

A PREFACE ON MODELING THE REGULATED UNITED STATES ECONOMY

*Stanley Reiter**
*Jonathan Hughes**†*

Arrow's Theorem and its descendants tell us that there is no satisfactory general method of making social decisions in a society sufficiently rich in possibilities and preferences.¹ Yet we do, perforce, make such decisions. Indeed, our economic life seems to be dominated by using the power of the state to restrict, regulate, and direct economic activity. Experience of contemporary economic life suggests that we are not doing it very well. The impossibility theorems of social choice theory, while consistent with the poor performance observed, do not in themselves provide a satisfactory basis for understanding the relationships and interactions between state power and economic life, nor does the formal structure of social choice theory provide a satisfactory basis for understanding those relationships. This Article puts forward a structure by which those relationships and interactions can, at least in principle, be expressed and analyzed.

We present a view of the regulated economy, expressed partly in formal terms, in which governmental regulation is endogenous and broadly consistent with the history and development of our own regulated economy. We present a conceptual framework rather than a theory of regulated economies. We are attempting to understand, by a process of simplification and analysis that avoids the traditional separation between private economic structure and government intervention, the political-economic process as it appears in the United States experience. We offer this framework in

* Professor of Economics, Northwestern University.

** Professor of Economics, Northwestern University.

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1. E.g., Arrow, *Values and Collective Decision-making*, in *PHILOSOPHY, POLITICS AND SOCIETY* 215 (P. Laslett & W. Runciman eds. 3d ser. 1967).

a spirit of positive thought, rather than ideological purity or reformist zeal. It is our hope and expectation that the abstract model of a regulated economy can be made more precise in various ways, which will permit analysis of more specific questions and eventually provide theories of regulation capable of predicting specific outcomes from specific assumptions.

We first give a brief sketch of the history of regulation in the United States, and discuss some of the problems of modeling a regulated economy. Following that, we present the formal model. Finally, we present a reformulation of some relevant parts of American economic history from about 1880 to 1940 as they appear in the light of our model.

AN HISTORICAL OVERVIEW

Private ownership of productive resources and control over their management and disposition was never an unalloyed right in the United States. Police power, the protection of health and safety, was exercised by governments from the time of the earliest settlements and continuously during the colonial era.² After independence, these powers were usually expanded, and only rarely abandoned by governments.³ As the country developed these powers, regulation of entry, prices, and quality controls tended to proliferate.⁴ Beginning with the establishment of the Interstate Commerce Commission (I.C.C.) in 1887,⁵ regulatory power, traditional in the states, was permanently elevated to the Federal level. The Sherman Antitrust Act,⁶ passed in 1890, was a behavioral sumptuary law placed upon business organization, outlawing strategies and tactics that, however profitable for participating parties, were held to be against the public interest, and, therefore, illegal. By 1914,

2. J. HUGHES, *SOCIAL CONTROL IN THE COLONIAL ECONOMY* 9-20 (1976).

3. A rare abandonment of controls occurred in the most unlikely place, the State of New York, in its constitutional revision of 1846: "All offices for the weighing, gauging, measuring, culling or inspecting any merchandize, produce, manufacture or commodity, whatever, are hereby abolished . . ." But, in the same place, the power to reintroduce such offices is retained, and was in later years abundantly employed. N.Y. CONST. of 1846, art. V, § 8, reprinted in *THE FEDERAL AND STATE CONSTITUTIONS* 2662 (F. Thorpe ed. 1909).

4. See J. BRYCE, 2 *THE AMERICAN COMMONWEALTH* 587-97 (1910); J. HUGHES, *THE GOVERNMENTAL HABIT* 50-145 (1977).

5. The Interstate Commerce Commission was created by the Interstate Commerce Act, ch. 104, 24 Stat. 379 (1887) (current version at 49 U.S.C. § 1 (1976)).

6. Sherman Antitrust Act, ch. 647, 26 Stat. 209 (1890) (current version at 15 U.S.C. §§ 1-7 (1976)).

with the Income Tax Amendment,⁷ the Clayton amendment⁸ to the Sherman Antitrust Act, establishment of the Federal Trade Commission⁹ and Federal Reserve System,¹⁰ the basic forms of Federal control over the private sector's decisionmaking processes were in place. Ensuing crises of war and depression produced extensions in all directions of these forms of Federal intervention.¹¹ With the Employment Act of 1946,¹² and what Herbert Stein called "the fiscal revolution,"¹³ the police-power role was fully augmented to include the idea that government, at the Federal level, should play a stabilizing role in aggregate economic life. Both major political parties maintained the laws and agencies supporting this new consensus, and, by the 1970's, their numbers had been greatly expanded. The Chrysler "bailout" in 1980 was further evidence of the force of the new consensus.

The motivating forces behind these developments can be described in terms that make them apparently unassailable politically; these are protection of the public interest in terms of equity, health and safety, and stability and security. In addition, economic theory provides a justification for regulatory intervention on grounds of economic efficiency in cases of "market failure." Providing for the national defense has long been recognized as a legitimate sphere of governmental activity. But, with the introduction of the model of public goods, economists have helped to legitimize a broad sphere of activities for governmental enterprise and entrepreneurship.

Views of regulation held by economists and the treatment of regulation in economic theory deserve some comment. Not all economists agreed that the increase of politically based decision-making concerning economic affairs was a good thing for the economy's health.¹⁴ Such critics, however, seem to have been a

7. U.S. CONST. amend. XVI.

8. Clayton Act, ch. 323, 38 Stat. 730 (1914) (current version at 15 U.S.C. §§ 12, 13, 14-19, 20, 21, 22-27, 44, and 29 U.S.C. §§ 52-53 (1976)).

9. The Federal Trade Commission was created by the Federal Trade Commission Act, ch. 311, 38 Stat. 717 (1914) (current version at 15 U.S.C. § 41 (1976)).

10. The Federal Reserve System was created by the Federal Reserve Act, ch. 6, § 1, 38 Stat. 251 (1913) (current version at scattered sections of 12 U.S.C. (1976)).

11. See Hughes, *Roots of Regulation: The New Deal*, in *REGULATORY CHANGE IN AN ATMOSPHERE OF CRISIS* 31, 43-44 (G. Walton ed. 1979).

12. Employment Act of 1946, ch. 33, 60 Stat. 23 (current version at 15 U.S.C. §§ 1021-1023 (1976)).

13. H. STEIN, *THE FISCAL REVOLUTION IN AMERICA* 131 (1969).

14. Many economists would have none of the arguments justifying the fiscal

distinct minority in the profession.¹⁵ Critics tended to view laissez faire as the desirable state of affairs, and governmental intrusion as unnecessary, inefficient, and artificial. While views about the desirability of economic regulation differed, the basic conception of the regulated economy, held until the 1960's by both supporters and critics of governmental intervention, appears to have been the same. This conception, at least as expressed in economic theories, was one of a (more or less competitive) private-market economy into which governmental regulation intruded, distorting the outcome of the private economic process for good or ill. Regulation was seen as an outside intervention, not part of the economic system itself. This view long prevailed, despite the observation that economic regulation is ubiquitous; business is now affected by licensing, quality, entry, and other controls.

This view is natural and useful if one is interested in studying the properties of a private-economy model (such as the existence and optimality of competitive equilibrium), or if one wishes to study the effect of a specific form of regulation in a partial-equilibrium setting (such as the effect of profit regulation on the input mix employed by a public utility). But it is inadequate as a global view of the regulated economy. Here, the problem includes explaining the regulatory interventions themselves; that is to say, an adequate model would make regulation endogenous, and seek to explain regulation as at least partially resulting from the interactions in social institutions of the agents of society, each driven by its own interests.

There is a constitutional right to organize for the purpose of political action.¹⁶ While there are some restrictions on the actions

revolution. Among these are the staunch Austrians, Ludwig von Mises and F.A. von Hayek and their followers. For two influential works critical of the new consensus, written nearly two decades ago, see J. BUCHANAN & G. TULLOCK, *THE CALCULUS OF CONSENT* (1962); M. FRIEDMAN, *CAPITALISM AND FREEDOM* (1962). A decade later, philosopher Robert Nozick won the National Book Award for *ANARCHY, STATE, AND UTOPIA* (1974), which opposed modern ideas of equity through redistribution. By then, the 1970's literature written by economists who opposed the new consensus had grown considerably.

15. The statement can be made with some confidence because of the overwhelming adoption of the two leading, "liberal," basic economics texts: C. MCCONNELL, *ELEMENTARY ECONOMICS* (1960); P. SAMUELSON, *ECONOMICS* (1948). At that level (textbook adoption), the voting by professional economists has been strictly no contest between supporters of the modern consensus and its opponents.

16. This right is encompassed by the first amendment. *Cousins v. Wigoda*, 419 U.S. 477, 487 (1975) (state procedure controlling delegate seating at political convention invalid under first and fourteenth amendments).

of such organizations (*e.g.*, limitations on campaign contributions by political action committees), the scope of their protected behavior is, on the whole, considerably broader than would be permitted under antitrust laws. An industry or trade association may informally "conspire" to lobby in favor of regulation to fix prices, where the members could not legally meet to consider fixing prices directly. More modern views of regulation see it as part of the larger economic-political system. Roger Noll and Morris Fiorina view the provision of regulation by politicians as part of an effort to find what the public wants and give it to them.¹⁷ As Bruce Owen and Ronald Braeutigam observe, there are still too many explanations of the regulatory phenomenon for there to be *an* explanation of it.¹⁸

In macroeconomics, the governmental role has been accepted, and the idea of the "mixed economy" is now the norm: Regulation apart, it is a basically free-enterprise economy which is skimmed by taxation and the proceeds redistributed enough to remove the harshest inequities. Theoretically, the redistribution is supposed to be "stabilizing." More recently, both the growth and permanence of the government's role have given rise to interest in its function as an ongoing part of the American economy, as well as to efforts to define more closely those areas in which there is some logical reason for the intrusion of governmental activity.¹⁹

To help see what a model of endogenous regulation has to cope with, we can briefly examine some salient features of our historical experience.

While our society's methods of nonmarket governmental control may seem at times to be irrational from a global viewpoint (the economy as a whole), they appear, in fact, to be the products of economic and political forces that are logical enough in relation to each other, case by case, within the framework of our traditions, laws, and constitutions. It is important here to emphasize the *congeniality* of our regulatory methods with our basic ideas about such matters as property rights, equity, and freedom. Far from constricting these, nonmarket controls over business activity are most

17. Noll and Fiorina's views are discussed in B. OWEN & R. BRAEUTIGAM, *THE REGULATION GAME* 10, 16, 18, 21 (1978).

18. *Id.* at 17-18.

19. See P. ARONSON & P. ORDESHOOK, *CAUSES AND CONSEQUENCES OF PUBLIC SECTOR GROWTH* (forthcoming); W. NISKANEN, *BUREAUCRACY AND REPRESENTATIVE GOVERNMENT* (1971); S. ROSE-ACKERMAN, *CORRUPTION* (1978); R. WAGNER, *THE PUBLIC ECONOMY* (1973); *THEORY OF PUBLIC CHOICE* (J. Buchanan & R. Tollison eds. 1972).

commonly believed to enhance freedom and property rights by constraining the few in the interest of the many. In particular, a "risk averse" population seems to prefer the "equity" of administrative processes to the dangers of adverse "market decisions."²⁰

How does our regulatory process continue to satisfy its clientele? Regulation is, after all, what we collectively want. To deny this would be difficult indeed, given the record of presidential and congressional elections since 1932. In the past decade, candidates for public office have found antiregulation a successful stance during campaigns. But, in fact, the regulatory apparatus continues to expand, with "reforms" being at best cosmetic. The agencies of control are the creations of Congress, whose members were elected in competitive political processes during the nine decades of active Federal nonmarket control. Had our techniques and agencies of control not been fundamentally congenial, there was plenty of time and opportunity to change or abolish them. We have, it would seem, what we collectively want. The idea is really remarkable, given that our form of governmental regulation includes the following characteristics:

- (i) *It seems, at any point in time, to work at cross-purposes.*

For example, inflation-producing agencies continue their work against a (stated) background policy of anti-inflation; e.g., programs and agencies designed to limit energy production and maximize consumption flourish against an overall policy of expanded energy output and restrained consumption.

- (ii) Each group benefiting from regulation approves its own regulatory "deal," but would prefer that the rest of the agents in the economy compete with each other. So, even though each part of the regulation is supported by those concerned, *in sum, most of the regulation is disapproved of by most of those involved.* The result is a paradox: Massive support of a regulatory apparatus that is, at the same time, the object of widespread complaint and criticism. Indeed, at any moment, each regulatory deal may well be the object of criticism by *all* the other sectors in the economy. Truckers approve of I.C.C. regulation, but would prefer taxis to compete with each other. Cab-owners approve of their own licensing deal, but want the trucking industry to be competitive. Each part is both approved and disapproved, depending upon whose ox is being gored.

20. B. OWEN & R. BRAEUTIGAM, *supra* note 17, at 25-32.

- (iii) *Despite an evident failure to achieve either specific or overall policy goals, the system grows continuously.* There is no significant movement inside the regulatory apparatus to reduce either the size or scope of regulation, despite continuous criticism and opposition from the outside. This peculiarity has given rise to tax revolution (real and attempted), efforts to limit expenditures by constitutional amendment, and the like. Moreover, in the past thirty years the system has grown enormously without advocacy of its growth by either major political party or any presidential candidate. That is, regulation has sufficient internal strength and motivation to assure its expansion in the economy and intrusion into ever-widening circles of economic activity without major political support.
- (iv) Since laws establishing regulation tend to use purposely vague and imprecise language like "public interest and convenience," the *outcomes of regulation tend to be the results of regulatory processes,*²¹ and cannot have been those that were the objects of originating legislation, except by sheer accident. If economic efficiency should be an outcome, it must also be accidental.
- (v) *Nearly all regulation involves an income- and wealth-transfer process,* creating economic rents and a clientele of rent-seekers who benefit at the expense of others, the public at large. Those who lose in the process have the opportunity to seek relief in the courts and by political processes.

A phenomenon with these characteristics will not likely be captured by a model that attempts to explain regulation in terms of some global rationality, nor indeed by one in which individuals behave as simple maximizers, as is the case with, say, producers in competitive markets, or monopolists. In the presence of the conflicts of interest among economic agents that are characteristic of economic life, the power of the government must inevitably become a focus of conflict among private agents. These agents, or groups of them, seek to use the power of the state to advance their interests, and to prevent others from damaging them. We are led by this view to formulate a model in which the strategic elements of game theory play an important role.

21. In regulation, "the procedure is the outcome." *Id.* at 26. (emphasis in original).

THE STATIC MODEL

There are two types of agents explicitly in the static model (and an additional type implicitly modeled). These are: (1) Economic agents, numbered $[1, \dots, n] = I$. The set I includes both private economic agents, *i.e.*, producers and consumers, and governmental economic agents, such as the Tennessee Valley Authority or Defense Department agencies; (2) Regulators; the set J includes existing regulatory authorities. (In the subsequent dynamic version, J is taken large enough to allow for potential regulators as yet inactive.)

The Unregulated Economic Process

We begin by modeling an unregulated economic process. The adjustment process or resource-allocation-mechanisms model of Hurwicz²² and Mount/Reiter²³ in its static version is used for this purpose. We separate those elements that are characteristic of the economic system, such as structure of markets or tax laws, from those that are given from "nature" or from the past, such as endowment of natural resources or stock of capital. The latter are called the "environment." A particular environment will be denoted by e ; the set of environments by E .

Given an environment e , the characteristics of each agent are determined, *i.e.*, agent i 's production set, consumption set, and preference relation being part of the data constituting e are given when e is given. Denote by e^i the characteristic of agent i when the environment is e and by E^i the set of all such characteristics e^i corresponding to $e \in E$.²⁴ It is assumed that agent i knows his own characteristic e^i .

Regulators have no direct knowledge of the environment. They must, in the static version of the model, choose their regulations in ignorance of the environment e , knowing only that it is one of a set, E , of possible environments.²⁵

22. Hurwicz, *Optimality and Informational Efficiency in Resource Allocation Processes*, in *MATHEMATICAL METHODS IN THE SOCIAL SCIENCES*, 1959, at 27 (K. Arrow, S. Karlin & P. Suppes eds. 1960).

23. Mount & Reiter, *The Informational Size of Message Spaces*, 8 *J. ECON. THEORY* 161 (1974).

24. Formally e^i is a projection of e on subspaces corresponding to agent i . If the environment is decomposable (absence of externalities), then $e = (e^1, \dots, e^n)$ and e^i is just the i th component of the data constituting e .

25. This is an extreme assumption. Regulators may have partial information about the environment.

The unregulated economic process is modeled (very abstractly) as follows: There is a communication process using some formal language of messages or signals; *e.g.*, the competitive process can be viewed as using prices and quantities as messages, by means of which agents communicate their excess demands. This process results in stationary or equilibrium messages, which may be interpreted as encoding the economic plans or decisions of the agents. These are translated into actions, which, in turn, determine an allocation. We shall focus attention on the actions, evaluating them by the value of the allocations to which they lead. This is represented formally as follows:²⁶

Let \mathcal{M} denote the space of possible messages. We may, for the moment, suppose that $\mathcal{M} = \mathcal{M}^1 \times \dots \times \mathcal{M}^n$ where \mathcal{M}^i is the space of messages of agent i , $i = 1, \dots, n$.

Agent i is assumed to know only his own component e^i of the environment e . His response function, f^i , models the way agent i responds to information received from others in the light of what he knows about the environment. Thus,

$$1) \quad f^i(m_t, e^i) = m_{t+1}^i, \quad i = 1, \dots, n, \quad \text{where } m_t = (m_t^1, \dots, m_t^n).$$

Thus, at any stage t of the communication process, agent i , knowing e^i , receives messages $m_t = (m_t^1, \dots, m_t^n)$ from all the agents and revises his message m_{t+1}^i at the next stage on the basis of what he then knows.

A message n -tuple

$$\bar{m} = (\bar{m}^1, \dots, \bar{m}^n)$$

such that $f^i(\bar{m}, e^i) = \bar{m}^i \quad i = 1, \dots, n$,

is called an equilibrium message. We suppose that the difference equation system (1) is such that its solutions converge to equilibrium messages.

Since equilibrium messages are given by

$$f^i(m, e^i) - m^i = 0 \quad i = 1, \dots, n,$$

26. For more detailed accounts of this model, see Hurwicz, *supra* note 22; Mount & Reiter, *supra* note 23. This model is, of course, not confined to the competitive mechanism. A broad class of alternative economic processes can be represented in this way. Therefore, in modeling the unregulated economy in this way, we do not commit ourselves to the position that the economy is competitive, or even that markets and prices are the allocation mechanism in use.

we can define

$$\mu^i(e^i) \equiv [m \in \mathcal{M} \mid f^i(m, e^i) - m^i = 0] \quad i = 1, \dots, n,$$

and hence

$$\mu(e) \equiv \bigcap_{i=1}^n \mu^i(e^i) \equiv [m \in \mathcal{M} \mid f^i(m, e^i) - m^i = 0, \\ i = 1, \dots, n].$$

We call μ^i the equilibrium message correspondence (set-valued function) of agent i , and μ the equilibrium message correspondence of the process. Note that the message-correspondence formulation is more general than that using response functions, but the response-function model is a bit easier to interpret.

Let

$$\mu^i: E^i \rightarrow \mathcal{M} \quad i \in I$$

be the (equilibrium) message correspondence of economic agent i . Thus,

$$\mu^i(e^i) \subset \mathcal{M}$$

is the set of messages agent i "sends" when his environmental component is $e^i \in E^i$. For example, in a pure exchange environment e , e^i would denote agent i 's consumption set, preference relation, and initial endowment. If μ^i is to represent i 's behavior according to the competitive mechanism, then $\mu^i(e^i)$ is the graph of agent i 's excess demand function, viewed as a set in the message space, $\mathcal{M} \equiv \mathcal{R}^t \times \mathcal{R}^t$, whose points (p, q) are price-quantity pairs.²⁷

The correspondence

$$\mu = \bigcap_i \mu^i$$

maps environments into equilibrium messages. Thus, in the pure-exchange competitive case,

$$\mu(e) = \bigcap_{i=1}^n \mu^i(e^i)$$

consists of the market-clearing price-quantity pairs, *i.e.*, those that make aggregate excess demands equal to zero.

27. Mount & Reiter, *supra* note 23, give an explicit formulation of the competitive mechanism as a formal resource allocation mechanism of this type.

Finally, the outcome function

$$h: \mathcal{M} \rightarrow A$$

translates the equilibrium messages into actions or outcomes.

In this model of the economic process, the message space \mathcal{M} and the outcome function h may be interpreted as representing institutional arrangements, while the message correspondences μ^i , $i \in I$ represent the behavior of the agents.

Regulated Economy

We next model the regulated economy, including the set J of regulators. We suppose that the number of regulators is $m \cong 0$. Regulatory instruments are of two kinds: incentives and direct constraints on behavior. To model incentives, we suppose that each regulator $j \in J$ can choose a parameter Θ^j , $i \in I$ determining incentives confronting economic agent i .

Thus, let

$$\Theta^j = (\Theta^{1j}, \dots, \Theta^{nj})$$

and

$$\Theta = (\Theta^1, \Theta^2, \dots, \Theta^J).$$

The vector Θ is the parameter of choices made by all regulators.

We may regard the choices Θ of regulators regarding incentives as messages to the private agents.²⁸ Then, the full message space is $\mathcal{M} \times \Theta$, where Θ is the space of possible vectors Θ . Thus, the outcome function h maps $\mathcal{M} \times \Theta$ to A , *i.e.*,

$$h: \mathcal{M} \times \Theta \rightarrow A.$$

For each, $\Theta \in \Theta$, $h(\cdot, \Theta)$ is a function from \mathcal{M} to A . We also write h_Θ for $h(\cdot, \Theta)$.

The outcome function h_Θ , jointly determined by the regulators, may reflect the payment of subsidies or the levying of taxes or other actions that influence the outcomes resulting from the choices made by the economic agents.²⁹

28. We do not formally distinguish those agents i that regulator j has the authority to regulate. He issues regulations for all agents, ineffective for those outside j 's authority, *i.e.*, h_Θ will be independent of those components ij for which i lies outside of j 's authority. Thus, each agent is "regulated" by all regulators.

29. The entitlements program, which requires oil companies to make payments to one another depending on the use of domestic versus imported oil, is a contemporary example.

To model direct constraints on behavior, let $\rho^{ij}: E^i \rightarrow \mathcal{M}$ $i \in I$, $j \in J$ denote a correspondence imposed by regulator j on economic agent i and interpreted as a constraint on agent i 's behavior. Thus, when agent i has environmental characteristic e^i , and the regulator j imposes ρ^{ij} , agent i must satisfy³⁰

$$\mu^i(e^i) \subset \rho^{ij}(e) \text{ for every } j \in J$$

or

$$\mu^i(e^i) \subset \bigcap_{j \in J} \rho^{ij}(e^i) \equiv \rho^i(e)$$

($\rho^{ij}(e) = \mathcal{M}$ for all $e \in E$ would express the condition that i 's behavior is not constrained by j .)

Let $\rho^j = (\rho^{1j} \dots \rho^{nj})$ and write $r^j = (\Theta^j, \rho^j)$ for $j \in J$. Then, r^j is the full regulatory instrument chosen by regulator j .

Since regulator j cannot observe the environment directly, he cannot know which environment $e \in E$ obtains. How then can he know whether his regulation ρ^{ij} is complied with?

Regulator j may have some partial information about the environment. He may observe certain "signals" depending on the environment e . Say $\eta^j(e) = y_j$ is the signal j observes about the environment when it is e . His regulation could then be made conditional on y^j , say $\bar{\rho}^j(y^j)$. But then defining

$$\rho^j \equiv \bar{\rho}^j \cdot \eta^j$$

or

$$\rho^j(e) = \bar{\rho}^j(\eta^j(e))$$

yields the constraint given above. Enforceability is, of course, relative to information.³¹ A special case, arising in particular when j knows nothing about e is that in which ρ^j is constant. (I.e., the regulator may impose certain constraints on behavior that are independent of the environment e .) Thus, $\rho^{ij}(e) = M^i \subset \mathcal{M}$ for all $e \in E$.

30. An alternative formulation would provide for penalties for detected deviations from the condition $\mu^i(e^i) \subset \rho^{ij}(e)$. An example of regulatory constraints that depend on the environmental characteristic is provided by profit regulations that depend on the underlying technological constraints.

31. For an analysis of this type of situation in a specific regulatory context, see D. Baron & R. Myerson, *Regulating a Monopolist with Unknown Cost* (Dec. 1979) (The Center for Mathematical Studies in Economics and Management Science, Northwestern University, Discussion Paper No. 412) (to be published in *Econometrica*, 1982).

Outcomes

Thus, if (i) regulator j chooses $r^j = (\Theta^j, \rho^j)$, (ii) economic agent i chooses μ^i , and (iii) Nature chooses e , then the outcome of the economic process is

$$h_{\Theta} \cdot \mu(e),$$

where μ^i must satisfy

$$\mu^i(e^i) \subset \rho^i(e) \text{ for all } i \in I \text{ and } e \in E.$$

Constraints on Regulators

Regulators are constrained by legal and institutional constraints as well as by resource constraints.

If we suppose that regulator j knows that agent i knows the value of e^i when the environment is e , and that agent i also knows that the regulator's information about e is $y^j = \eta^j(e)$, then regulator j may anticipate that agent i will choose his behavior optimally, in his own view, within the constraints of detectability imposed by j 's information. Therefore, regulator j can choose his regulatory instrument ρ^{ij} so as to bring i 's choice as near as possible to his own objective.

The legal and institutional constraints operating on regulator j are expressed by the requirement that r^j belong to a set R^j of legally available regulations.³² The resource constraint on regulator j

32. In this country, the diminution of legal restrictions on regulation culminated in the pivotal case of *Nebbia v. New York*, 291 U.S. 502 (1934). The modern effusion of governmental regulatory power over the private sector came from expansions of the police power first from the hands of state legislatures, and then by the elevation of those powers to the Federal level, beginning with the establishment of the Interstate Commerce Commission in 1887. The power of government regulation to expand beyond those areas sanctioned by ancient tradition had begun in the courts.

The first augmentation came in the fateful case, *Munn v. Illinois*, 94 U.S. 113 (1877), where state regulation of a private warehouse was held constitutional. Then, the state's power to regulate railroad rates was affirmed. *Chicago, B., & Q.R.R. v. Iowa*, 94 U.S. 155 (1877); *Peik v. Chicago & N. Ry.*, 94 U.S. 164 (1877); *Chicago, M., & St. P.R.R. v. Ackley*, 94 U.S. 179 (1877); *Winona & St. P.R.R. v. Blake*, 94 U.S. 180 (1877). (All five cases were reported together in spring of 1877 and are known collectively as the *Granger Cases*.)

Having opened the way, the courts then for decades tried to hold back the flood by restricting the application of *Munn* to other industries by control-minded legislatures. E.g., *Tyson & Bro.—United Theatre Ticket Offices v. Banton*, 273 U.S. 418 (1927) (state regulation of theatre-ticket scalping invalid); *Chas. Wolff Packing Co. v. Court of Indus. Relations State of Kan.*, 262 U.S. 522 (1923) (state regulation fixing terms of business and employment of manufacturers invalid). During World War I,

is expressed by his budget $b^j \in R_+$ (the non-negative real numbers) and the function K , which attaches to each element $r^j = (\theta^j, \rho^j)$ a cost $K(r^j) = K(\theta^j, \rho^j)$ in dollars, of administering the regulations r^j . (Generally, the cost should depend on the environment e as well. Here, we are implicitly "averaging out" the environment.) Regulator j is constrained to choose r^j in

$$\mathcal{B}(\mathcal{R}^j, b^j) \equiv [r^j \in \mathcal{R}^j \mid K(r^j) \leq b^j].^{33}$$

the legislation converting the U.S. economy to a command basis was couched in the language of *Munn*; for example, the crucial Lever Food-Control Bill, ch. 53, 40 Stat. 276 (1917). See J. HUGHES, *supra* note 4, at 139-40. The floodgates, perhaps inadvertently, were finally opened wide by *Nebbia* in 1934. Again, it was a police-power decision at the state level which had reached the U.S. Supreme Court.

In *Nebbia*, the Supreme Court upheld a New York law designed to reduce the price of fluid milk to processors ("large dealers") under the guise of stabilizing the incomes of raw-milk producers, farmers. 291 U.S. at 537-39. The device was a three-man Milk Control Board with the power to set the minimum and maximum prices of fluid milk sold at wholesale and retail. Price on the farm was left free of control. All buyers and sellers of milk had to be licensed by the Board. *Id.* at 518-20. The Court deferred to the legislative judgment that (a) minimum wholesale and retail fluid-milk prices would somehow raise farm incomes, and (b) minimum prices would assure an adequate supply to consumers. *Id.* at 516-18. The latter was irrelevant, since the problem at the time was surplus milk. The former appears to have been a primitive ruse which allowed big dealers to acquire their raw material cheaper than would have been true had retail milk prices been allowed to reach equilibrium levels. Prices controlled above market levels created excess supplies of fluid milk which then could be purchased for processing at lower prices to the farmers. Only a cut in milk production by farmers could have thwarted this outcome. Seen in this light, the case shows the footprints of a coalition of big dealers able to influence regulation in its favor, trampling the interests of the less-organized farmers, consumers, and retailers. (It is possible, depending on elasticities of demand and conditions of supply, that farmers may also have been short-run beneficiaries and perhaps coalition partners at the expense of consumers and retailers.)

33. The legal constraint on regulators is here modeled as absolute. This parallels the approach taken to the force of regulations on economic agents. Hence, there is no role for the courts in this model. What *Nebbia* shows, as seen from our point of view, is the legitimacy of the use of state power to regulate economic processes constrained only by political decisions, in *Nebbia* specifically by legislative discretion.

The Court was not mainly concerned with the economics of the New York law (nor does the majority opinion imply any understanding of it), but with the legislature's right to pass such a law. In its majority opinion, the Court held that the police power was sufficient for such regulation, that due process was protected, and that private contracts could be restrained by police power: "The Constitution does not secure to anyone liberty to conduct his business in such fashion as to inflict injury upon the public at large, or upon any substantial group of people." 291 U.S. at 538-39. The culprit, *Nebbia*, a grocer of Rochester, had sold two quarts of milk below nine cents a quart, the legal retail minimum. The constitutional (contract) limitation here quoted referred to the defense allegation that the transaction had been entirely satisfactory to both buyer and seller.

The Court, by upholding the New York legislation, undid the judicial efforts to restrict the growth of regulation. Under the doctrine of *Munn*, police-power controls over private economic life were restricted to private business affected with a public

We write $\mathcal{R} = (\mathcal{R}^1, \dots, \mathcal{R}^m)$ and $b = (b^1, \dots, b^m)$.

interest. 94 U.S. at 130. It was a vague barrier, but a barrier. Some businesses successfully proved their private character in courts of law and freed themselves of regulation. See note 32 *supra*. In *Nebbia*, the Court did, indeed, state that milk production was an important industry in New York State, and that its regulation was consistent with the general welfare. And the Court also concluded that 1932 was a crisis year, further justifying the use of the police power to fix milk prices. 291 U.S. at 530. But, apparently unconvinced by its own analysis, the Court then effectively eliminated even *Munn*'s standard: "It is clear that there is no closed class or category of business affected with a public interest The phrase 'affected with a public interest' can, in the nature of things, mean no more than that an industry, for adequate reason, is subject to control for the public good." *Id.* at 536 (quoting *Munn v. Illinois*, 94 U.S. at 130).

Munn had pushed the gate ajar for the growth of regulation; *Nebbia* heaved *Munn* aside, leaving legislative discretion as the only barrier to ubiquitous nonmarket control of the economy by government. *Nebbia* made the New Deal and subsequent regulation unassailable by private interests adversely affected. Justice Field, dissenting, had seen this coming in *Munn*. "The principle upon which the opinion of the majority proceeds is, in my judgment, subversive of the rights of private property, heretofore believed to be protected by constitutional guarantees against legislative interference . . ." 94 U.S. at 136 (Field, J., dissenting). Justice Field concluded: "If this be sound law . . . all property and all business in the State are held at the mercy of a majority of its legislature." *Id.* at 140 (Field, J., dissenting). In *Tyson & Bro.—United Theatre Ticket Offices v. Banton*, 273 U.S. 418 (1927), the Court ruled that the New York legislature had been wrong to declare theatre-ticket scalping subject to regulation because theatre tickets were clothed in the public interest. *Id.* at 442-45. Justice Holmes, dissenting in *Tyson*, agreed with Field about *Munn*, but for the opposite reason:

[T]he notion that a business is clothed with a public interest and has been devoted to the public use is little more than a fiction intended to beautify what is disagreeable to the sufferers. The truth seems to me that, subject to compensation when compensation is due, the legislature may forbid or restrict any business when it has a sufficient force of public opinion behind it. *Id.* at 446 (Holmes, J., dissenting). Holmes was close to what Field feared most, that anything, from a city mansion to a calico gown, could be regulated in the public interest. It was left for *Nebbia* to finish the job. Dissenting in *Nebbia*, Justice McReynolds could see that *Munn* had actually served as a restraint against extending the police power strictly at the discretion of legislatures:

Munn v. Illinois . . . has been much discussed in the opinions referred to [by the majority]. And always the conclusion was that nothing there sustains the notion that the ordinary business of dealing in commodities is charged with a public interest and subject to legislative control. The contrary has [now] been distinctly announced. To undertake now to attribute a repudiated implication to [*Munn*] is to affirm that it means what this Court has declared again and again was not intended.

291 U.S. at 555 (McReynolds, J., dissenting) (citations omitted).

But the rule of *Nebbia* was destined to hold. Private contracts for sale of commodities were ruled subject to price control: "[N]either property rights nor contract rights are absolute; for government cannot exist if the citizen may at will use his property to the detriment of his fellows, or exercise his freedom of contract to work them harm." *Id.* at 523. Thus, whatever the Government believed should be controlled could be controlled. The notion that private property was "absolute dominion," in Blackstone's classic phrase, would be dispensed with in modern

Evaluation of Outcomes

Each agent, whether an economic agent or a regulator, has a utility function, expressing the agent's evaluation of outcomes (actions) which may (for economic agents generally would) depend on the environment. Thus,

$$U^i: A \times R \times E \rightarrow R \quad \text{for } i \in I \cup J$$

is the utility function of agent i .

Suppose $(a, b^i, e) \in A \times R \times E$. Then, $U^i(a, b^i, e)$ is the utility agent i attaches to the outcome a where b^i is his institutional budget and e is the environment. If i is an economic agent, his institutional budget, b^i , is zero. If i is a regulator, then b^i denotes the budget of regulator i , and U^i reflects his "mission" as well as "private" preferences he may have. (E.g., he may prefer a larger to smaller budget, or wider to narrower authority.) Writers on bureaucracy frequently comment on the existence of bureaucratic self-interest and its effects on the behavior of bureaucrats. A regulator's utility may not depend directly on e , since he does not observe it.

A Game: Level I

The agents and regulators are modeled as players in a complex game. We present this game on two levels. On the first level, the behavior of economic agents is to observe r and choose μ . Therefore, a strategy for economic agent $i \in I$ is a function

$$\alpha^i: R \times b \rightarrow M^i,$$

where

$$M^i = [\mu^i: E^i \rightarrow \mathcal{M}]$$

and $\alpha^i(r, b)$ satisfies

$$\alpha^i(r, b)(e^i) \subset \rho^i(e) \text{ for all } e \in E \text{ and } i \in I.$$

America. As the majority wrote in *Nebbia*: "[T]he power to promote the general welfare is inherent in government." *Id.* at 524. The majority continued that a state has the freedom "to adopt whatever economic policy may reasonably be deemed to promote public welfare, and to enforce that policy by legislation adapted to its purpose. The courts are without authority either to declare such a policy, or, when it is declared by the legislature, to override it." *Id.* at 537. Justice Field lost in 1877, and ever after; the view of Holmes' dissent in 1927 was the majority opinion in 1934. Since *Nebbia*, the expansion of government regulation has, indeed, proceeded with few checks emanating from the private sector. The game became not to resist, but to adapt, and to influence the regulatory innovations.

Regulator j chooses $r^j \in \mathcal{B}^j(\mathcal{R}^j, b^j)$. Thus, given (\mathcal{R}, b) , a certain game-form $\Gamma(\mathcal{R}, b)$ is defined: [This is actually a parametric family of games with parameters $e \in E$].

The regulators generally do not have full information about the environment e , and, hence, do not know which particular game they are playing. In effect, the regulators know that the economic agents have information relevant to the game that the regulators do not have. One model available for such situations is the game of incomplete information.³⁴ In such a situation, the regulator's task is, in part, to formulate incentives and rules that will lead to outcomes he prefers even when he does not know the environment, *e.g.*, the utility functions, of the other players.³⁵ Continuing the formulation, the set of players is $I \cup J$. The strategic domain of player $i \in I$ is the set of functions α^i from \mathcal{R} to the set of correspondences μ^i from E^i to \mathcal{M} satisfy the regulations $r \in R$. The strategic domain of player $j \in J$ is $\mathcal{B}^j(\mathcal{R}^j, b^j)$. The payoff to player $i \in I$ when the strategies $(\alpha^1, \dots, \alpha^n, r^1, \dots, r^m)$ are chosen is

$$U^i(h_\theta \cdot \alpha(\cdot), b^j, e).$$

That is, each private agent, knowing the regulations issued by all regulators, decides how he will behave in each environment in which he might find himself. Given the regulation of all regulators and the choices of the private agents, a correspondence μ and a function h_θ are determined. Hence, the mechanism determined by μ and h_θ is specified and determines an outcome for any environment that might obtain. The payoffs are given by the utility functions, which, we note, also depend on the environment.

Now the games $\Gamma(\mathcal{R}, b)$ (whether viewed as games of incomplete information or as non-cooperative games in normal form) admit several solution concepts, *e.g.*, Bayes equilibria for the games of incomplete information, Nash equilibria or other possibilities for the other case. We need not here resolve the question of which solution concept to use.³⁶ Interpretation of the experience of regulation may help shed some light on this question, since it is, in part, a question of modeling. For our present purpose, we shall suppose that there is some concept that leads to the identification of good

34. See Harsanyi, *Games with Incomplete Information Played by "Bayesian" Players, Parts I-III*, 14 *MANAGEMENT SCI.* 159-82, 320-34, 486-502 (1967-68).

35. See *id.*

36. The appropriate solution concept here is a major issue, perhaps *the* major issue, of this sort of model.

strategies (\hat{a}, \hat{r}) in the game $\Gamma(\mathcal{R}, b)$ and corresponding *values* to the players. We denote this value

$$V_{\hat{r}}^1(e, \mathcal{R}, b) \quad i \in I \cup J.^{37}$$

37. Pairs (\hat{a}, \hat{r}) of "good" strategies are generally not unique. (E.g., this is the case with Nash equilibria in n -person cooperative games.) Moreover, different pairs need not necessarily be equivalent. Thus, the value $V_{\hat{r}}^1(e, \rho, b)$ should also depend on the strategy pairs (\hat{a}, \hat{r}) . We denote the dependence on \hat{r} explicitly. This may be interpreted as reflecting an assumption that the regulators' strategic choice determines which solution will arise as the agents adjust to the regulations.

The possibility of multiple solutions can be related to the commonplace observation that the regulatory apparatus often nullifies itself because of its own internal conflicts. Hence, it really is not so much a government as it is a congeries. This outcome could hardly be avoided since the agencies go back some nine decades in age, each one established with its own separate mission, connected to each other only vaguely by the idea that the "public interest" be somehow discovered by them and served. Since that interest cannot be known, each agency is left to fend for itself and for those whose business fall within the agency's purview. Administrations come and go with presidential elections, and it is not certain to whom the more general policy directives of these transient White House occupants are addressed. The big permanent agencies are "independent," and indeed were mostly meant to be impervious to passing fashion in the executive branch and in Congress as well. The staggered terms of the top appointees were meant to assure such independence. The agencies are, of course, bound to adhere to court rulings in cases involving agency rulings. But the courts themselves are meant to be, at least so far as judicial appointments are concerned, sanitized from direct political influence. The result, naturally enough, is a history rich in conflict between the various parts of total government. Perhaps the single most glaring historical example was the Treasury and Federal Reserve Board effort in 1936 and 1937 to offset the potentially inflationary consequence of the gold inflow, after four years of persistent and sometimes constitutionally questionable efforts by the Roosevelt administration to force prices and wages to rise.

Fear among Treasury and Federal officials that the gold inflow would produce inflation produced Keynes' famous quip: "They profess to fear that for which they dare not hope." The "tight money" episode of 1936-1937 and its role in the 1938 recession is discussed in M. FRIEDMAN & A. SCHWARTZ, *A MONETARY HISTORY OF THE UNITED STATES, 1867-1960*, at 493-545 (1963). The rest of the Roosevelt government was still pursuing income-support policies. The N.R.A. fiasco of 1933-1935 had been an attempt to create inflation by industry cartelization. New agencies in agriculture, housing, conservation, and public works were attempting to achieve the same goals.

Less dramatic examples of such conflict occur with regularity. In the 1970's, efforts by the entire sequence of presidential establishments of both parties to fight inflation were sandbagged by continuously rising spending programs emanating from Congress and by agencies of New Deal origins like the Commodity Credit Corporation and the Federal Home Loan Banks, whose historic missions, income supports, were to maintain and raise prices. Some agencies have a police warrant to guard against unfair practices or the sale of unsafe or substandard products without regard to the price effects of their actions. These controls have greatly expanded since 1960. See M. WEIDENBAUM, *BUSINESS, GOVERNMENT, AND THE PUBLIC* 11-23 (1977). In the traditional agency-industry set-up, the regulatory body has been responsible for the regulated industry's general health, leading to charges that the agencies were "captured" by the regulatees. The newer regulations have been dubbed "intrusive"

It is the *value* (in a sense corresponding to the underlying solution concept) to player i of playing in the game $\Gamma(\mathcal{R}, b)$ for each $e \in E$. Thus, it reflects to player i the effect on him, allowing for "intelligent" or "correct" strategic behavior of all players, of being in the regulated economy with the legal and budgetary framework (\mathcal{R}, b) . This permits the agents and regulators to evaluate, each from his own viewpoint, alternative legal and budgetary frameworks of regulation.

Political Processes

All players in $I \cup J$ participate in a political process (e.g., coalitions are organized, political parties or factions are formed, action groups organize and function). This process also involves political agents such as congressmen, senators, and members of the Administration. We do not model the political process in detail here. It suffices for the present purpose to note that the outcome of that process—however complex and interdependent its details—is the legal and budgetary framework of the game-form Γ . This outcome is influenced by the strengths of the agents, including the economic agents and the regulators, through their ability to influence the politicians.³⁸

by Morris Fiorina. Fiorina, *Facilitation of Government Growth: Universalism and Reciprocity Practices in Majority Rule Institutions*, in P. ARONSON & P. ORDESHOOK, *supra* note 19.

In the fall of 1979, a large group of Chicago building developers announced an agreement not to raise their prices for 60 days. The action was, they said, an anti-inflationary move undertaken in the public interest. Alfred Kahn, the chief "inflation fighter" of the Carter administration, praised the agreement, saying it takes "the efforts of all of us, working together, to bring inflation under control." *Wall St. J.*, Oct. 18, 1979, at 48, col. 1. The F.T.C. saw the agreement to fix prices as a combination in restraint of trade, and threatened the builders with antitrust prosecution if their price-fixing pledges were not withdrawn. *Id.* Professor Kahn represents in this episode the Carter administration's highest-priority economic policy, and the F.T.C. its ancient warrant to enforce the Sherman Antitrust Act. The motives are unrelated, the powers separately established, the actions conflicting. Such a conflict within the regulatory sector is a natural outcome of diverse origins and motivations of the regulatory apparatus.

Overlapping regulatory jurisdictions are, of course, other sources of conflict. For example, steel imports bring revenues to shippers, but are opposed by U.S. steelmakers. Hence, in 1978, a proposed change in the transportation allowance to help shippers in the calculation of the trigger price governing steel tariffs was opposed in Treasury Department hearings by Inland Steel. Both the shippers and the steelmakers gain a rent from the tariff. But there remain areas for dispute over the distribution of the rents. *See Wall St. J.*, Mar. 3, 1978, at 5, col. 4. Congress established protection for steel. But how many agencies influence the distribution of the resulting rents?

38. The use of group political action to influence regulatory actions by

The political process is here modeled as a game, Π , which is

influencing the framework given to the regulators by the government authorities is exemplified by the recent experience of the F.T.C. An old-time agency originally created (in 1914) to enforce the antitrust laws, the F.T.C. was over the years given other duties including the power even to stop deceptive advertising. *See* Wheeler-Lea Act, ch. 49, 52 Stat. 111 (1938) (current version at 15 U.S.C. §§ 44, 45, 52-58 (1976)).

After some decades of relative inaction by the agency and criticism by consumer groups for being a captive of those it is charged with regulating, the new political strength of the consumer movement led to a more active policy by the agency. Its more aggressive approach to its responsibilities led to alienation of a growing portion of the country's businesses and business groups. By the late 1970's, the F.T.C. was under fire from many directions. The F.T.C. had planned to impose restraints and guidelines on advertisers of products for children, the costs of funerals, information provided by used-car dealers, and standard-setting practices of trade associations. Offended industry groups fought the extension of F.T.C. power through Congress, which controls the F.T.C.'s budget. By the fall of 1979, Congress became the instrument to clip the F.T.C.'s wings. *Wall St. J.*, Oct. 18, 1979, at 48, col. 1.

An old agency, loaded down with decades of accretions of its authority, the F.T.C. had become ensnarled in its own obligations. By 1974, its regulations covered some 20,000 different products, all in addition to its obligations under the Wheeler-Lea Act to block "unfair or deceptive acts or practices" in commerce. 15 U.S.C. § 45(a)(1) (1976); *see* H. LIEBHAFSKY, *AMERICAN GOVERNMENT AND BUSINESS* 217-18 (1971). The F.T.C. also retained its original obligation to enforce the Sherman and Clayton Acts. Its obligations could be general or minute. When a new product, a slice- and hook-reducing golf ball, failed to gain approval of the relevant trade association, its manufacturers appealed to the F.T.C. Its policy that standard-setting groups have fair procedures is the relevant avenue of appeal, but the U.S. Golf Association objected that it should not be subjected to such general rules. *See generally* *Wall St. J.*, Oct. 18, 1979, at 48, col. 1. So the F.T.C. gained yet another opponent.

The battle over the F.T.C. is, of course, welcomed by Congressmen and Senators as a potent source of concentrated support. The Carter administration, on the other hand, defended the F.T.C. as part of the Federal establishment. Consumer groups continue to back the F.T.C.'s activism, as do those manufacturers who stand to gain by enforcement of F.T.C. rules. By the political process, primarily through financial support offered or refused on the voting power of large, organized blocs, the private sector can make its views felt in Congress. The regulators themselves attempt to adhere to their primary warrants in addition to accommodating and placating those to whom the consequence of regulation necessarily accrues. Failure, for any reason, to maintain an adequate base of political support could lead to disestablishment—a rare happening, but always a possibility. Murmurs against the F.T.C. have been matched in the past by similar discontent with the Federal Reserve System, the Nuclear Regulatory Agency, the Federal Power Commission and others. In the case of the Civil Aeronautics Board, some of its powers (control of routes) actually were removed in 1978. It was believed that the Civil Aeronautics Board's protection of trunk carriers from competition by new entrants was not in the public interest. The proposal to cut the I.C.C.'s control of long-distance trucking was opposed vehemently by the controlled truck owners and the Teamster's Union, both of whom would face competition from new entrants if the trade were thrown open. It is believed by many economists that the abolition of trucking regulation would reduce inflationary pressures. *See generally* *Wall St. J.*, June 22, 1979, at 6, col. 1.

Such conflicts are built into regulation. Congressman Russo (Dem., Illinois), Chairman of the House Small Business Committee's regulatory-agencies subcommit-

played cooperatively. Let ζ denote the set of all partitions of $I \cup J$. A partition represents a structure of coalitions of the players. Let a structure of coalitions $C = (C_1, \dots, C_q) \in \zeta$ be specified. Suppose that each coalition C_v chooses a joint strategy π_v . Then, the political process determines an outcome given by the function

$$P(\pi_1, \dots, \pi_q) = (\mathcal{R}, b).$$

The ultimate payoff to player i is the value to him of the game $\Gamma(\mathcal{R}, b)$ which results. This is

$$V_r^i(e, P(\pi_1, \dots, \pi_q)).$$

If we assume further that, for any coalition structure \mathcal{C} , there is a vector $(\hat{\pi}_1(\mathcal{C}), \dots, \hat{\pi}_q(\mathcal{C})) = (\hat{\pi}_1(c_1, \dots, c_q), \dots, \hat{\pi}_q(c_1, \dots, c_q))$ of good strategies, we may write the payoffs as

$$V_r^i(e; p(\mathcal{C})) \quad e \in E, i \in I \cup J,$$

where

tee, contends that F.T.C. rules for the funeral industry are unwarranted. F.T.C. action against the packaged cereals industry, which involve actions forcing the major producers (Kellogg, General Foods, and General Mills) to sell mills to their competitors in the public interest are opposed by other congressmen on the ground that such sales could cost as many as 650 jobs in the Chicago area. It has been proposed that the F.T.C.'s rulings become subject to Congressional veto as a method of politicizing its behavior, *i.e.*, making it more cautious. *Chi. Tribune*, Oct. 28, 1979, at 4, col. 5. In recent years, pressure against the F.T.C. has been intensified by industry trade association lobbyists. As Congress and the regulatory agencies have expanded their controls ever more deeply into the economy, they have necessarily come to rely more on trade associations for expert advice. There are now an estimated 1600 trade associations represented in Washington, D.C., by active lobbyists.

Their object is to influence the direction of new regulation in a way favorable to the objects of the regulation. See Colamosca, *The Trade Association Hustle*, *NEW REPUBLIC*, Nov. 3, 1979, at 16. But, of course, political moods change and Congressional pressure on regulatory agencies can produce activism as well—for example, the revival of antitrust proceedings by the Justice Department during the second Roosevelt administration after the New Deal efforts to cartelize industry had ended. A similar scheme was afloat in 1936 to rein in the Supreme Court. It was proposed that the Constitution be amended to allow the Supreme Court to be overridden by a two-thirds vote of Congress. See Leuchtenburg, *Franklin D. Roosevelt's Supreme Court "Packing Plan,"* in *ESSAYS ON THE NEW DEAL* 69 (H. Hollingsworth & W. Holmes eds. 1969).

So long as the private sector is regulated by government, perfect congruence of regulatory ambitions and private interests is extremely unlikely to occur. Whether veto power on such actions lies in the agencies or in Congress probably matters little. Regulation creates rent and redistributes income and wealth; some gain and some lose. Regulation cannot be understood without taking into account the interactions among gainers and losers. A model of the regulated economy that omits this element would appear to be inadequate.

$$V_r^i(e, \hat{p}(\mathcal{C})) = V^i(e; p(\hat{\pi}_1, \dots, \hat{\pi}_q(\mathcal{C}))).$$

Thus, the remaining strategic question is, which coalitions will form?

Notice that regulator j can influence the payoff structure of the political game Π by choice of regulations r^j , via the influence of that choice on the game Γ . Thus, choice of regulations in a given game $\Gamma(\mathcal{R}, b)$, will be made in light of the impact of that choice on the political game Π . This becomes more explicit in the dynamic version which follows.

III

Dynamics

At time $t = 0, 1, \dots$, the regulatory framework (\mathcal{R}_t, b_t) is in force, defining the game-form $\Gamma(\mathcal{R}_t, b_t)$. For any "optimal" strategies $\hat{r}^j \in \mathcal{B}(\mathcal{R}_t^j, b_t^j)$, $j \in J$ and \hat{a}^i , $i \in I$, that are chosen,

$\hat{a}^i(\hat{r}_t) = \mu_t^i$ is determined and hence so is

$$V_r^i(\cdot, \mathcal{R}_t, b_t), \quad i \in I \cup J$$

which, given e_t , determines

$$V_r^i(e, \mathcal{R}_t, b_t), \quad i \in I \cup J$$

Then the political game Π is played. If the coalitions $(c_{1t}, \dots, c_{qt}) = \mathcal{C}_t$ form and choose $\hat{\pi}_1(\mathcal{C}_t), \dots, \hat{\pi}_q(\mathcal{C}_t)$, the political outcome is

$$\hat{P}(\mathcal{C}_t) = (\mathcal{R}_{t+1}, b_{t+1}),$$

leading to the game $\Gamma(\mathcal{R}_{t+1}, b_{t+1})$. Thus, the strategic situation is reduced to the following: At each stage (time), the political game is played to decide the rules of the economic game to be played in the next period. In this game, the regulators have two strategic variables. First, they can engage in political action (*e.g.*, with Congress, with allied groups of economic agents,) and second, they can influence the political behavior of economic agents by manipulating the payoffs obtainable by agents in the economic game. This is done by choice of regulations r , which, of course, influences not only the outcome of payoffs in the economic game, but also the structure of the political game.³⁹

39. It should be mentioned that full strategic rationality on the part of players in this game would involve each agent in an attempt to take account of the effects of his actions at any level on the choices of others at any level. Thus, a private agent might decide to do something other than his "optimal" choice in the game $\Gamma(\mathcal{R}, b)$

Dynamic Evolution of the Environment at t

The economic actions taken in one period affect the given conditions of the next and perhaps subsequent periods (*e.g.*, investment in period t changes the stock of resources available in $t+1$; similarly with production). Therefore, in a dynamic model, the environment in period $t+1$ is affected by actions taken in earlier periods. We model this as follows: Let

$$F: E \times A \times R_+ \rightarrow E$$

be a function that associates to an environment at t an action at t and time t , the environment at $t+1$. Thus,

$$(*) F(e_t, a_t, t) = e_{t+1} \quad t = 0, 1, \dots$$

We make t an argument of F to permit the environment to be partly exogenously determined. A special case of this model is one in which the future history of environments is completely determined by the initial one, e_0 , and the actions. This is, however, probably too deterministic to be useful in an historical model.

The relation (*) when substituted for e_t in the payoff expression

$$V_t^j(F(e_{t-1}, h_{\theta_{t-1}} \cdot \hat{\alpha}(\hat{r}_{t-1})(e_{t-1}), t), \mathcal{R}_t, b_t)$$

shows how both the game-form $\Gamma(\mathcal{R}_{t+1}, b_{t+1})$ evolves over time and how the economy itself evolves over time.

Some Interpretive Remarks

We next make some comments about this model in light of the sort of "irrationalities" or incoherencies mentioned at the beginning of this Article, and in relation to some other observations about regulation. Since we do not specify the model to the point where analytic results are derived, these comments remain fragmentary and heuristic.

In general, solutions of games are not necessarily Pareto optimal. For example, Nash equilibria of n -person-non-cooperative games need not lead to Pareto-optimal outcomes. The existence of

with a view to influencing the behavior of others at the political level in hopes of bringing about a more favorable game $\Gamma(\mathcal{R}^*, b^*)$. Our formulation does not give full expression to these possibilities. Considerations of bounded rationality suggest that—except, perhaps, for private agents who are large relative to the economy—agents may do as well as they can for themselves in the existing situation while pursuing cooperative political action to change it if they can.

a multiplicity of regulators, each regulator with his own sphere of authority, regulatory mission, and resources is a necessary consequence of limitations on information processing and coordination. Without such constraints, one regulator would suffice. However, this multiplicity of regulators, each regulator with his own objectives, in light of the nature of solutions or equilibrium points of games, suggests that the resulting regulation may well appear irrational and incoherent.

One conceivable way for the cooperative (political) game to be played is for the agents to form the coalition of all players, agree on a Pareto-optimal economic outcome, and then divide the payoff among themselves. This resembles the view of the competitive economic theory in that it separates the achievement of an efficient allocation from the system of transfer payments superimposed on the solution to bring about a "desired" distribution of income. The solution that involves forming the coalition of all players in a sense corresponds to global-economic planning. The informational difficulties alone suggest that this solution is infeasible. The attempt to find a Pareto-optimal solution by competitive decentralization runs into the incentive difficulties that are part of the motivation for economic regulation in the first place.

When viewed in the cooperative games, the question arises as to the extent to which the regulators are essential strategic players as against mere mechanisms reflecting the balance of power among coalitions of private agents. There are, no doubt, specifications of the model in which it could be shown that the regulators "disappear" as real players, and the outcomes are the same as those that would result from a properly specified cooperative game involving only the private agents. However, we suspect that the existence of costs and other difficulties of forming coalitions, gives to those whose hands are on the instruments of state power a degree of freedom of action which makes them true strategic players in the game. If this is the case, then it is plausible that the actions of regulators cannot be solely explained by their economic missions or objectives and information. If the "best" current regulations, in terms of official mission, would lead to political consequences resulting in lower budget or, in other respects, an inferior situation for a regulator, then he may well not issue such regulations for fear of the political consequences. Some Federal regulatory agencies have been criticized for being captives of those whom it is their mission to regulate. The recent experience of the F.T.C. is an ex-

ample of what an agency might face if it is insufficiently attentive to the political consequences of its actions.⁴⁰

Another set of questions has to do with the behavior of regulators over time. As we have seen in this model, by playing the cooperative game in period t , the agents together determine which game of incomplete information they will play in period $t+1$. In the latter game, the economic agents "draw" an environment, the regulators—in ignorance (partial perhaps) of the environment drawn—select regulations, direct and incentive, and the economic agents choose their strategies non-cooperatively, knowing the regulations.

The economic agents are aware that the regulators do not know the environmental components, and are aware that their behavior in response to regulations may reveal something about their environment to the regulators. The regulators are aware that the economic agents have information that the regulators do not have. The choice of regulations must be influenced by the desire to move outcomes in a preferred direction allowing for the asymmetry of information.

Both the regulators' and agents' strategy choices should reflect the fact that they are playing a sequence of games, and that their choices in any one game may affect the future choices of others. This would lead to an extremely complex strategic situation. Full dynamic rationality is undoubtedly unfeasible because of information-processing constraints. However, elements of interaction between present and future must be involved.

In such a situation, a sequence of relatively myopic moves may well result in the system's tending to drift in a certain direction. For example, suppose the regulators do not observe the environment e_t , but do observe the economic outcomes α_t . The regulators seeking to push the system in desired directions choose r_t within the relatively fixed framework (R_t, b_t) . Since the environment changes, in part as a result of these actions, the regulators are likely to be frustrated in their attempts to "determine" α_t as they would, possibly inconsistently, prefer; they might well seek to enforce the outcome they prefer by imposing stricter constraints in behavior. (That is, by choosing ρ_{t+1} to be more constraining than ρ_t and perforce allowing less room for dependence on the unknown (to the regulators) environment.) Because the environment

40. See notes 37-38 *supra*.

evolves partly as a consequence of actions taken under those constraints, the system may well drift further away from optimality at the same time the web of regulations grows tighter.

ECONOMIC HISTORY IN LIGHT OF THE MODEL

American economic history can be illuminated in an interesting way by our model. For example, from the postbellum "farmers' revolt" to the end of the New Deal, the history can be realigned to reveal the emergence of contending coalitions of rent-seekers who used the regulatory power.⁴¹

In that period (roughly 1880-1940), the relations between business organizations, labor, government, and the public were fundamentally altered through the expansion of government regulatory (and thus redistributive) powers. The change came not so much from the creation of entirely new types of governmental authority, but from their relocation within the total web of government at all levels, as well as from the concentration of governmental powers at the Federal level. These changes in the patterns and processes of governmental activity represented shifting coalitions of interests to which the competitive political system (including the courts) responded over time by grants of special privilege and favor, alternately restricting some for the benefit of others. Since the political influence of special interest groups (and coalitions of them) changed over time, the resulting structure of laws and regulations did not form consistently in favor of any single group. Thus, apart from the broadest sorts of generalizations, it is no simple matter to chart the course of government's growth over time within the framework of simple political models. Different interests and groups of them were served by the growth of government at different times. The patterns were complex, but not really chaotic.

Four Categories

We identify four types of economic agents in the private sector; these groups of agents will also form basic elements of the coalitions we consider. These groups and their main economic policy objectives are:

1. *Big Business. B.* These were the large firms growing in connection with a powerful wave of industrialization that ended

41. See generally T. ANDERSON & P. HILL, *THE DEVELOPMENT OF THE TRANSFER SOCIETY* (1980).

- in the first great merger movement of 1887-1904.⁴² The policy objectives congenial to this group were:
- a. High tariffs.
 - b. A strict-specie monetary standard.
 - c. High (relatively) interest rates.
 - d. Easy access to natural resources on public lands.
 - e. Unlimited immigration.
2. *Farmers. F.* In different organizations—Greenbackers, Grangers, Populists—the farmers began to pressure the Federal Government systematically after 1865. Basically they wanted:
- a. Free or easy access to public lands.
 - b. Low tariffs.
 - c. A “soft money” monetary standard (paper money, free silver, etc.) and cheap credit.
 - d. Restrictions on immigration.
 - e. Control by government of big-business monopoly powers.
 - f. Restrictions on land ownership by aliens and corporations.
 - g. A progressive income tax.
3. *Organized Labor. L.* Following earlier abortive efforts to create permanent organization, the American Federation of Labor, after 1886, followed the political policy of “reward our friends, punish our enemies.”⁴³ The Federation attempted to gain advantages for the rising class of urban artisans, and there was continuous effort to form unions among shop workers and factory employees. Organized labor wanted help from government. It favored:
- a. The eight-hour day and legal restrictions on child labor.
 - b. Government support for the right to organize and strike.
 - c. Restrictions on immigration.
 - d. Cheap money.
 - e. A progressive income tax and redistribution of income and wealth.
 - f. High tariffs.
4. *Urban consumers, small businesses, and professions. S.* These small businesses, shopkeepers, white-collar workers, and professionals—the most rapidly increasing interest group—formed the basis of the urban population, the most rapidly growing part of the total, which by 1920 would surpass the farm population in numbers. These urban populations would ultimately form the basis of the long-time labor-consumer Democratic coalitions. Their interests were best served by:
- a. Low tariffs.

42. F. SCHERER, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 103-06 (1970).

43. See J. HUGHES, *supra* note 4, at 101.

- b. Suppression of big business' monopoly power.
- c. A Federal income tax to redistribute in favor of urban overhead investment.
- d. Cheap mass transportation.
- e. Consumer protection.
- f. Cheap-money policies and a soft-money standard.

Our model calls for the identification of specific regulatory instruments, and their formal representation in terms of the variables $r = (\rho, \theta)$. Full specification of the game $\Gamma(RB)$ would then permit us to evaluate the payoff to each coalition structure and player in given environments. We could then study the characteristic function game, in which coalitions strive to influence the regulatory structure to their advantage. The dynamic effects of connecting current actions and outcomes to future environments and structures would then permit us to study the resulting sequence of games. To specify these parameters and functions in detail on the basis of historical observations is a formidable task, well beyond the resources presently available to us. Instead, we shall use the model as a paradigm, or schema, to organize and integrate the events and developments of the period under examination.

It should be obvious that these interests and policies are substantially in conflict and could not be served simultaneously. The balance of forces prevailing at any one time determined a political outcome which set the rules of the economic game for the following period. As the dynamics of the economic process unfolded, the relative strength and the degree of organization of the various economic groups changed. The result was a new power structure for the characteristic function game played to determine the new rules of the economic game in the succeeding period. In the early part of our period, this process was mainly played out through the various legislatures.

One should bear in mind that American legislatures, including the Congress, were, by design, institutions meant to redistribute wealth and income in favor of special interests or coalitions of them; "log-rolling" had always been the way of life. As Blaisdell and Greverus wrote nearly half a century ago of the Federal Government: "In the struggle for dominance [economic power] is exerted largely through pressure groups—groups organized for the purpose of applying political and economic pressure to secure their own ends."⁴⁴

44. D. BLAISDELL & J. GREVERUS, ECONOMIC POWER AND POLITICAL PRESSURES 3 (TNEC Monograph No. 26, 1941).

A Short History

Blaisdell and Greverus concentrated on business lobbies, which seemed ominous in the 1930's. Actually, the record shows effective pressuring by many different interests from the very beginning and long before even the notorious Republican "billion dollar" Congresses of the late 19th century. Protective tariffs, the procedures for disposing of the public domain by land grant, auction, preemption, graduation, varieties of homesteading, the early abandonment of Federal Government rights to minerals and salt springs, mechanic-lien laws, homestead exemptions—all these and more were actions designed to favor specific groups at the expense of "everyone else." Many interests had been served. Tariffs redistributed wealth in favor of specific manufacturers, their employees and suppliers. Huge, early land grants and high minimum acreages of early land auctions favored large-scale speculators. Later, reductions in minimum sizes of tracts, the Preemption Act of 1841,⁴⁵ the Graduation Act of 1854,⁴⁶ and the Homestead Act of 1862⁴⁷ were designed to meet the demands of small-scale purchasers and settlers. By then, the public domain had already been used to subsidize railroad companies, state colleges, and the building of public works.⁴⁸

Abandonment of Federal reservations of a share in mineral rights (traditionally, "the king's fifth") had been revolutionary; ancient practice was set aside and the continent's entire natural resources were made available for private exploitation. Developing policies at state levels loosening ancient sovereign controls over the rights of corporate bodies catered to entrepreneurial interests. Mechanic-lien laws were meant to favor artisans and suppliers of materials. Homestead exemptions favored private owners of real property in the incidence of the tax burden, and against creditors of all kinds.⁴⁹

Even the southern slave owners were able to find a sympathetic Congressional ear before 1861, as evinced by the promulgation of the Fugitive Slave Act⁵⁰ in 1850 and the Kansas-Nebraska

45. Preemption Act of 1841, ch. 16, 5 Stat. 453 (current version at 43 U.S.C. §§ 890-892 (1976)).

46. Graduation Act of 1854, ch. 244, 10 Stat. 574.

47. Homestead Act, ch. 75, 12 Stat. 392 (1862) (current version at 43 U.S.C. §§ 890-892 (1976)).

48. See J. HUGHES, *supra* note 4, at 50-145.

49. L. FRIEDMAN, *A HISTORY OF AMERICAN LAW* 203-04, 213-15 (1973).

50. Fugitive Slave Act of 1850, ch. 60, 9 Stat. 462.

Act⁵¹ in 1854. In 1857, the Supreme Court lent slavery a helping hand with its rendering of the *Dred Scott* case.⁵² Each special interest somehow found the necessary bloc of willing legislators. Only the force of organized labor seemed to come up empty by the last two decades of the nineteenth century. Hired workers were still threatened by unlimited immigration, and, although unions were no longer per se criminal conspiracies in law,⁵³ they were unprotected from hostile acts, such as blacklists and yellow-dog contracts.

An important point about all these regulatory measures before the 1880's is that they required very little permanent apparatus—little in the way of a regulatory bureaucracy. Congress and the legislatures met regularly, and the courts ruled on the resulting laws. But a great change began late in the century. This can be seen, in a crude way, in the number of permanent Federal civil employees per 1000 persons. In 1841, there was just over one person so employed for every 1000 of population. In 1871, three decades later, after the Civil War and Reconstruction, the figure was still just 1.2. In another thirty years, it was 3.1. By 1921, the figure stood at 5.2; it was 10.8 in 1941 and 16.1 by 1951. (It has settled to a level of around fourteen since.)⁵⁴ The manyfold increase mirrors an important reality: With changes in the size of business enterprises, the urbanization of our population, and the increasing economic complexity, came a more persistent reliance upon government's *managerial* function. That management would come to play a significant role in the game of redistribution; governments were no longer legislatures meeting periodically to divide up the spoils, with an interim, bureaucratic caretaker of skeletal proportions, and the courts of law left to mediate between rent-seeking disputants until the next legislative sessions.

It is an open question whether a bureaucratic agency is a full strategic player in the game or whether its strategic role consists of facilitating the organization and coordination of coalitions of private

51. Kansas-Nebraska Act, ch. 59, 10 Stat. 277 (1854).

52. *Scott v. Sanford*, 60 U.S. (19 How.) 393 (1857).

53. *Commonwealth v. Hunt*, 45 Mass. (4 Met.) 111 (1842); see L. FRIEDMAN, *supra* note 49, at 486-87.

54. See U.S. BUREAU OF THE CENSUS, *HISTORICAL STATISTICS OF THE UNITED STATES* 710 (1960) [hereinafter cited as *HISTORICAL STATISTICS*]. Data banks and computer storage and retrieval methods contain enormous scale economies. Accordingly, one trained clerk in a government office now can do the work that it took many to do a few years ago. The measure used here, the number of federal employees per 1000 population, therefore, loses its significance as a measure of government control in the modern era.

agents. Even this latter function could be expected to have a significant effect on the outcome of the game when "costs" of communication and coalition formation are taken into account. In any event, the role of bureaucrats as organizers and even as initiators of coalitions or private agents appears more clearly in the latter portion of the period under consideration.

The watershed period fell somewhere between the 1870's and the 1890's, roughly between the decision in the *Granger Cases* (1877) and the establishment of the I.C.C. and passage of the Sherman Antitrust Act (in 1887 and 1890 respectively). In the main *Granger* decision, *Munn v. Illinois*,⁵⁵ the Supreme Court made its last gesture to the *ancien regime* of local and state regulation. In a decade, the first permanent Federal regulatory agency, the I.C.C., had come into existence. Once begun, Federal-regulatory activism spread. In little more than a decade, a new conception of permanent Federal intervention in economic life had been set into legal and institutional form. By 1914, regulation had spread from railroads and "big business" to consumer protection⁵⁶ and a more powerful form of Federal banking control.⁵⁷ A beginning of Federal-regulatory stewardship was made in the wage bargain, feebly, in the Clayton Act (1914), wherein labor was declared to be *not* an article of commerce.⁵⁸ The Federal Income Tax Amendment was passed in 1913.⁵⁹ A child labor law would be passed in 1916,⁶⁰ and the eight-hour day achieved by railroad workers in the Adamson Act of the same year.⁶¹ Also in 1916, the Federal land banks were established,⁶² meeting one of the most pressing demands of the Populists, that there be Federal-mortgage money for

55. 94 U.S. 113 (1877). For a discussion of this case in the context of the history of regulation, see notes 32-33 *supra*.

56. See Food and Drugs Act of 1906, ch. 3915, 34 Stat. 768 (repealed by Act of June 25, 1938, ch. 675, § 902(a), 52 Stat. 1040 (current version at 21 U.S.C. § 301 (1976))).

57. See Federal Reserve Act of 1913, ch. 6, 38 Stat. 251 (current version at 12 U.S.C. § 221 (1976)).

58. Clayton Act, ch. 323, 38 Stat. 730 (1914) (current version at 15 U.S.C. §§ 12, 13, 14-19, 20, 21, 22-27, 44, and 29 U.S.C. §§ 52-53 (1976)).

59. U.S. CONST. amend. XVI.

60. Child Labor Act of 1916, ch. 432, 39 Stat. 675 (held unconstitutional in *Hammer v. Dagenhart*, 247 U.S. 251 (1918)).

61. Adamson Act, ch. 436, 39 Stat. 721 (1916) (codified at 45 U.S.C. §§ 65-66 (1976)).

62. Federal Farm Loan Act, ch. 245, 39 Stat. 360 (1916) (repealed by Pub. L. No. 92-181, tit. V, § 5.26(a), 85 Stat. 624 (1971)). The farm credit system is now covered in 12 U.S.C. §§ 2001-2259 (1976).

farmers. In the wartime regime of Woodrow Wilson, experiments in many forms of direct regulation were carried out in nearly all sectors of economic life. The stage was set by that wartime experience for the big expansions of the Federal power in the 1930's.⁶³

This growth of the regulatory power, so briefly stated, reflected underlying changes in the positions of our four main groups of "interests." Available numbers tell us something of the situation in 1880, just as the big changes were about to begin.

In 1880, there were 2,984,000 farms wholly or partially owned by farmers, and 51 percent of the labor force was engaged in agriculture. Fully 72 percent of the population was still living outside of places with 2500 or more inhabitants. But agriculture's share of national income was already falling: That rural majority received a mere 16.1 percent of the national income in 1880. Only 18.9 percent of the labor force was directly employed in manufacturing, yet that sector received 16.6 percent of the national income.⁶⁴

Big businesses, the characteristic form of American manufacturing enterprises, were already in evidence. Even though there were some 1900 firms manufacturing farm implements in 1880, the top four producers probably controlled 65 percent of the industry's total output. In 1890, the top four producers of copper had 75 percent of the market. A single firm, Standard Oil, refined 90 percent of domestic crude oil and controlled 80 percent of the pipeline capacity by 1879 (and was headed for a Sherman Act prosecution when the time came). In two more decades, many more giant firms appeared. By 1901, the top four steel producers controlled 44 percent of blast-furnace capacity and 61 percent of rolling-mill capacity. By 1909, even though only 26 percent of the country's manufacturing enterprises were organized in corporate form, they employed fully three-fourths of all the workers in manufacturing.⁶⁵ Big business, mainly organized in corporate form, was a potent force in the struggle for regulatory gains.

As urbanization proceeded, productivity in agriculture, mining, and manufacturing continued to rise. As a result, an ever-increasing proportion of the labor force was freed from direct work on the production of food and goods, and could turn to the widening spectrum of opportunity in professions and services of all

63. J. HUGHES, *supra* note 4, at 133-45.

64. HISTORICAL STATISTICS, *supra* note 54, at 14, 140, 278.

65. Thorp & Knott, *The History of Concentration in Seven Industries*, in THE STRUCTURE OF INDUSTRY 235, 240-61 (TNEC Monograph No. 27, 1941).

kinds. These employments, which engaged only about 9 percent of the labor force in 1880, accounted for some 40 percent of employment by 1940. While the number of owner-operated farms stood at 3,960,000 (up one third from 1880), the number of independent businesses had grown three-fold from 746,000 to 2,156,000. By that date, agricultural employment was down to a mere 17 percent of the labor force and was declining rapidly. Agriculture's share of national income was a mere 8.5 percent and manufacturing's share was 19.4 percent by the late 1930's. A new, major sector—employment by government (on all levels)—had come into existence and was 13 percent of the total labor force. Nearly 60 percent of the population in 1940 was now urban. Two-thirds of this mass of town- and city-dwelling people were engaged in professions, retail trade, transportation, finance, and governments.⁶⁶

Let us now consider, in brief outline, the major regulatory changes as they affected our four groups of interests up to 1940. Until 1887, Federal regulation of private business had been slight. Nonmarket controls—monopoly grants to special franchises, licensing, and regulation of quality, wages, prices, and working conditions—were the prerogatives of the state and local governments under ancient common law practice. The Federal influences that had been experienced—in money, establishment of the national-banking system, charters to transcontinental railroads supported by land grants, withdrawals of lands from homestead entry (beginning with Yosemite in 1864, Yellowstone in 1872), enforcement of customs regulations—while producing significant redistributive consequences, had little effect in terms of permanent institutional change. But, as we have already noted, by 1914 the I.C.C., the Pure Food and Drug Administration, the Sherman and Clayton Acts, the Federal Reserve System, and more, had come into existence. They were to be the cornerstone and foundation of permanent Federal regulation. None had existed in 1880. Until then, the game of control and redistribution had been mainly played at the lower levels, through court cases, through legislation, and through customary "police power" regulation of the states and their subdivisions. The main exceptions were tariffs, a national banking system (1863), access to timber and minerals on public lands (or military support for access if they were on Indian lands, as was the gold of the Black Hills), the abandonment of the Federal share in mineral wealth, massive land grants to the railroads, a

66. HISTORICAL STATISTICS, *supra* note 54, at 74.

free rein to corporate development and merger, unlimited immigration and a "hard currency."⁶⁷

Then, in the 1880's and 1890's, the farm interest, *F*, still in the voting majority, made many and far-reaching demands upon the Federal Government. Farmers wanted fundamental changes in the rules of the game and in the use of Federal power for distributing wealth and income in their favor. The farmers' demands, together with the rise of a mass urban-voting bloc, produced great opportunities for innovative politicians. To a large extent, these changes involved gestures to constrain "big business"—a financially powerful body that could be abused by all others, and whose sacrifices in favor of other sectors would elicit little public sympathy. Thus, the reforms that followed were primarily at the expense of the entrepreneurial sector, which had produced the characteristic giant firms of late nineteenth century American capitalism as well as a whole new class of millionaires, one social by-product of the new uses of the corporation. Unequal wealth was nothing new in American experience, but the scale of wealth of the Goulds, Vanderbilts, Carnegies, Fricks, and Rockefellers had never been seen before. They made excellent targets for ideologues. So even the mainstream of American property owners, the Republican Party, would come to adopt a populist stance and push for a graduated income tax under the leadership of Teddy Roosevelt and William Howard Taft.⁶⁸

These changes represent new conditions of vying for redistributive gains. Historians have managed by broad strokes to identify them. Business, large and small, tending to be of the Republican persuasion, favored high tariffs, sound money, and free immigration. Such policies diverted more real income into profits and rents than would otherwise have been the case. By the late 1880's, this interest was beginning to divide between big and small business as the first great wave of mergers approached. Corporate firms, some growing to gigantic size, began to make issues of monopoly power more than merely of local interest. The new policies favoring agriculture, small business, urban workers, and consumers were meant to divert income and wealth from the "big business interest." Essentially, this phrase referred to the manufacturing sector, which long had enjoyed redistribution in its favor supplied by

67. See J. HUGHES, *supra* note 4, at 51-198.

68. See C. SWISHER, *AMERICAN CONSTITUTIONAL DEVELOPMENT* 530-36 (2d ed. 1954).

the tariff. Farmers had never been so protected. Cheap land—redistribution in their favor at the expense of Indians, Mexicans, trappers, and squatters—had been their major gain from federal action before the Populist era. *F*, *S*, and *L* were to be served at the expense of *B*.

At first, general demands of the new urban constituencies for political and social reforms were conflated with the farmers' redistributive ambition. The farmers, in their final avatar, the People's Party, or "Populists," produced important changes in this country. The great wave of such pressures came after 1865. By then, the nation's imperfections were seen to be many and great. In their various conventions, the Populists "demanded" a graduated income tax (16th amendment, 1913);⁶⁹ a postal savings system (Postal Savings Act, 1910);⁷⁰ a merit system and civil service for all Federal employees (gradually gained by administrative action); a secret ballot, useful to shield workers from economic reprisal by employers (achieved state by state); restricted immigration (the National Origin Quota Act of 1921);⁷¹ an eight hour day (Fair Labor Standards Act, 1938);⁷² initiative and referendum (by amendment to state constitutions—never achieved nationally); direct election of senators (17th amendment, 1913).⁷³ These and other non-economic demands, achieved in whole or in part, profoundly changed the country. Many Populist demands were never achieved, like the demand for direct election of the President and Vice President and the nationalization of railroads, telephones, and telegraphs. The Populists wanted land owned by corporations taken and sold to farmers; they wanted strict controls over corporations.⁷⁴ By 1890, after decades of prior agitation, the I.C.C. had been created and the Sherman Antitrust Act passed into law. So, in spirit at least, the political system was starting to respond to farmer agitation as early as 1890. Some demands from farm groups were really hare-brained, although it would be premature to pass final judgment, considering modern political history.

69. U.S. CONST. amend. XVI.

70. Postal Savings Act, ch. 386, 36 Stat. 814 (1910) (current version at 18 U.S.C. § 1691 (1976)).

71. National Origin Quota Act, ch. 8, 42 Stat. 5 (1921) (current version at 8 U.S.C. §§ 1151-1154 (1976)).

72. Fair Labor Standards Act, ch. 676, 52 Stat. 1060 (1938) (current version at 29 U.S.C. §§ 201-219 (1976)).

73. U.S. CONST. amend. XVII.

74. J. HICKS, THE POPULIST REVOLT 427-44 (1961).

The various farmers' movements also produced long lists of purely redistributive demands. There were three consistencies in these, variously expressed: (i) Easy money, created by governmental action; (ii) Government funds supplied for farm mortgages; and (iii) Government guarantees of farm-commodity prices. Falling farm prices after the Civil War and the memory of greenback inflation, together with propaganda from western silver producers, resulted in the long history of "funny money" schemes associated with the Populists. Yet in 1913, the Federal Reserve Act provided, as the Populists had demanded, a national paper money that was full legal tender, issued by a government agency. And the magical words "elastic currency" were even written into the Federal Reserve Charter.⁷⁵ The result was a permanent regulatory agency with no real initial warrant except to exist. Its policy ambitions developed only with experience.

The reticence of state banks to make mortgage loans on farm land and the prohibition of such loans by the national banks had led to Populist demands that the national banks be abolished. What the farmers wanted was access to the United States Treasury for farm mortgages. The Federal Reserve Act allowed the national member banks to lend money against farm mortgages, but more important, in 1916, the Federal Land Banks were created to make low-interest mortgage loans to farmers. In 1923, the Federal Intermediate Credit Banks were added to underwrite the commercial value of real property in the agricultural sector. These banks remained as permanent parts of the regulatory sector.⁷⁶

In many ways, the most controversial of the Populist redistribution schemes was that which would cause government paper money to be created with stored crops as "backing." This was the essence of the famed sub-treasury scheme. Considered to be scandalously hare-brained at the time, it was achieved fully in 1933 by the creation of the Commodity Credit Corporation,⁷⁷ a perma-

75. See R. WEST, *BANKING REFORM AND THE FEDERAL RESERVE, 1863-1923*, at 35-51 (1977). For a history of the entire episode of farmers and banking, see I. UNGER, *THE GREENBACK ERA* (1964).

76. The Federal Intermediate Credit Banks were created by the Farm Credit Act of 1923, ch. 252, 42 Stat. 1454. This Act amended the Federal Farm Loan Act, ch. 245, 39 Stat. 360 (1916) (repealed by Pub. L. No. 92-181, tit. V, § 5.26(a), 85 Stat. 624 (1971)).

77. The Commodity Credit Corporation, a corporation organized under Delaware law as an agency of the United States pursuant to Executive Order of the President of Oct. 16, 1933, was continued until April 1, 1937 by the Commodity Credit Corporation Act of 1935, ch. 2, 49 Stat. 1, § 7.

ment agency which has done yeoman service in the cause of income redistribution ever since. Earlier efforts, the Warehouse Act of 1916⁷⁸ and the Farm Credit Board of 1929-1932,⁷⁹ had been abandoned. The Populist nostrum that farm surpluses should be purchased and exported by the government, achieved in part during World War I and its aftermath, faced two Coolidge vetoes (the Haugen-McNary bills) in the 1920's, but finally became part of the modern permanent-income redistribution system when the Export-Import Bank was organized in 1934.⁸⁰

The strictly redistributive agencies created by farmer agitation did not "solve" the problem of farm incomes falling below those desired by farmers. Instead, they became part of the ongoing game of pressure, response, and redistribution continuously played between the agents, the central government, and the regulatory system.

The growing body of permanent government officials added its weight and planning to these changes. Early experiences with governmental activism provided models for the regulatory sector's behavior when, later on, a mature and confident governmental bureaucracy would become the main source of information necessary to innovate new regulations and social programs of all sorts.⁸¹ The bureaucracy's continuity, experience, and expertise became an absolutely essential ingredient in the subsequent growth of government. At first, its growth was mainly the service of the *S* group, again ostensibly at *B*'s expense. Consider the F.T.C., an early regulatory body conceived to be in the interest of the amorphous, but vote-laden, consumer-labor group. A bureau of labor statistics had been established in 1884 within the Interior Department. In 1888, it was made a separate labor department with its own commissioner.⁸² Then, in 1903, the Department of Commerce and Labor was organized, which had within it a Bureau of Corporations headed by a Commissioner of Corporations,⁸³ its reports on busi-

78. Warehouse Act, ch. 313, Part C, 39 Stat. 486 (current version at 7 U.S.C. §§ 241-273 (1976)).

79. The Farm Credit Board was established by the Agricultural Marketing Act of 1929, ch. 24, 46 Stat. 11 (current version at 12 U.S.C. §§ 1141-1141J (1976)).

80. See J. HUGHES, *supra* note 4, at 183-88.

81. See Hughes, *supra* note 11, at 43-47.

82. The Department of Labor was created by the Act of June 13, 1888, ch. 389, 25 Stat. 182 (current version at 29 U.S.C. § 551 (1976)).

83. The Department of Commerce and Labor was created by the Act of Feb. 14, 1903, ch. 552, § 4, 32 Stat. 827 (current version at 15 U.S.C. § 1501 (1976)). The

ness behavior produced demands for tighter Federal regulation. And the F.T.C. was created in 1914, and the Bureau of Corporations placed inside it. This entire development of bureaucratic expertise took three decades before its final form, the F.T.C., emerged.⁸⁴ The process is more rapid in modern times.

The Pure Food and Drug Administration's⁸⁵ origins contained a mixture of bureaucratic expertise and political activism. The urban consumer and worker, groups S and L, were the main beneficiaries. The Pure Food Act came when an evident "market failure" (monopoly power and morally repugnant production techniques), together with desire for a needed social improvement, caused development of a permanent regulatory mode. Antitrust proceedings against the "beef trust"⁸⁶ had stirred up agitation against monopoly abuses. In 1906 appeared *The Jungle*, Upton Sinclair's sensational exposure of the Chicago meat-packing industry. Theodore Roosevelt had read the book in manuscript, was appalled, and had persuaded Senator Albert Beveridge to get a Federal meat-inspection bill through Congress. This was followed by the Pure Food Act in 1906, and a new permanent regulatory commission was born.⁸⁷ The pattern is very important. The list of major regulatory agencies, now stretching back nine decades, reveals this process as perhaps the most common origin of the permanent regulatory apparatus. A market failure is identified, for which there is no solution—so a regulatory body is created to manage the problem in perpetuity. This opens a game in which the private players,

name Department of Labor was changed to Bureau of Labor by Act of Mar. 4, 1913, ch. 141, § 1, 37 Stat. 736 (codified at 12 U.S.C. § 551 (1976)). The Bureau of Labor in the Department of Commerce and Labor was transferred to the present Department of Labor by this last Act. The present Department of Commerce was created by Act of Mar. 4, 1913, ch. 141, 37 Stat. 736 (codified at 15 U.S.C. § 1501 (1976)).

84. See C. SWISHER, *supra* note 68, at 502-05.

85. The Pure Food and Drug Administration had its origin in the Food and Drug Act of 1906, ch. 3915, 34 Stat. 768. That Act was substantially amended by the Act of June 25, 1938, ch. 675, 52 Stat. 1040 (current version at 21 U.S.C. §§ 16, 17, 301 (1976)). The F.D.A. in the Department of Agriculture and most of its functions were transferred to the Federal Security Agency, to be administered under the supervision of the Federal Security Administration by 1940 Reorg. Plan No. IV, § 12. The Federal Security Agency and Office of the Administrator were abolished and their functions transferred to the Secretary of Health, Education and Welfare by 1953 Reorg. Plan No. 1, § 5.

86. *E.g.*, *Swift & Co. v. United States*, 196 U.S. 375 (1905).

87. The Pure Food and Drug Administration is an agency born to protect health and safety, and, therefore, is one of the main beneficiaries of the "veil of regulation," the persistent belief that regulation is first and foremost in the public interest. See B. OWEN & R. BRAEUTIGAM, *supra* note 17, at 22-25.

in coalitions, attempt to use the regulatory authority to further their private interests.

Many of these reforms had more the appearance of being at the expense of the *B* group than they were in fact. Business interests had never been lax in their uses of government for their own benefit. The tariff had always been a shining example, and the ability to maintain this method of redistribution from consumers to manufacturers was never lost, reaching an outstanding peak in the Smoot-Hawley tariff of 1930.⁸⁸ So even when the tide seemed to be running mainly against manufacturers, individual triumphs could still be achieved. The Federal Reserve System in 1914, answering, in part, the demands of the Populists, also served banking and business interests. Indeed, the original, and ultimately dominating plan for the system, the Aldrich Report of 1911, had its origins in the banking sector.⁸⁹ The regulatees largely wrote their own legislation, although other interested parties were able to influence the system's initial form through the National Monetary Commission⁹⁰ and in Congressional work drafting the bill. Once set in motion, the system's internal mechanisms and logic shaped its development. The one great revision, the Banking Act of 1935,⁹¹ came from the hands of Marriner Eccles, a millionaire Utah banker turned public servant. The Act strengthened the Federal Reserve Board's control over member banks and the economy, that is, its independent power to redistribute income and wealth by discretionary action.⁹²

Sustained service to the *L* sector, organized labor, came in the twentieth century, beginning notably with World War I. The Adamson Act had produced the eight-hour day for railroad workers in 1916.⁹³ In 1917, the Federal Government provided legal assistance to unions prosecuted for organizing activities. The Federal Government sided with labor to ensure industrial peace. Production was more important in wartime than prolonged labor disputes

88. Smoot-Hawley Tariff, ch. 497, 46 Stat. 590 (1930) (current version at 18 U.S.C. §§ 542, 544, 545, 547-550, 552, 1905, 1915, and 28 U.S.C. §§ 257, 1582, 2602, 2631-2638 (1976)).

89. See R. WEST, *supra* note 75, at 67-68.

90. For a discussion of the work of the Commission, see R. WEST, *supra* note 75, at 68-69.

91. Banking Act of 1935, ch. 614, 49 Stat. 684 (current version at various sections of 12 U.S.C., 11 U.S.C. § 101, & 15 U.S.C. § 19 (1976)).

92. See H. LIEBHAFSKY, *supra* note 38, at 544-50.

93. Adamson Act, ch. 436, 39 Stat. 721 (1916) (codified at 45 U.S.C. §§ 65-66 (1976)).

to protect the business interest. When a strike threatened Western Union, the government took over its operations. Government seizure of the railroads in 1918 was a solution to continued labor problems in that industry. Wages were raised, and work rules adjusted to meet labor demands; disputes were referred to arbitration by the new War Labor Board.⁹⁴ That technique was destined to remain, first in the Railway Labor Board in legislation of 1926,⁹⁵ temporarily under the National Industrial Recovery Administration in 1933-1935,⁹⁶ and then on a permanent basis in the National Labor Relations Board after the National Labor Relations Act (NLRA) was passed in 1935.⁹⁷ One of the long-time labor-Populist demands, immigration restriction, was finally achieved in 1921, and this restriction was rigidly maintained for decades to come.

The courts had managed a holding action in favor of the business interest in *Hitchman Coal and Coke v. Mitchell*,⁹⁸ which sustained the yellow-dog contract; *Hammer v. Dagenhart*,⁹⁹ which overturned the Child Labor Act; and *Adkins v. Children's Hospital*,¹⁰⁰ which overruled a minimum wage law in the District of Columbia.¹⁰¹ But Congress countered with the Norris La Guardia Act in 1932,¹⁰² restricting use of injunctions in labor disputes. In rapid succession, the New Deal Congresses passed not only the NLRA, but the Social Security Act in 1935,¹⁰³ with provisions for Federal assistance in unemployment and workmen's compensation as well as old age and survivors insurance. New agencies were formed to manage these laws. Then, in 1938, the Fair Labor Standards Act made minimum wages and maximum hours a matter of permanent Federal regulation.¹⁰⁴

94. See J. HUGHES, *supra* note 4, at 142-43.

95. See Act of May 20, 1926, ch. 347, 44 Stat. 577 (current version at 45 U.S.C. §§ 151-188 (1976)).

96. The National Industrial Recovery Administration was part of the National Industrial Recovery Act, ch. 90, 48 Stat. 195 (1933).

97. National Labor Relations Act, ch. 372, 49 Stat. 449 (1935) (current version at 29 U.S.C. §§ 151-169 (1976)).

98. 245 U.S. 229 (1917).

99. 247 U.S. 251 (1918).

100. 261 U.S. 525 (1923).

101. See S. MUELLER, *LABOR LAW AND LEGISLATION* 23, 806, 814 (1947).

102. Norris-La Guardia Act, ch. 90, 47 Stat. 70 (1932) (codified at 29 U.S.C. §§ 101-115 (1976)).

103. Social Security Act, ch. 53, 49 Stat. 620 (1935) (current version at 42 U.S.C. §§ 301-1396i (1976)).

104. Fair Labor Standards Act, ch. 676, 52 Stat. 1060 (1938) (current version at 29 U.S.C. §§ 201-219 (1976)).

* * *

Thus, by 1938, the coalition of labor and the urban-consumer voting interests had achieved an ascendancy with Congress that has never weakened, and the beginning of a new era of special-interest regulation was at hand. In three more decades, the proliferation of such legislation, catering to organized interests and coalitions, would make the Federal regulatory agencies themselves into an independent motive force in the creation of an increasingly regulated economy. In the long process of regulatory development, the traditional game of redistribution through government power had finally developed into a permanent establishment of Federal agencies, boards, powers, commissions, and offices, lodged in the Executive Office as well as in independent establishments modeled after the original I.C.C. The management of economic problems had evolved into a permanent process using the apparatus of government to redistribute economic reward: the modern regulated economy. This continuing activity may be viewed as a positive-sum game.