed elsewhere (Williamson 1985, chapter 6), such efforts are not only impossible but, if attempted, are attended by a series of unwanted effects. This is because efforts to preserve the high-powered incentives of markets within hierarchies give rise to asset dissipation losses and strategic distortions. The upshot is that the move from market to hierarchy is attended by a weakening of incentive intensity and, as a consequence, by an increase in administrative oversight and control.

A third discrete structural difference arises in contract law respects. The idea that each generic mode of governance is supported by a distinctive form of contract law can be traced to Karl Llewellyn's (1931) early distinction between contract as framework and contract as legal rules; to Ian Macneil's (1974) further distinctions among classical, neoclassical, and relational contract laws; to later treatments of private ordering (Galanter 1981, Klein & Leffler 1981); and to credible contracting (Williamson 1983, Gilson 1984).

Classical contract law of a legal rules kind applies to the ideal transaction in both law and economics, where large numbers of informed and "faceless buyers and sellers. . . [meet] for an instant to exchange standardized goods at equilibrium prices" (Ben-Porath 1980, p. 4). Such a legal rules regime gives way to contract as framework when long-term contracting with dependency relations sets in. The parties here have an interest in promoting continuity in the face of unforeseen disturbances, and hence move to a more cooperative and adaptable contracting form. Such neoclassical contracts are not, however, indefinitely elastic. When push comes to shove, the letter of the contract becomes the basis for "ultimate appeal" to the courts (Llewellyn 1931, p. 737)—wherein the written contract serves to delimit threat positions.

What then is the contract law of internal organization? As developed elsewhere (Williamson 1991), the implicit law of internal organization is that of forbearance. Thus, whereas courts routinely grant standing to interfirm disputes over prices, damages ascribed to delays, failures of quality, and the like, courts will refuse to hear disputes between one internal division and another over identical technical issues. If access to the courts is denied, hierarchy is its own court of ultimate appeal, whereupon firms have access to fiat that interfirm contracting does not.

Taken together, the lessons of organization theory for the science of contract (private ordering branch) are these:

1. All complex contracts are unavoidably incomplete (by reason of bounded rationality), and hence comprehensive contingent claims contracting is infeasible and once-and-for-all auctions (competition for the market) are often fraught with hazards.
2. Farsighted players to an incomplete contract have the incentive to look ahead, identify potential hazards, and attempt to provide ex ante relief for these hazards through the judicious choice of governance.

3. Adaptation is the central problem of economic organization, and autonomous and cooperative types of adaptation need to be distinguished and, as appropriate, provided for.
4. Because organizations have a life of their own, all significant intertemporal regularities need to be uncovered and the ramifications for economic organization worked out.
5. The key attributes of the transaction (which is taken to be the basic unit of analysis for the science of contract) need to be named and their ramifications worked out.
6. Because alternative modes of governance differ in discrete structural ways, the syndrome of attributes that defines each mode needs to be named and the comparative strengths and weaknesses of each generic form worked out.

The upshot is that, upon moving from the science of choice to the science of contract perspective, the contributions of organization theory for the study of economic organization come to life. The burgeoning study of the economics of organization thus holds that organizations matter (in the above-described way, as well as others) and that organizations are susceptible to analysis (especially when viewed through a comparative contractual lens in which economizing on transaction costs is featured).

COMPARATIVE CONTRACTUAL ANALYSIS

Discriminating Alignment

The discriminating alignment hypothesis out of which TCE works holds that transactions, which differ in their attributes, are aligned with governance structures, which differ in their costs and competence, so as to effect a (mainly) transaction cost economizing result. As indicated above, this requires that the attributes of both transactions and governance structures be identified and the relations between them worked out.

Going beyond the proposition that the transaction is the basic unit of analysis, TCE takes the next step and names asset specificity (in its various forms), uncertainty, and frequency as key attributes. Of these three, asset specificity is the most important and distinctive to the TCE enterprise.

As developed elsewhere, asset specificity is a measure of the degree to which the assets needed to produce a good or service can be redeployed to alternative uses and users without loss of productive value. Whereas identity is unimportant for generic goods and services, the identity of the immediate parties to an exchange are critical as asset specificity (of physical, human, site, dedicated, brand name, or temporal kinds) builds up. In that event, a bilateral dependency condition sets in and the parties are subject to opportunistic defection from the spirit of a contract

to insist on the letter where large gains are at stake. Maladaptation costs attended by costly bargaining are the result.

Put differently, contractual hazards arise when incomplete contracts that are supported by nontrivial investments in specific assets are beset by disturbances (uncertainty). Out of awareness of these hazards, parties to such contracts have incentives to take hazard-mitigating actions, such as by devising safeguards that serve to infuse order and thereby reduce conflict and realize mutual gains.

As discussed above in conjunction with discrete structural analysis, alternative modes of governance are defined as internally consistent syndromes with respect to the following attributes: incentive intensity, administrative controls, and contract law regimes. Because different modes of governance combine these attributes differently, alternative modes differ in their capacities to implement autonomous and cooperative adaptations. The details are developed elsewhere (Williamson 1991). By way of summary, the discrete structural differences by which firm and market are distinguished are

1. incentive intensity: the high-powered incentives of markets give way to low-powered incentives in firms;
2. administrative controls: compared with markets, firms are supported by a more extensive array of administrative rules and procedures, including accounting and auditing, as well as the supports of informal organization;
3. contract law: the contract law of markets is legalistic and relies on court ordering, whereas, as described above, the contract law of internal organization is that of forbearance.

Because of these differences, markets enjoy the advantage in effecting autonomous adaptations, whereas the advantage accrues to firms in effecting cooperative adaptations.

The Simple Contractual Schema

Upon adopting a comparative contractual approach to economic organization in which (*a*) the transaction is made the basic unit of analysis, (*b*) alternative modes of organization are described as governance structures to which discrete structural differences accrue, and (*c*) economizing on transaction costs is taken to be the main case, a very different concept of the firm and of the purposes served by nonstandard and unfamiliar contractual practices and organizational structures results. Note that the firm, in this scheme of things, is not a stand-alone concept but is examined in relation to alternative modes of governance. Always and everywhere the action resides in the microanalytics of transactions and governance structures.

Thus, assume that a firm can make or buy a component and assume further that the component can be supplied by either of two technologies. One is a general-purpose technology and the other a special-purpose technology. The special-purpose technology requires greater investment in transaction-specific durable assets and is more efficient for servicing steady-state demands. Steady-state,

however, is an analytical convenience: Most contracts are implemented under conditions of uncertainty for which adaptation to disturbances is needed. Because an incomplete contract between bilaterally dependent parties (that is, those for which continuity has value) is often silent on or makes incorrect or inadequate provision for some of these adaptations, contractual conflicts prospectively arise. Thus although mutual gains will always be realized upon costlessly restoring a position on the contract curve, each party may posture and make opportunistic representations over the division of gains. Costly delays and imperfect adaptations result.

Using h as a measure of contractual hazards, the transactions in Figure 1 that use the general-purpose technology are ones for which $h = 0$. Autonomous adaptation in a competitive market suffices because the parties are faceless. If instead transactions use the special-purpose technology, an $h > 0$ condition exists. Assets here are specialized, whence productive values would be sacrificed if $h > 0$ transactions were to be prematurely terminated. Such bilaterally dependent parties have incentives to promote continuity and safeguard investments. Cooperative adaptation thus comes to the fore.

Let s denote the magnitude of any such safeguards. An $s = 0$ condition is one in which no safeguards are provided; a decision to provide safeguards is reflected by an $s > 0$ result.

Safeguards can take either of two forms. One form is to provide interfirm contracts with added support: Penalties to deter breach are introduced, added information disclosure is provided, and specialized dispute settlement machinery (e.g., arbitration) is devised. This safeguard is the credible interfirm commitment option. A second form is to take transactions out of markets and organize them under unified ownership where hierarchy (to include fiat) is used to effect coordination.

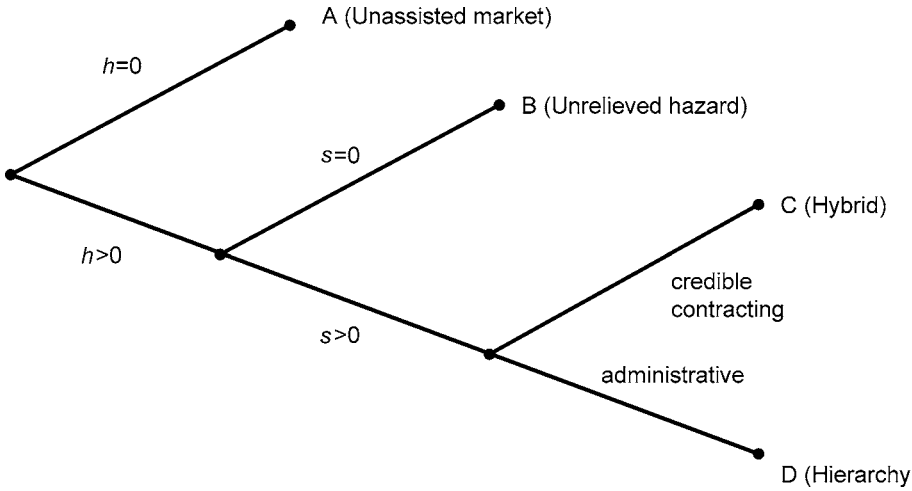

Figure 1 The simple contractual schema.

Node A corresponds to the ideal transaction in law and economics: With an absence of dependency ($h = 0$), prices are set competitively in the market (by supply and demand), and, in the event of contractual breakdown, the courts award damages. Node B poses unrelieved contractual hazards in that specialized investments are exposed ($h > 0$) for which no safeguards ($s = 0$) have been provided. Such hazards will be recognized by farsighted players, who will price out the implied risks. Nodes C and D are those for which additional contractual support has been provided ($s > 0$), either in the form of contractual safeguards (node C) or unified ownership (node D).

In the event that costly breakdowns continue in the face of best bilateral efforts to craft safeguards at node C, the transaction may be taken out of the market and organized under unified ownership (vertical integration) instead. Inasmuch, however, as added bureaucratic costs accrue upon taking a transaction out of the market and organizing it internally, internal organization is usefully thought of as the organization form of last resort: Try markets, try hybrids, and have recourse to the firm only when all else fails. Node D, the firm, thus comes in only as higher degrees of asset specificity and added uncertainty pose greater needs for cooperative adaptation.

APPLICATIONS TO PUBLIC POLICY

Node A excepted, which is the ideal transaction in law and economics to which I referred previously, the neoclassical and transaction cost approaches to firm and market organization plainly differ. These differences are due to the broader conception of economic organization out of which TCE works (where alternative modes of organization are described as governance structures, to which the lessons of organization theory apply), and these differences have ramifications for public policy toward business. Neoclassical and transaction cost interpretations of nonstandard and unfamiliar contracting practices and organizational structures are compared and contrasted here. The overarching difference is this: Orthodox economics is more imperial in that it imposes a price theoretic interpretation on the phenomena in question, whereas TCE is more curious and asks the question "What's going on here?" The TCE action is in the details of transactions on the one hand and governance structures on the other, which is closer in spirit to organization theory.

Vertical Integration/Vertical Market Restraints

Orthodox explanations for integration (backward, forward, or lateral) of the firm-as-production function kind invoke considerations of technology, inefficient factor proportions that result from double-marginalization (McKenzie 1951), and/or distortions that arise from government-imposed quotas or sales taxes.

Joe Bain's treatment of thermal economies, recently repeated by Daniel Spulber (1999, p. 270), is illustrative of technological reasoning:

> [T]he cases of clear economies of integration generally involve a physical or technical aspect of the processes in a single plant. A classic case is that of integrating iron-making and steel-making to effect a saving in full costs by eliminating a reheating of iron before it is fed to a steel furnace. Where integration does not have this physical or technical aspect—as it does not, for example, in integrating the production of assorted components with the assembly of those components—the case for cost savings from integration is much less clear (Bain 1968, p. 381).

As a technological matter, however, the thermal economies to which Bain and Spulber refer actually require only that the two stages be located in close proximity to one another. That the two stages be placed under unified ownership is not implied. If, therefore, economies somehow accrue to the unified ownership of these two stages (that is, the relation between the two stages is better mediated by hierarchy rather than by market), this must be due to other, possibly transactional rather than technological, reasons.

TCE thus looks behind apparent explanations (such as price discovery or thermal economies) to see if they withstand comparative institutional scrutiny. It also asks whether outside procurement poses interfirm contractual hazards for which cost-effective relief will be realized upon taking the transaction in question into the firm (added bureaucratic costs notwithstanding). Specifically, the progressive buildup of contractual complications, as discussed in conjunction with the simple contractual schema in Figure 1, is mainly what explains successive moves from ideal market to hybrid to hierarchy.

So what about vertical market restrictions? How are these to be understood? For starters, vertical market restrictions can be interpreted as a decision to remain at node C rather than move to node D. The transaction in question is one to which hazards accrue ($h > 0$) for which cost-effective safeguards are needed ($s > 0$). If most of the hazards can be relieved at node C without incurring the added bureaucratic cost burdens (weakening of incentive intensity, added administrative costs) of unified ownership, then hybrid modes, of which franchising is an example, will be employed (provided that the contractual restrictions that accrue thereto are not treated as unlawful).

Vertical market restrictions often arise in the support of brand name capital (Klein 1980), where the concern is that such capital will be devalued by subgoal pursuit among independent or quasi-independent distributors (often franchisees), with the result that the integrity of the system is placed at risk. Depending on the particulars of the transaction, customer and territorial restrictions, exclusive dealing, or other franchise restrictions may be imposed. Absent strategic purpose, for which pre-existing monopoly power is a requisite, the choice of instruments for imposing vertical restraints will be discerned by examining where and how the contractual hazards originate.

Price theoretic explanations for nonstandard modes of contracting include the efficiency benefits that purportedly accrue to price discrimination, the benefits of

efficient risk bearing in the face of differential risk aversion, and the attenuation of free-rider hazards through the use of vertical market restrictions. The allocative efficiency benefits that accrue to price discrimination in a zero transaction cost world (which can be readily displayed in price theoretic terms) are much more problematic, however, if the costs of discovering customer preferences and of preventing arbitrage are positive. Invoking risk aversion to explain contracting practices among firms, moreover, is often second order in relation to more basic concerns with contractual hazards. Finally, unspecific free-rider claims are too often used as a shibboleth. The action, always and everywhere, resides in the details.[6]

The "New Economy"

Is there really a new economy? Yes and no. On the one hand, there is nothing new under the sun: real time responsiveness, innovation, outsourcing, and predatory behavior are not novel issues. Each of these has been magnified, however, by the deployment of new information technologies, by an increasing appreciation for relational contracting, and by the races for the commercialization and control of information age and biotechnology developments. A change in kind seems to describe competition in many high technology sectors.

Orthodox microtheory bears on some of these issues, but often in limited ways. TCE makes limited yet productive contact in the following respects: (*a*) Express provision for cooperative adaptation is congruent with the need for real time responsiveness; (*b*) innovation is examined in a systems context—in which firm size, incentives, and intertemporal transformations are featured (Williamson 1975, pp. 196–207); (*c*) crafting credible commitments to support outsourcing and the bureaucratic advantages of outsourcing over internal procurement are both TCE themes; and (*d*) tests for predation that exonerate behavior directed at less efficient competitors (Posner 1976, p. 193) are too static in that they fail to make provision for contingent predation—"now it's there, now it isn't, depending on whether an entrant has appeared or vanished" (Williamson 1977, p. 339), which introduces intertemporal considerations.

To be sure, new economy issues pose strategic and knowledge creation challenges that go beyond TCE (Shapiro & Varian 1999). Also, concepts such as "disequilibrium contracting" (Williamson 1991) boggle the mind. That TCE is more responsive to many of the pressing needs of public policy in the new economy than is received price theory is noteworthy but scarcely grounds for complacency.

[6]Although Posner (1979) contends that "the proper lens for viewing antitrust problems is price theory" (p. 932), Alan Meese (1997) observes that, "[d]espite references by Chicagoans to 'price theory,' Chicago's approach to vertical restraints has never rested upon. . .price theory. Instead, the Chicago approach to vertical restraints is an application of [NIE/TCE reasoning]" (p. 203). Also see Joskow (1991, pp. 567–57).

Regulation/Deregulation

FRANCHISE BIDDING[7] Posner's sanguine assessment of the efficacy of franchise bidding for natural monopoly begins with the claim that to "expound the details of particular regulations and proposals. . . would serve only to obscure the basic issues" (Posner 1972, p. 98). In the imperial tradition, all of the relevant action is concentrated in the ex ante bidding competition for the contract. This is consonant with Posner's dismissive view of organization theory, to which I referred at the outset, and illustrates the pitfalls of doing public policy analysis heedless of process transformations. Upon going beyond ex ante bidding competition to include ex post contract implementation, the attributes of the good or service to be franchised turn out to be crucial to an informed assessment. Specifically, if the good or service is to be supplied under conditions of uncertainty and if nontrivial investments in specific assets are involved, the efficacy of franchise bidding is highly problematic. The upshot is that franchise bidding for natural monopoly is not an all-purpose but rather a conditional solution.[8]

RESTRUCTURING ELECTRICITY SUPPLY IN CALIFORNIA Efforts to promote efficiency by creating markets for electric power have been implemented in a number of countries with varying degrees of success. California is a recent example where the efforts to restructure have been incompletely worked through. Again, the imperial view (this is the law here) trumps the process view (what's going on here?). This shows up in two respects. First, "good theories" were naively expected to be implemented without making provision for the realities of the political and regulatory process. Failing to make ex ante provision for these realities, politics and regulation are conveniently made the ex post scapegoats for behaving in perverse or unanticipated ways that, in large measure, were foreseeable and should have been factored into the calculus (Williamson 1996, chapter 8). Such lapses in realpolitik aside, Paul Joskow (2000) observes that too much deference was given to the (assumed) efficacy of smoothly functioning markets and insufficient attention was given to potential investment and contractual hazards and appropriate governance responses thereto. As Joskow puts it:

[7]This subsection is elaborated in Williamson (1996, pp. 84–85).

[8]Examples in which franchise bidding for goods and services supplied under decreasing cost conditions can possibly supplant extant regulation or public ownership with expected net gains include local service airlines and, possibly, postal delivery. The winning bidder for each base plant (terminals, post office, warehouses, and so on) can be owned by the government, and other assets (planes, trucks, and the like) will have an active secondhand market. Franchise bidding is not totally lacking in merit, therefore; on the contrary, it is a very imaginative proposal. TCE maintains, however, that all contracting schemes—of which franchise bidding for natural monopoly is one—need to be examined microanalytically and assessed in a comparative institutional manner.

> Many policy makers and fellow travellers have been surprised by how difficult it has been to create wholesale electricity markets. . . . Had policy makers viewed the restructuring challenge using a TCE framework, these potential problems are more likely to have been identified and mechanisms adopted ex ante to fix them (Joskow 2000, p. 51).

THE INSTITUTIONAL ENVIRONMENT The New Institutional Economics operates at two interrelated levels: the institutional environment (or rules of the game) and the institutions of governance (or play of the game). The study of privatizing telecommunications by Levy & Spiller (1994, 1996) examines the institutional environment (rules of the game) in five countries through a comparative contractual lens in which contractual hazards and credible contracting, or the lack thereof, are featured. This bottom-up approach reveals that the decision to privatize and the nature of privatization vary with the condition and quality of judicial independence, the division of powers between the executive and legislative branches, the competence of the regulatory bureaucracy, and contractual safeguards. Whether and how to privatize telecommunications should therefore be made conditional on these features.

Similar considerations arise in privatizing socialist economies. The "big bang" approach pays little heed to differences among industries, whereas those who are more concerned with cultivating institutions and the mechanisms of governance advise that a more gradual program be adopted in which the "easy cases" are privatized first. Because natural monopolies pose strains on deregulation and privatization alike (Arrow 2000, Williamson 2000), these are candidates to be privatized late (if at all) and then with the support of a fall-back regulatory apparatus.

Corporate Governance/Debt and Equity[9]

Price theory was long silent on the matter of corporate governance. Firms were simply assumed to maximize profits. The idea that managers might engage in subgoal pursuit that is contrary to profit maximization was inimical to the orthodox construction [although it can be and has been addressed in nearly orthodox terms by reformulating the objective function (Baumol 1959, Williamson 1964)].

TCE interprets the board of directors mainly as a security feature that arises in support of the contract for equity finance. Specifically, debt and equity are viewed not merely as alternative modes of finance, which is the law and economics construction (Easterbrook & Fischel 1986, Posner 1986), but also as alternative modes of governance. Thus, suppose that a firm is seeking cost-effective finance for the following series of projects: general-purpose mobile equipment; a general-purpose office building located in a population center; a general-purpose plant located in a manufacturing center; distribution facilities located somewhat more

[9]This subsection is based on Williamson (1996, pp. 184–85).

remotely; special-purpose equipment; market and product development expenses; and the like.

Suppose further that debt is a governance structure that works almost entirely out of rules. Specifically, assume that debt financing requires the debtor to observe the following: (*a*) Stipulated interest payments will be made at regular intervals; (*b*) the business will continuously meet certain liquidity tests; (*c*) sinking funds will be set up and principal repaid at the loan-expiration date; and (*d*) in the event of default, the debt-holders will exercise preemptive claims against the assets in question. If everything goes well, interest and principal will be paid on schedule. But debt is unforgiving if things go poorly. Failure to make scheduled payments thus results in liquidation. The various debt-holders will then realize differential recovery in the degree to which the assets in question are redeployable.

Because the value of a pre-emptive claim declines as the degree of asset specificity deepens, the terms of debt financing will be adjusted adversely. Confronted with the prospect that specialized investments will be financed on adverse terms, the firm might respond by sacrificing some of the specialized investment features in favor of greater redeployability. But then a lower cost of capital comes at an added production cost. Might it be possible to relieve the trade-off by inventing a new governance structure to which suppliers of finance would attach added confidence? In the degree to which this is feasible, value-enhancing investments in specific assets could thereby be preserved.

Suppose arguendo that a financial instrument called equity is invented, and assume that equity has the following governance properties: (1) It bears a residual-claimant status to the firm in both earnings and asset-liquidation respects; (2) it contracts for the duration of the life of the firm; and (3) a board of directors is created and awarded to equity, a board of directors that (*a*) is elected by the pro rata votes of those who hold tradeable shares, (*b*) has the power to replace the management, (*c*) decides on management compensation, (*d*) has access to internal performance measures on a timely basis, (*e*) can authorize audits in depth for special follow-up purposes, (*f*) is apprised of important investment and operating proposals before they are implemented, and (*g*) in other respects bears a decision-review and monitoring relation to the firm's management (Fama & Jensen 1983).

The board of directors thus evolves as a way to reduce the cost of capital for projects that involve limited redeployability. Not only do the added controls to which equity has access have better assurance properties, but equity is more forgiving than debt. Efforts are therefore made to work things out and preserve the values of a going concern when maladaptation occurs. Thus, whereas the governance structure associated with debt is of a very market-like kind, that associated with equity is much more intrusive and is akin to administration. The correspondence to which I referred earlier between outside procurement/debt and vertical integration/equity therefore obtains. In effect, debt is the market form of finance, and equity (the administrative form) appears as contractual hazards build up. Equity is the financial instrument of last resort.

Other Variations on a Theme

TCE maintains that any issue that arises as or can be posed as a contracting problem can be examined to advantage in transaction cost economizing terms. Accordingly, the reach of transaction cost reasoning is virtually endless. I briefly sketch two additional applications here (without bothering with price theoretic explanations).

PUBLIC BUREAUS According to Douglass North, "Political markets are. . . prone to inefficiency" (North 1990, p. 365) and "high transaction cost issues gravitate to the polity" (p. 372). That is worse than a paradox. That is perverse. Bad enough that political markets are inefficient. But surely the appropriate lesson is for high transaction cost issues to flee from rather than be attracted to the polity?

Maybe, but then again, maybe not. High transaction cost issues, after all, are ones that are inherently difficult to organize. As set out in Figure 1, such transactions are ones for which node A governance (in the market) is poorly suited compared with node D governance (in the firm). If still additional contractual hazards build up, might some of these transactions be candidates for governance in the public bureau? That is precisely the argument that I advance elsewhere (Williamson 1999). Specifically, the many disabilities of the public bureau notwithstanding—very low-powered incentives, very costly administrative procedures, very protective employment relations—there are some transactions (of which foreign affairs is an example) for which the public bureau comes off best judged, as it should be, comparatively. There is a place for each generic form of organization, yet each needs to be kept in its place.

LABOR ORGANIZATION The organization of labor reflects many purposes, monopsony power and political purposes included. What about efficiency? Again, the action resides in the details. Those labor transactions that pose greater contractual hazards ($h > 0$) will benefit from governance efforts to mitigate the hazards ($s > 0$), whereas it will be less cost-effective to supply these same safeguards to generic labor (of a node A kind), which is a recurrent theme. As developed elsewhere (Williamson et al. 1975; Williamson 1985, chapter 10), the observed organization of labor tracks an efficiency rationale.

CONTRACT AND ECONOMIC ORGANIZATION

Alternative Approaches

If the contractual approach to economic organization has the reach that I ascribe to it, then the systematic application of TCE to legal education and to legal and economic research on contracting holds out considerable promise. This will entail going beyond the "sort of contract law that has flourished in American law schools: the law embodied n judicial decisions and studied by analyzing these decisions" (Rubin 1995, p. 109). What Edward Rubin (1995) recommends instead is that the

law schools (and students of contract more generally) need a "theory of contract. . . that addresses the *contracting process itself*, rather than the judicial adjudication of that process," whereupon a "nonjudicial domain of contracting behavior" will be given prominence (p. 108, emphasis added).

In principle, law and economics could have been applied to that purpose. That project, however, took a "massive wrong turn" by the argument advanced by Posner and others that "the contract law goal [of] economic efficiency. . . [was] achieved through common-law adjudication" (Rubin 1995, p. 113). By drawing attention away from contracts and the contracting process toward judicial adjudication, "law and economics became just another tool for analyzing judicial decisions" (p. 113). Rubin is nevertheless heartened that although the "law school curriculum continues to be relatively resistant to a transactional theory of contract,. . . legal scholarship has gradually begun to shift its focus as a result of the economic and sociological analysis of transactions" (p. 114).

So what does a combined law, economics, and organizations approach to the study of contract, broadly conceived, entail? As I see it, the overarching move is to bring the lens of transaction cost economizing assiduously to bear. The examination of incomplete contracting in its entirety will be facilitated by supplanting the academic concept of contract as legal rules by that of private ordering and by inquiring into the mechanisms through which transaction cost economizing is accomplished. Interestingly, Ronald Gilson (1984) made many of these same arguments earlier in his examination of corporate finance transactions.

The Economizing Perspective

The economizing perspective holds that, subject to the remediableness criterion, inefficiency invites its own demise—where inefficiency is assessed in relation to feasible alternatives (rather than a hypothetical ideal) and provision is made for implementation costs. Because joint gains will always be realized by moving from a less to a more efficient mode, provided that implementation costs do not dissipate the gains, farsighted businessmen and their lawyers will eschew inferior outcomes (such as node B in the schema). In contrast to Machiavelli's myopic advice to "get them before they get us," the farsighted view of contracting is to "give and receive credible commitments" (Williamson 1983, 1993b)—by providing better information and added security features that serve to infuse confidence and realize mutual gains.

Gilson's (1984, p. 255) description of business lawyers as transaction cost engineers is very much in this spirit. He thus urges that transactions be examined not in a one-sided way but "from the perspective of *both* clients" (p. 245; emphasis in original), whence mutual gain is the object. He furthermore adopts a transaction cost economizing approach to private ordering (Gilson 1984, p. 255), including express reference to credible commitments (p. 281). Also, he views departures from the assumptions of the (ideal) capital asset pricing model—namely, common time horizon, identical expectations, no transaction costs, and costless information

(Gilson 1984, p. 252)—as grist for the TCE mill: "[T]he unreality of these [ideal]. . . assumptions is not cause for despair. Rather, it is the very failure of these assumptions to describe the real world that I find the *potential for value creation* by lawyers" (Gilson 1984, p. 253; emphasis added). The institutions of governance arise precisely on account of these disparities (Arrow 1963).

Private Ordering

THE CONCEPT Marc Galanter (1981) takes exception with the usual academic/legal centralist approach to contract in which disputes purportedly "require 'access' to a forum external to the original social setting of the dispute [whereby] remedies will be provided as prescribed in some body of authoritative learning and dispensed by experts who operate under the auspices of the state" (p. 1). The facts disclose otherwise: Most disputes, including many that under current rules could be brought to a court, are resolved by avoidance, self-help, and the like (p. 2). This is because in "many instances the participants can devise more satisfactory solutions to their disputes than can professionals constrained to apply general rules on the basis of limited knowledge of the dispute" (p. 4). Gilson (1984) concurs: When business lawyers play the role of transaction cost engineer well, "the courts, and formal law generally, shrink dramatically in importance" (p. 294).

CONTRACT LAWS (PLURAL) Karl Llewellyn's (1931) earlier dissent from the legal rules approach to contract introduces the concept of contract as framework:

> [T]he major importance of legal contract is to provide a framework for well-nigh every type of group organization and for well-nigh every type of passing or permanent relation between individuals and groups. . .—a framework highly adjustable, a framework which almost never accurately indicates real working relations, but which affords a rough indication around which such relations vary, an occasional guide in cases of doubt, and a norm of ultimate appeal when the relations cease in fact to work (Llewellyn 1931, pp. 736–37).

This last point is important in that the prospect of ultimate appeal to the courts serves to delimit threat positions.

Related ideas have been advanced by others, including Clyde Summers (1969) who distinguishes between "black letter law" (which bears a likeness to black box economics) and a more circumstantial approach to contract. The former employs the counterfactual "illusion that contract rules can be stated without reference to surrounding circumstances and are therefore generally applicable to all contractual relations" (p. 566).

The TCE argument that each generic mode of governance is supported by a distinctive form of contract law is broadly in this circumstantial spirit. The ideal (node A) transaction in both law and economics is that of spot markets to which identity is unimportant and legal rules apply (Macneil 1974). This legal rules approach gives way to Llewellyn's concept of contract-as-framework as the importance of continuity builds up and incomplete long-term contracting is adopted

(node C). That in turn undergoes change when transactions are taken out of the market and organized internally (node D), where the implicit law of contract now becomes that of forbearance. As previously noted, courts routinely grant standing to firms engaged in interfirm contracting should there be disputes over prices, the damages to be ascribed to delays, failures of quality, and the like, yet courts will refuse to hear disputes between one internal division and another over identical technical issues. Access to the courts being denied, the parties must resolve their differences internally (Rubin 1995, p. 117). Accordingly, hierarchy is its own court of ultimate appeal. That firms and markets differ in their access to fiat is partly explained by these contract law differences (Williamson 1991).

Mechanisms

CORPORATE ACQUISITION TRANSACTIONS TCE subscribes to the dictum that "explanations in the social sciences should be organized around (partial) *mechanisms* rather than general *theories*" (Elster 2000, p. 75; emphasis in original). That is evident in the way by which TCE examines the canonical make-or-buy decision and of contracting more generally. It is also evident in Gilson's (1984) examination of efforts by business lawyers to perfect the acquisition agreement in the face of "deviations" from the ideal assumptions of the capital asset pricing model:

> Earnout or contingent-pricing techniques respond to the failure of the homogeneous expectations assumption; controls over operation of the seller's business during the period in which the determinants of the contingent price are measured respond to failure of the common-time-horizon assumption; and the panopoly of representations and warranties, together with provisions for indemnification and other verification techniques, respond to the failure of the costless-information (Gilson 1984, p. 293).

CONTRACT LAW DOCTRINE A microanalytic examination of the mechanisms that arise in conjunction with contract law doctrines would also be illuminating. Ian Macneil (1974) describes the legal system's "less than total commitment to the keeping of promises" as follows:

> Contract remedies are generally among the weakest of those the legal system can deliver. But a host of doctrines and techniques lies in the way of even those remedies: impossibility, frustration, mistake, manipulative interpretation, jury discretion, consideration, illegality, duress, undue influence, unconscionability, capacity, forfeiture and penalty rules, doctrines of substantial performance, severability, bankruptcy laws, statutes of fraud, to name a few; almost any contract doctrine can and does serve to make the commitment of the legal system to promise keeping less than complete (Macneil 1974, p. 730).

The refusal by the courts to enforce stipulated damages clauses is especially puzzling. Because the parties to a contract can be presumed to know best what

contractual terms serve their interests, why should the courts refuse to enforce stipulated damages in the event of breach?

One possibility is that contract is a devious thing. Thus, although such a clause may frequently be the efficient way to settle a breach, it could also serve strategic purposes, of which induced breach is one.

The issue of contrived cancellation has been addressed by Kenneth Clarkson, Roger Miller, and Timothy Muris in their discussion of refusal of the courts to enforce stipulated damage clauses where breach has been deliberately induced (Clarkson et al. 1978, pp. 366–72). Induced breach could arise when a party intentionally withholds relevant information yet complies with the letter of the contract. Or it might involve perfunctory fulfillment of obligations where more resourceful cooperation is needed (pp. 371–72). In either case, induced breach is costly to detect and/or prove (p. 371). Transaction cost considerations are plainly operative.

Ramifications for Legal Education

Gilson (1984) advises that my observation that the legal centralism approach to contract relieves "lawyers and economists... of the need to examine the variety of ways by which individual parties to exchange 'contract out of or away from' the governance structures of the state by devising private orderings" (Williamson 1983, p. 520) is too sweeping. It should be restricted to academic lawyers and economists (Gilson 1984, p. 295). That is because "business lawyers have done an awfully good job at something the law schools did not and, for the most part, still do not teach: helping people arrange their relationships in the absence of governmental intervention: facilitating *private ordering*" (Gilson 1984, p. 303; emphasis in original). But then "why have law schools done so bad a job training business lawyers?" (p. 303). Gilson's answer is that "There has been no theory... that dealt with private ordering" (p. 304) prior to the appearance of "two areas in economics—finance and transaction cost economics" (p. 305).

Twenty years later we find that the teaching of contract law has changed very little. What explains this continuing neglect?

One explanation is that mainline law and economics has remained comfortably ascendant. The relation between law and economics thus continues to be one in which textbook economic orthodoxy is the fount. The predilection to work out of a theory of the firm-as-production function setup is thus reaffirmed and the subject of organization remains disjunct. Reservations about the efficiency of common law adjudication notwithstanding, contract law teaching stays predominantly focused on legal rules and adjudication.

A second explanation is that the world of private ordering is impossibly complex. As good lawyers are quick studies, better that they learn about private ordering on the job rather than in the classroom.

The first of these arguments is a lame excuse for complacency, whereas the second overlooks the possibility that the economics of organization involves

variations on a few key themes. In that event, attention can be focused on canonical cases—of which credible interfirm contracting is one and vertical integration is another. The buzzing, blooming confusion of private ordering is thereby reduced to more manageable proportions. Because the classroom is the place to lay out the intuition, merits, and mechanisms of credible contracting (node C) and to examine the comparative strengths and weaknesses of the firm-as-governance structure (node D), to relegate the study of private ordering to on-the-job training is anachronistic.

Even, moreover, if the basic law school curriculum is unmoved by these arguments, it is noteworthy that a number of leading law schools have begun to offer an elective course on complex deals, many of them modeled after the course offered by Gilson and Victor Goldberg at Columbia Law School on "Deals: The Economic Structure of Transactions and Contracting." If the demand for transaction cost engineers cannot be met by the law schools, the business schools could end up eating that lunch (Rubin 1995, p. 114).

CONCLUSIONS

There is growing agreement that "the objectives of firms, the reason for their existence and the manner of their decision taking. . . will require modes of analysis quite different from those which have dominated in this century" (Hahn 1991, p. 49). Not only does TCE hold that the way to think about contract and organization is to bring the purposive and farsighted lens of economizing to bear,[10] but the existence and governance of firms are both the key TCE issues.

As developed herein, organization theory has massive ramifications for the TCE theory of the firm. Salient contributions from organization theory include the description of human actors in more veridical terms, the importance of intertemporal process transformations, choice of the unit of analysis, and the description of alternative modes of governance as syndromes of complementary attributes. The resulting theory of the firm differs greatly from the neoclassical (Kreps 1990, p. 96). Because "[a]ny standard theory, not just neoclassical, starts from the existence of firms" (Arrow 1999, p. vii), that is very basic.

To be sure, the proximate lessons (as advanced by organization theorists) and the ultimate lessons (as viewed from an economizing perspective) often differ—and that is consequential. But the more basic point is this: Someone needed to

[10]Farsighted contracting is more plausible in intermediate product market contracts than in final goods markets. Still, farsighted firms that are selling to consumers who lack the relevant expertise and foresight nevertheless can and do take steps to alleviate the hazards—through branding, warranties, guarantees, and the like. I do not mean to suggest, however, that there is never an occasion to craft additional relief (possibly with the aid of public policy) against residual hazards.

step up and offer trenchant critiques and identify relevant phenomena. Organization theorists were prepared to do that when others were complacent or held back.

The theory of the firm-as-governance structure that is sketched herein is an ongoing rather than finished construction.[11] Its evolving status notwithstanding, it has already served to deepen our understanding of many complex contractual and organizational phenomena and it operates as a check against overuses and misuses of orthodoxy. In that spirit, I suggest that mainstream law and economics stands to benefit by incorporating the lessons and some of the methods of law, economics, and organization—both as these bear on public policy and in relation to the law school curriculum.[12]

ACKNOWLEDGMENTS

This paper was originally prepared for the ceremony inaugurating the Program in Law and Economics at the University of Chile in August 2000. That program is a joint effort between the Faculty of Economics and Business and the Faculty of Law to "promote and develop interdisciplinary theoretical and applied research in the area." It was subsequently presented at the opening session of the fourteenth annual conference of the International Society for New Institutional Economics in Tuebingen, Germany, at the Law and Economics Seminar at George Mason University, the Law, Economics, and Organization Seminar at the University of Southern California, and at the First Annual Symposium at the Center for Legal Dynamics of Advanced Market Societies at Kobe University. Useful questions and comments at all five sessions are gratefully acknowledged. An earlier version of this paper was published in the *Kobe University Law Review* (2004) 38:59–95.

[11] Full formalization is the ultimate objective. The Grossman-Hart-Moore model (Hart 1995) qualifies as a fully formal model but is lacking in plausibility (Kreps 1999). The treatment of procurement by Bajari & Tadelis (2001), which focuses on the incentive and ex post adaptation differences between fixed price and cost plus contracting, is much closer in spirit to TCE.

[12] One of the comments that I have received on this review is that the basic message has not only been heard, but that it has registered and taken effect. That is gratifying, yet other readers remark that much of this is unfamiliar terrain and needs to be more fully spelled out. I come out somewhere in between. Thus, although many of the firm-as-governance structure ideas have taken hold, private ordering remains underdeveloped and organization theory is scanted by mainline law and economics—witness the leading textbooks (Cooter & Ulen 2000, Polinsky 1989, Posner 1998). Public policy inroads notwithstanding, the basic contract law course remains immune to the arguments in this paper.

LITERATURE CITED

Arrow KJ. 1963. Uncertainty and the welfare economics of medical care. *Am. Econ. Rev.* 53(December):941–73

Arrow KJ. 1999. Forward. In *Firms, Markets, and Hierarchies*, ed. G Carroll, D Teece, pp. vii–viii. New York: Oxford Univ. Press

Arrow KJ. 2000. Economic transition: speed and scope. *J. Inst. Theor. Econ.* 156(March): 9–18

Bain J. 1968. *Industrial Organization*. New York: Wiley. 2nd ed.

Bajari P, Tadelis S. 2001. Incentives versus transaction costs: a theory of procurement contracts. *RAND J. Econ.* 32(3):387–407

Barnard C. 1962 (1938). *The Functions of the Executive*. Cambridge: Harvard Univ. Press

Baumol WJ. 1959. *Business Behavior, Value and Growth*. New York: Macmillan

Ben-Porath Y. 1980. The F-connection: family, friends, and firms and the organization of exchange. *Popul. Dev. Rev.* 6:1–30

Buchanan JM. 1975. A contractarian paradigm for applying economic theory. *Am. Econ. Rev.* 65(2):225–30

Buchanan JM. 1987. The constitution of economic policy. *Am. Econ. Rev.* 77(3):243–50

Clarkson KW, Miller RL, Muris TJ. 1978. Liquidated damages v. penalties. *Wis. Law Rev.* 1978:351–90

Coase RH. 1992. The institutional structure of production. *Am. Econ. Rev.* 82(September): 713–19

Commons JR. 1932. The problem of correlating law, economics, and ethics. *Wis. Law Rev.* 8:3–26

Cooter R, Ulen T. 2000. *Law and Economics*. Reading, MA: Addison-Wesley. 3rd ed.

Dawkins R. 1976. *The Selfish Gene*. New York: Oxford Univ. Press

Demsetz H. 1983. The structure of ownership and the theory of the firm/comment. *J. Law Econ.* 26(June):375–93

Easterbrook F, Fischel D. 1986. Close corporations and agency costs. *Stanford Law Rev.* 38(January):271–301

Elster J. 2000. Arguing and bargaining in two constituent assemblies. *Univ. Penn. J. Const. Law* 2:345

Fama EF, Jensen MC. 1983. Separation of ownership and control. *J. Law Econ.* 26 (June):301–26

Galanter M. 1981. Justice in many rooms: courts, private ordering, and indigenous law. *J. Leg. Plur.* 19:1–47

Gilson R. 1984. Value creation by business lawyers: legal skills and asset pricing. *Yale Law J.* 94(December):239–313

Hahn F. 1991. The next hundred years. *Econ. J.* 101(January):47–50

Hart O. 1995. *Firms, Contracts, and Financial Structure*. New York: Oxford Univ. Press

Hayek F. 1945. The use of knowledge in society. *Am. Econ. Rev.* 35(September):519–30

Joskow P. 1991. The role of transaction cost economics in antitrust and public utility regulatory policies. *J. Law Econ. Org.* 7(Special Issue):53–83

Joskow PL. 2000. *Transaction cost economics and competition policy.* Work. Pap., MIT

Klein B. 1980. Transaction cost determinants of 'unfair' contractual arrangements. *Am. Econ. Rev.* 70(May):356–62

Klein B, Leffler K. 1981. The role of market forces in assuring contractual performance. *J. Polit. Econ.* 89(May):615–41

Kreps DM. 1990. Corporate culture and economic theory. In *Perspectives on Positive Political Economy*, ed. J Alt, K Shepsle, pp. 90–143. New York: Cambridge Univ. Press

Kreps DM. 1999. Markets and hierarchies and (mathematical) economic theory. In *Firms, Markets, and Hierarchies*, ed. G Carroll, D Teece, pp. 121–55. New York: Oxford Univ. Press

Levy B, Spiller P. 1994. The institutional foundations of regulatory commitment: a comparative analysis of telecommunications regulation. *J. Law Econ. Org.* 10(October):201–46

Levy B, Spiller P. 1996. *Regulations, Institutions, and Commitment: Comparative Studies of Telecommunications*. Cambridge, UK: Cambridge Univ. Press

Llewellyn KN. 1931. What price contract? An essay in perspective. *Yale Law J.* 40:704–51

Macneil IR. 1974. The many futures of contracts. *South. Calif. Law Rev.* 47(May):691–816

March JG, Simon HA. 1958. *Organizations*. New York: Wiley

McKenzie L. 1951. Ideal output and the interdependence of firms. *Econ. J.* 61(December):785–803

Meese AJ. 1997. Price theory and vertical restraints: a misunderstood relation. *UCLA Law Rev.* 45(October):143–204

Michels R. 1962. *Political Parties*. Glencoe, IL: Free

North D. 1990. A transaction cost theory of politics. *J. Theor. Polit.* 2(4):355–67

Polinsky AM. 1989. *An Introduction to Law and Economics*. Boston: Little, Brown. 2nd ed.

Posner RA. 1972. The appropriate scope of regulation in the cable television industry. *Bell J. Econ. Manag. Sci.* 3(1):98–129

Posner RA. 1976. *Antitrust Law*. Chicago: Univ. Chicago Press

Posner RA. 1979. The Chicago School of antitrust analysis. *Univ. Penn. Law Rev.* 127(April):925–48

Posner RA. 1986. *Economic Analysis of Law*. Boston: Little, Brown. 3rd ed.

Posner RA. 1993. The new institutional economics meets law and economics. *J. Inst. Theor. Econ.* 149(March):73–87

Posner RA. 1998. *Economic Analysis of Law*. New York: Aspen Law & Business. 5th ed.

Rabin M. 1998. Psychology and economics. *J. Econ. Lit.* 36(March):11–46

Reder M. 1999. *The Culture of a Controversial Science*. Chicago: Univ. Chicago Press

Riordan M, Williamson O. 1985. Asset specificity and economic organization. *Int. J. Ind. Org.* 3:365–78

Robbins L. 1932. *Essay on the Nature and Significance of Economic Science*. London: Macmillan

Rubin E. 1995. The non-judicial life of contract: beyond the shadow of the law. *Northwestern Univ. Law Rev.* 90(Fall):107–31

Schultz G. 1995. Economics in action: ideas, institutions, policies. *Am. Econ. Rev. Papers Proc.* 85(May):1–8

Scott WR. 1987. *Organizations: Rational, Natural, and Open Systems*. Upper Saddle River, NJ: Prentice Hall

Selznick P. 1950. The iron law of bureaucracy. *Modern Rev.* 3:157–65

Shapiro C, Varian HR. 1999. *Information Rules: A Strategic Guide to the Network Economy*. Boston, MA: Harvard Bus. Sch.

Simon H. 1947. *Administrative Behavior*. New York: Macmillan

Simon H. 1957a. *Administrative Behavior*. New York: Macmillan. 2nd ed.

Simon H. 1957b. *Models of Man*. New York: Wiley

Simon H. 1978. Rationality as process and as product of thought. *Am. Econ. Rev.* 68(May):1–16

Simon H. 1985. Human nature in politics: the dialogue of psychology with political science. *Am. Polit. Sci. Rev.* 79:293–304

Spulber D. 1999. *Market Microstructure: Intermediaries and the Theory of the Firm*. Cambridge, UK: Cambridge Univ. Press

Summers C. 1969. Collective agreements and the law of contracts. *Yale Law J.* 78(March):537–75

Williamson OE. 1964. *The Economics of Discretionary Behavior: Managerial Objectives in a Theory of the Firm*. Englewood Cliffs, NJ: Prentice-Hall

Williamson OE. 1975. *Markets and Hierarchies: Analysis and Antitrust Implications*. New York: Free

Williamson OE. 1977. Predatory pricing: a strategic and welfare analysis. *Yale Law J.* 87(December):284–340

Williamson OE. 1983. Credible commitments: using hostages to support exchange. *Am. Econ. Rev.* 73 (September):519–40

Williamson OE. 1985. *The Economic Institutions of Capitalism*. New York: Free

Williamson OE. 1991. Comparative economic organization: the analysis of discrete structural alternatives. *Admin. Sci. Q.* 36(June): 269–96

Williamson OE. 1993b. Calculativeness, trust, and economic organization. *J. Law Econ.* 36(April):453–86

Williamson OE. 1996. *The Mechanisms of Governance*. New York: Oxford Univ. Press

Williamson OE. 1999. Public and private bureaucracies. *J. Law Econ. Org.* 15(April): 306–42

Williamson OE. 2000. *Empirical Microeconomics*: *Another Perspective.* Work. Pap., Inst. Manag. Innov. Org., Univ. Calif., Berkeley

Williamson OE, Wachter ML, Harris JE. 1975. Understanding the employment relation: the analysis of idiosyncratic exchange. *Bell J. Econ.* 6(Spring):250–80

Annual Review of Law and Social Science
Volume 1, 2005

CONTENTS