

## **Experience in U.S. Regulation and Deregulation**

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### **Executive Summary**

*The U.S. has a record of pragmatism in the creation and evolution of regulatory institutions. The federal system has meant jurisdictional disputes, but the fifty states have also provided laboratories for experimenting with different types of incentives and industry structures. This brief overview of historical experience attempts to underscore lessons for nations exploring alternative institutional mechanisms for addressing infrastructure industries. Since investor-owned firms tend to be the major suppliers in U.S. infrastructure industries, lessons related to privatization are less extensive. However, recent experience with deregulation yields several generalizations, based on the PURC/World Bank International Training Program on Utility Regulation and Strategy:*

- (1) Restructuring is inevitable due to changes in technology and evidence that deregulation improves performance where monopolies are no longer least-cost suppliers. Basic market conditions determine the optimal configuration of suppliers in infrastructure industries. Political elements of regulation and restructuring can create inefficiencies--to the extent that powerful interests fight change or income-redistribution goals are not effectively met using existing policy instruments.*
- (2) Agencies implementing policy change must maintain a delicate balance between commitment and flexibility. Deregulation, restructuring, and privatization processes raise very difficult (transitional) political issues. Those with vested interests in existing arrangements are unwilling to participate in new regimes that are not well defined or that reduce their welfare. Addressing the former issue requires that agencies keep commitments, while simultaneously dealing with the political realities of how to promote mutually beneficial outcomes.*
- (3) New configurations of firms and services cannot be predicted in advance. However, managerial attention shifts from the agency hearing room (and legislative lobbying) to meeting competitors in the marketplace. Managers become customer-driven. Firms are prodded to be more innovative, to become more efficient (in terms of production and marketing), and to develop new financial mechanisms (such as less financial leverage and greater use of hedging instruments).*

- (4) *In creating regulatory agencies, governments need to establish independence, transparency, legitimacy, and credibility. Successful agencies promote credibility with investors, are perceived as legitimate and fair in the eyes of the public, and deliver greater efficiency for the economy as a whole. Independence from policy-makers in government ministries partially insulates agencies from short term political pressures.*
- (5) *To ensure strong sector performance, agencies responsible for sector oversight must implement incentive schemes that promote efficiency and introduce competition where feasible. The choice between cost-based regulation and price cap regulation requires a deep understanding of the risks and incentives associated with both types of monopoly regulation.*
- (6) *Finally, governments should decide the market model before privatizing. Countries have greater success if they decide the market model and the regulatory rules before privatization. Similarly, rate-rebalancing needs to be addressed prior to asking investors to bid for assets. Public policy uncertainty increases the discount rate used by investors when valuing assets-- lowering the initial capitalization.*

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Several excellent surveys of U.S. experience offer insights into how basic economic conditions and political and technological forces have shaped the evolution of regulation. (Whinston,1998; Perl,1997; Costello/Graniere,1997) Any overview is bound to be idiosyncratic--reflecting the interest and experience of the author. This paper identifies six broad generalizations regarding initiatives to deregulate and restructure portions of our infrastructure industries.

- (1) Restructuring is an inevitable response to changing basic conditions.
- (2) In adapting to new developments, regulators must balance maintaining commitments and remaining flexible.
- (3) Sector performance is improved by new configurations of firms, unpredicted production processes and innovative products.
- (4) For residual regulation, agencies need to develop procedures to establish credibility, facilitate legitimacy and promote efficiency.
- (5) Incentive regulation and the introduction of competitive pressures can promote efficiency.
- (6) The appropriate sequence for reform involves sector restructuring and rate rebalancing before privatization.

The U.S. has a record of pragmatism in the creation and evolution of regulatory institutions. The federal system has meant jurisdictional disputes, but the fifty states have also provided laboratories for experimenting with different types of incentives and industry structures. This brief overview attempts to underscore lessons for nations exploring alternative institutional mechanisms for addressing infrastructure industries. Since investor-owned firms tend to be the major suppliers in U.S. infrastructure industries, lessons related to privatization are less extensive. However, recent experience with deregulation yields several generalizations, some of which are based on the *PURC/World Bank International Training Program on Utility Regulation and Strategy*:

### 1. Innovations and the Accumulation of Evidence

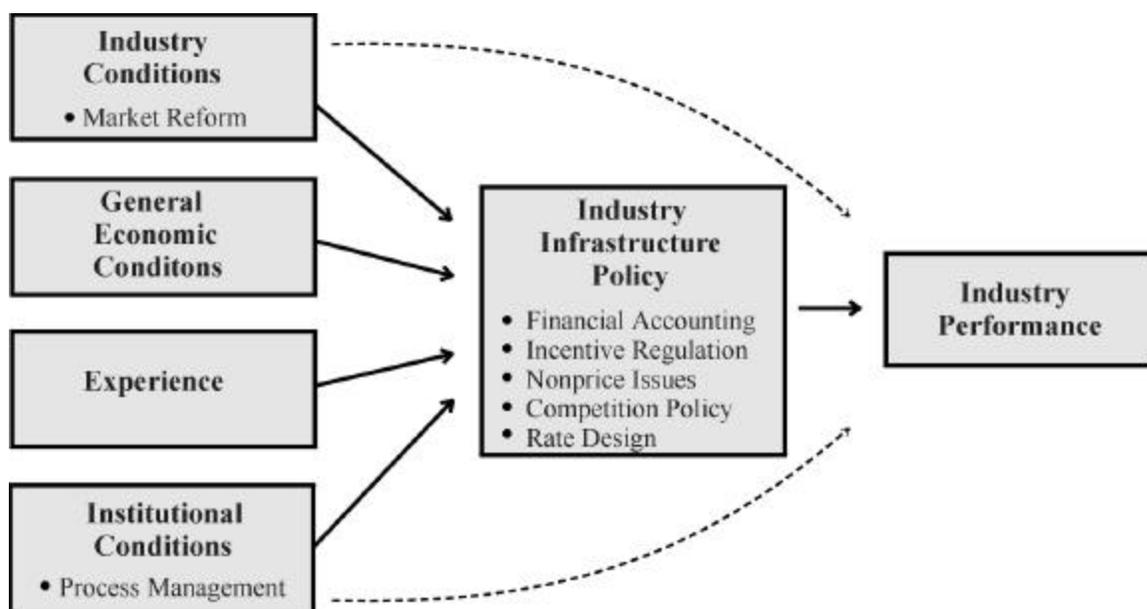
*Industry restructuring is inevitable due to changes in technology and evidence that deregulation improves performance where monopolies are no longer least-cost suppliers.*

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\*Presented at the Institute for Developing Economies, Tokyo (December 1998). This paper draws upon Berg (1995).

*However, price distortions associated with previous public policy can induce inefficient entry if incumbent rate restructuring is prevented.*

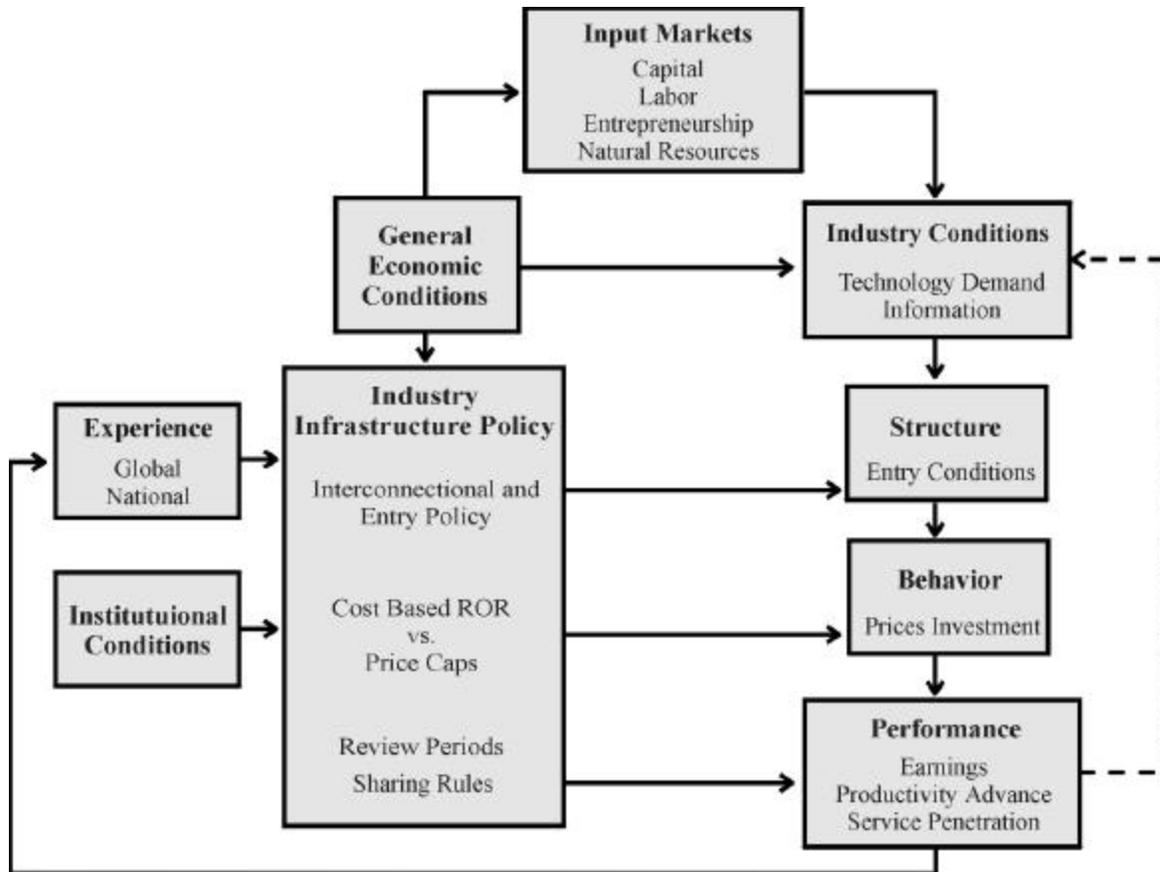
Figure 1 outlines the major factors influencing infrastructure policy. The four factors, industry conditions, general economic conditions, historical experience and institutional conditions are all mediated by the political process. Ideological leanings and the support of special interest groups influence the precise form of infrastructure policy, including financial accounting systems, types of regulation, service quality issues (including universal service), competition policy and rate design (cross-subsidies, seasonal pricing and non-discrimination). The policy decisions to restructure and/or privatize depend heavily on actual industry performance.



**Figure 1. Causes and Effects of Infrastructure Policies.**

Basic market conditions determine the optimal configuration of suppliers in infrastructure industries. Figure 2 provides a more detailed look at determinants and impacts of infrastructure policy. Under Industry Conditions, Technologies (economies of scale, scope, and sequence) change over time as innovations alter production possibilities. Similarly, demand growth can transform a natural monopoly into a potentially competitive industry. Laws limiting entry or mandating particular market structures might have been appropriate in the past, but policy-makers need to continually be alert to technology and demand changes that might require new institutional arrangements. Individual states or nations can avoid adapting to economic realities, but performance comparisons ultimately lead to calls for policy changes. Being first is not necessarily

best, given the costs of developing procedures and institutions appropriate for new market structures. However, being last to adapt suggests that efficiencies are lost due to unnecessary delays.



**Figure 2. Determinants and Impacts of Industry Infrastructure Policy**

Thus, the possibility of new opportunities for wealth-creation sets up pressures for policy change--since those in charge of the political process are in a position to disperse benefits to various stakeholders. If current policies actually reduce aggregate social surplus relative to the potential for the economy, it is likely that no consensus has been achieved regarding a feasible path to an improved regime. Thus, political elements of regulation and restructuring can create inefficiencies--to the extent that powerful interests fight change or income-redistribution goals are not effectively met using existing policy instruments.

Regulation (in the U.S.) and public ownership (elsewhere) have emerged in response to fundamental economic features of industries, so an understanding of these features is

essential to understanding the regulatory rules that affect industry structure, corporate conduct, and market performance. Figure 2 outlines the chain of causation, from basic conditions to performance.

In a democracy, the political process translates citizen concerns into new laws and policy initiatives. Thus, policy-makers' perceptions regarding market imperfections and market failures lead to intervention. The theory of economic regulation suggests that suppliers often seek protection from potential entrants, and policy-makers utilize cost allocation procedures to create price structures which benefit favored customer classes. Special interest beneficiaries of entry protection, exit prevention (carrier of last resort obligations), and existing price structures are threatened when there are changes in technologies or in public policy priorities.

Thus, basic conditions influence public policy which in turn constrains the evolution of infrastructure industries. If an industry can be described as a natural monopoly, then rate of return regulation is one way to obtain lower prices and reduce excessive profits. However, when changes in production technologies, demand conditions, and other factors occur, we observe changes in regulatory regimes -- as old rules and procedures are recognized as inappropriate for new industry conditions. In addition, even where change has not been profound, an improved understanding of the long term consequences of ignoring key aspects of cost, demand, or traditional rate-of-return incentive structures has led to a re-thinking of regulation.<sup>1</sup>

## **2. Balancing Regulatory Commitments and Flexibility**

*Agencies implementing policy change must maintain a delicate balance between commitment and flexibility. Deregulation, restructuring, and privatization processes raise very difficult (transitional) political issues. Those with vested interests in existing arrangements are unwilling to participate in new regimes that are not well defined or that reduce their welfare. Addressing the former issue requires that agencies keep commitments, while simultaneously dealing with the political realities of how to promote mutually beneficial outcomes.*

The political power of incumbents and favored customer groups is due to the concentration of benefits from existing arrangements. Those who might benefit from

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<sup>1</sup> In the absence of regulation, basic conditions facing an industry determine the number and size distribution of suppliers which are feasible in an industry. Causation runs from the basic conditions to industry structure (entry conditions, number of firms, degree of vertical integration, and product differentiation). Industry structure influences, in turn, the behaviors likely to be observed (prices, promotion, research and development, production process changes, and new service introductions). The market outcomes can then be described in terms of performance criteria (profitability, efficiency, innovation, and meeting other social objectives). Clearly there are feedbacks in this process--for example, high levels of R&D can lead to innovations which affect the production technologies and entry conditions. Similarly, poor industry performance in the past provides concrete evidence that new policies might be required. Experiences in neighboring states and countries are difficult to ignore.

reform are less likely to be aware of the impacts of potential change. Furthermore, per person benefits from change are likely to be small relative to the potential losses to those who are well aware of the implications of change. Thus, some privileged customer-groups will fight change. Protected factors of production will fight change. In particular, organized labor is often threatened by arrangements that place greater emphasis on productivity advance. (Peoples, 1998) Thus, policy implementation requires some flexibility--facilitating changes in regulatory rules to cope with unanticipated developments.

On the other hand, if regulators keep their commitments to both suppliers and customers, then business will be more efficient. Managers will make decisions based on long term efficiencies (and profit) because they trust that the rules will not change in an arbitrary fashion. If rules keep changing, managers will focus on activities whose payoffs only occur in the short term. The policy debate often is carried out in ideological terms rather than in "actual" vs. "potential" performance. Political processes are not well designed to promote the education of the citizenry regarding long term trade-offs faced by the nation.

A nation's institutional conditions are key determinants of how commitments and flexibility are balanced in practice. An independent judiciary is crucial if one party perceives itself as subject to arbitrary policy changes. A major challenge for developing economies is the design of institutions that promote efficiency. The competitive forces unleashed by new technologies and new legislation can be channeled but not totally directed. Entrants become stakeholders, and while they too attempt to manipulate the political system to their advantage, incumbent suppliers will not depart the field of battle without a fight. If the incentives are such that least cost suppliers win markets and those who introduce valued new services obtain profits, then the economy as a whole is the winner.

### **3. Predicting Industry Performance**

*New configurations of firms and services cannot be predicted in advance. However, managerial attention shifts from government ministries, the agency hearing room and legislative lobbying to meeting competitors in the marketplace. Managers become customer-driven. Firms are prodded to be more innovative, to become more efficient (in terms of production and marketing), and to develop new financial mechanisms (such as less financial leverage and greater use of hedging instruments).*

Analysts are unable to completely document in advance all the possible efficiencies and new services created by market pressures. The very unpredictability of future adaptations and innovations blunts the case for change, since those negatively affected are able to show clearly the costs they might bear under a new set of economic and institutional arrangements. Potential beneficiaries may be unaware of gains (which may be small per capita but greater – in aggregate – than the losses imposed on those affected in a negative way. For example, airline service to small towns did deteriorate under deregulation – although economists find that the overall benefits far outweigh the costs.

Micro-management by government bureaucracies is unlikely to induce innovative behavior. Under government operation, tough decisions that promote efficiency will not necessarily be rewarded nor will bad decisions be punished if short term political priorities are given great weight. Leaving responsibility to those with incentives and information is one of the most important steps governments can take when considering infrastructure reform. Decision-makers cannot wait for full information and complete certainty regarding impacts on all affected parties. From the late 1970's to the present, U.S. policy-makers have made many changes in the extent of regulators' domains, without waiting for unanimity among economists (admittedly an elusive goal) as to the efficacy of such policies. On the one hand are surface transportation, financial services and airline industries which have been substantially deregulated. Here, there probably is widespread agreement among economists that this policy was proper, since firms in these industries are either not natural monopolies, or the markets are contestable. For example, trucking and the railroad industries are far more efficient than when under detailed regulation by the Interstate Commerce Commission. The Savings and Loan crisis was due more to inappropriate guarantees and poor incentives than to the reduction of entry restrictions. Deregulation of the airlines is probably one of the crowning achievements of regulatory economic analysis, particularly since it was orchestrated by CAB Commissioner Alfred Kahn under the constant scrutiny of the public (McCraw, 1984).

Still in process are the telecommunications, natural gas and electricity industries which have been partially deregulated. The need for deregulation, or at least particular mixes of deregulation activity, was less clear. For instance, deregulation of telecommunications by permitting entry may prove to be wise if technological advances are spurred as a result. But if entry is only due to bad regulatory policies to begin with, for example -- regulated prices that involve cross subsidies, then deregulation of entry without allowing for price flexibility by the incumbent firm may prove costly. Policy makers must determine where regulation is justified and where restructuring and deregulation can yield efficiency gains. These determinations will seldom be obvious or go unchallenged, and where reforms are implemented, performance needs to be continually assessed.

Consider telecommunications, where down-sizing has been dramatic. Innovations have led to corporate diversification across technologies and services. At the state and national level, deregulation is promoting multiple centers of initiative through the unbundling of services, although terms and conditions of access to local exchange services remain a highly contentious issue. Similarly, the natural gas, rail, and water industries are undergoing transformation to different degrees. In late 1985, the Federal Energy Regulatory Commission's Order 636 restructured the first industry as it instituted an open-access natural gas transportation program. Unbundling transportation has introduced new risks and opportunities for local gas distribution companies. State commissions are now addressing retail competition at the local level. New financial instruments and markets have emerged to address the new risks imposed on various participants.

In surface transportation, railways have been permitted greater pricing flexibility since the Staggers Rail Act of 1980. The Interstate Commerce Commission monitors the

financial condition of railroads, consolidations, abandonments, and other activities, but it does not impose rate of return regulation on private railways. Trucking has been substantially deregulated.

Water utilities represent the most fragmented and pluralistic industry, with thousands of private and municipal suppliers. Water quality standards related to pollution and wastewater are established under the U.S. Environmental Protection Agency. In addition, one state agency might regulate environmental impacts while another issues permits regarding withdrawals from groundwater. The state public utility commission regulates rate of return and prices of investor-owned utilities -- only a portion of the total. The fragmented regulatory authority limits opportunities for integrated resource planning. Clearly, these industries present policy-makers with a wide range of issues.

The fundamental issue facing policy-makers in infrastructure industries involves ensuring that the benefits of restructuring flow to those who successfully commercialize new services and introduce new production processes and to consumers who desire those services. The irony is that the transition to greater competition involves new types of regulation rather than less regulation.

#### **4. Procedures for Credibility, Legitimacy and Efficiency**

*In creating regulatory agencies, governments need to establish independence, transparency, legitimacy, and credibility. Successful agencies promote credibility with investors, are perceived as legitimate and fair in the eyes of the public, and deliver greater efficiency for the economy as a whole.*

Independence from policy-makers in government ministries partially insulates agencies from short term political pressures. Stakeholders must perceive the implementation of these policies as reflecting sound methodologies and being predictable over time. Regulatory processes designed to be inclusive and transparent are more likely to be sustained over time. Nevertheless, observers would agree that total insulation from the political realities is unlikely to be possible for extended periods of time. Infrastructure sectors are too visible and politically sensitive to be relegated to left alone by legislative and executive branches of government.

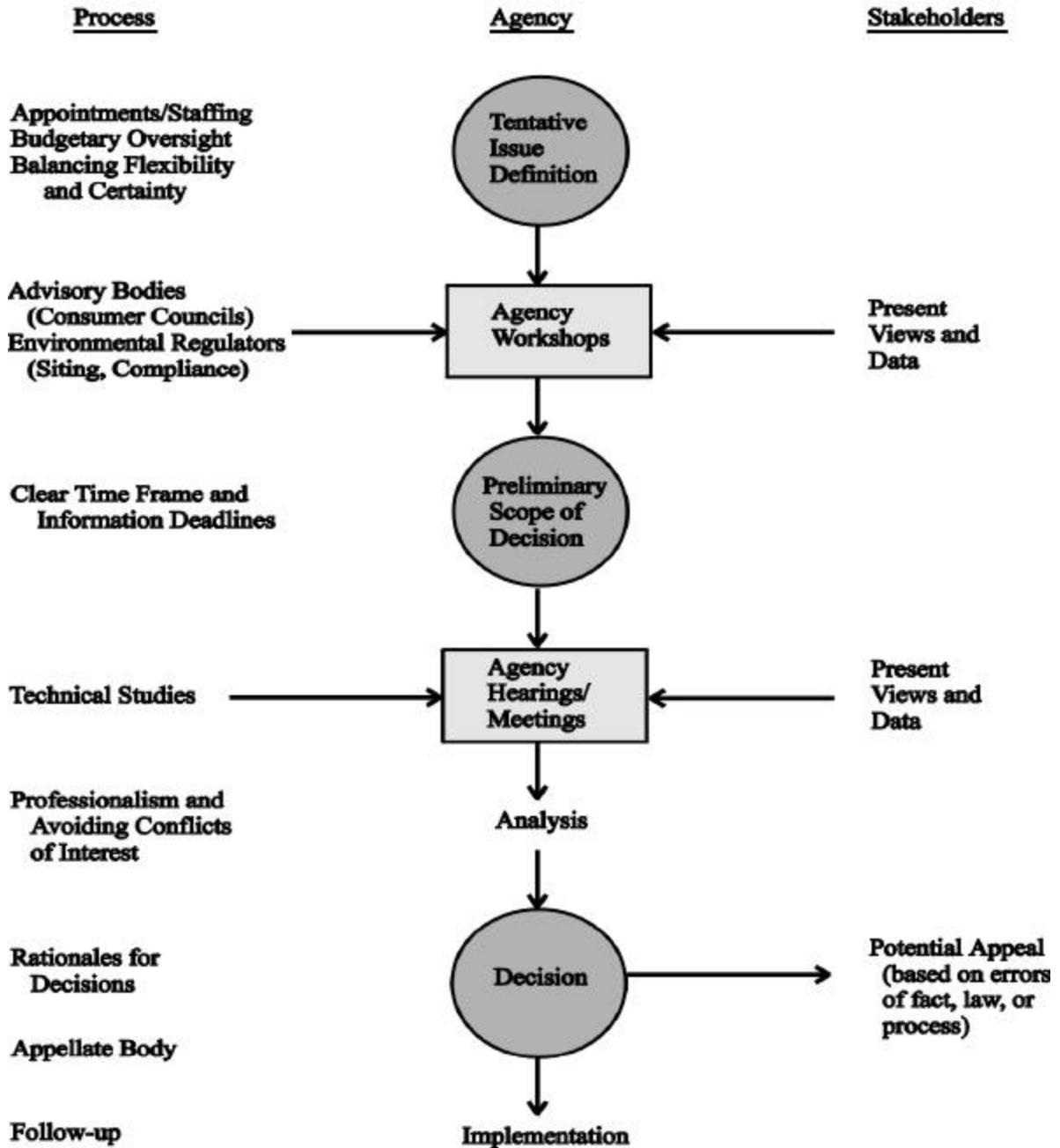
Nevertheless, private enterprise is likely to respond with capacity investments, high service quality, and new service introductions where policies and supporting institutions provide appropriate incentives for the creation of long-lived assets. Constitutional processes, an independent judiciary, and other institutional factors that support the regulatory system provide a foundation for public confidence in the implementation of infrastructure policy.

**Figure 3** depicts some features of the regulatory process. Regulation with a “light hand” must still address issues of due process, transparency, and information asymmetries.<sup>2</sup>

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<sup>2</sup> This section draws upon Berg, 1998.

**Figure 3.  
Process Management**



***Appointments and Staffing.*** Countries signal their intentions to stakeholders when regulators are appointed and agency staff recruited. Capital markets are looking for clues as to how initial decisions might be made, so the professional reputations of key regulators are the best indicators of how rules are likely to be developed and implemented.

***Budgetary Oversight.*** While sources of agency funding must be established, budgets must still be scrutinized by legislative committees to promote agency accountability. Also, effective use of agency resources can be reviewed by independent auditors or other public watchdog groups.

***Balancing Flexibility and Certainty.*** Effective utility regulation requires much more than just competent economic and financial analysis. *Regulatory discretion* lies at the heart of the regulatory process. While discretion gives regulators the flexibility to achieve more efficient outcomes, it also involves uncertainty for firms and stakeholders, as well as the potential for misuse. Regulatory systems—rules, institutions and processes—need to be designed in a way that strikes a balance between competing policy considerations. Each nation must find a way to insulate regulators from short-term political pressures, while ensuring a sustainable process. (Smith,1997,a,b,c)

***Participation of Stakeholders and Advisory Bodies.*** To meet their mandates, regulators must manage complex interactions with regulated firms, consumers, politicians, officials, courts, the media, and a range of other interests. How the regulator manages these processes will be critical to his or her success. The involvement of stakeholders is an important source of legitimacy and public acceptability for regulatory agencies and their decision-making. Some regulators (like the U.K.'s Office of Water Services) have utilized “consumer councils” to provide input into the process. Other government agencies—such as environmental or siting agencies—may also provide input.

***Clear Time Frame and Information Deadlines.*** Due to the massive volumes of data and information that must be evaluated and analyzed, managing information flows is essential. To reduce compliance costs, limited information requests are recommended. Unnecessary delays have potentially adverse impacts on firms and/or customers; and stakeholders must be aware of the schedule for processing the case and provided an opportunity for participation.

***Technical Studies.*** Consultants and/or agency staff should prepare and publish studies addressing issues under discussion. The regulatory policy instruments described earlier need to be carefully analyzed in terms of their impacts on various regulatory objectives. Other stakeholders need to be in a position to respond to agency studies. In many cases, company studies will form the basis for evaluating alternative regulatory rules.

***Professionalism and Avoiding Conflicts of Interest.*** A regulatory body *must* avoid the appearance of a chaotic and arbitrary system. Professional development of staff is essential, as are procedures for limiting potential conflicts of interest. In general, one of two actions (or their combination) establishes agency legitimacy: completing tasks and upholding responsibilities set forth by statutory mandate

***Rationales for Decisions.*** Transparency demands that decisions be published, including the reasoning and factual basis for the decision. Potential appeals (based on errors of fact, the misapplication of law, or procedural mistakes) can provide a check on the process.

***Follow-ups.*** Implementation requires procedures for ensuring compliance, as well as post-decision reviews so that the process can be improved in the future.

This listing of steps in the regulatory process underscores the difficult tasks facing new regulatory agencies. Warrick Smith has identified at least nine potential roles for regulators: technician, political analyst/strategist, advocate, detective, prosecutor, judge, negotiator, educator, and manager. Not all of these roles can be performed simultaneously, but the listing illustrates the multi-faceted nature of regulation. Not only must new institutions reconcile independence with accountability, but the design of regulatory processes requires a careful balance between certainty (rigidity) and flexibility. The former promotes predictability in decision-making and supports keeping commitments. The latter (the exercise of discretion) can facilitate adaptation to changing economic conditions.

## **5. Incentive Regulation and Competitive Pressures**

*To ensure strong sector performance, agencies responsible for sector oversight must implement incentive schemes that promote efficiency and introduce competition where feasible. The choice between cost-based regulation and price cap regulation requires a deep understanding of the risks and incentives associated with both types of monopoly regulation.*

Since government regulators have only limited information about firm's commercial activities and opportunities for cost containment, the design of regulatory institutions and incentives needs to recognize this information problem. Cost-based regulation transfers much of the commercial risk to customers--as investors can be relatively confident that they will be allowed an opportunity to earn returns on invested capital. Alternatively, the cost of capital will be higher under price-cap regulation, but incentives will be greater for cost containment and for the introduction of innovative services. When prices are re-set, issues associated with cost of service must be addressed--suggesting that the two approaches have a common thread.

In addition, all participants in the regulatory process engage in rent-seeking activity (special interest pleadings). Competitive pressures, where feasible, represent an alternative to direct regulation--reducing the role of bureaucracies that often protect special interests and dampen incentives for efficiency. Identifying market settings suitable for competition requires that relevant services (and their close substitutes) be carefully defined and entry conditions be well understood. Characterizing the regulatory

regimes and channels of causation is extremely difficult. For example, entry policies affect industry structure directly, but limits on incumbent price flexibility can encourage entry.

Price caps have many components: productivity offsets, bundles of services, inflation adjustments, duration of the plan, quality of service constraints, and procedures (and the timing) for future modifications (Sappington, 1994). Similarly, incentive plans (such as those being implemented in telecommunications) may establish a cap in exchange for network modernization investments. These investments, in turn, affect basic economic conditions and incentives for competitive entry. Sharing rules are other devices that provide more incentives for cost containment and new service introductions than traditional rate of return regulation. Higher earnings provide a flow of funds which can be applied to modernization. Another potential feedback arises from productivity advances: good performance affects political perceptions regarding the industry.

The driving forces behind deregulation efforts are diverse: a renewed emphasis on perceived indirect costs of ROR regulation, observed technological changes in energy and telecommunications that alter optimal industry structures, and concern that the substitution of administrative processes for competitive pressures is an inadequate stimulus to innovation. Each of these points is debatable, but they certainly set the stage for current discussions.

Consider the first point: regulation reduces incentives for efficient production -- both in terms of input use and the composition of output. The evidence on this matter is mixed. Statistical researchers have not definitively established the existence of an Averch-Johnson effect: overcapitalization when the allowed rate of return is greater than the cost of capital (Boyes, 1976 and Zimmer, 1978). Furthermore, from the standpoint of theory, uncertainty (in terms of demands, input prices, and allowed returns) can induce undercapitalization. Regulatory lag also mitigates against input-mix inefficiencies. Thus, alleged inefficiencies related to the so-called "cost-plus" nature of regulation are supported by neither theory nor empirical observation.

The other two concerns may be harder to definitely support, but the potential costs to ignoring them can be significant. Innovations have dramatically affected technological opportunities in infrastructures, and market growth has persuaded policy-makers that some segments can support a number of competitors. Perhaps more important, but more difficult to document, is the link between competitive pressures and innovation. Utilities that are insulated from competitive pressures may be outperformed by other firms who ultimately capture segments of what had been regarded as monopoly markets.

In his survey of incentive regulation, Sappington (1994) identified ten guidelines for designing incentive regulation plans:

1. Use incentive regulation to better employ the firm's superior information.
2. Prioritize regulatory goals and design incentive regulation to achieve stated goals.
3. Link the firm's compensation to sensitive measures of its unobserved activities.
4. Avoid basing the firm's compensation on performance measures with excessive variability.
5. Limit the firm's financial responsibility for factors beyond its control.
6. Adopt broad-based performance measures where possible, unless their variability is excessive.
7. Choose exogenous performance benchmarks.
8. Allow the firm to choose among regulatory options, while recognizing the interdependencies among the regulatory options that are offered to the firm.
9. Promise only what can be delivered, and deliver whatever is promised.
10. Plan for the rare, unforeseen event, but minimize after-the-fact adjustments to the announced regulatory policy.

As Sappington points out, ". . . the design of sound, effective regulation in particular settings will require careful attention to the idiosyncratic features of the environment. The best incentive regulation plan in any given setting will vary according to regulatory goals, institutional and technological factors, the nature of the information asymmetry between regulatory and firm, and the commitment abilities of the regulator." (p. 269)

## **6. Sequence of Reform: Restructure then Privatize**

*Governments should decide the market model before privatizing. Similarly, rate rebalancing needs to be addressed prior to privatization. Public policy uncertainty creates opportunities for rent-seeking and reduces the present value of expected returns from infrastructure investments.*

Countries have greater success if they decide the market model and the regulatory rules before privatization. Public policy uncertainty increases the discount rate used by investors when valuing assets--lowering the initial capitalization. Low bids also increase the likelihood of public outcry if the government follows through with vague promises (that had been partially discounted). Keeping promises is good for investor credibility--since it establishes the basis for a good track record. However, it is far better to establish the rules in advance, so valuations at least reflect expected regulations and market structure. If the government has not decided the industry structure, entry and pricing rules, and efficiency rewards, then managers cannot plan effectively and investors cannot appropriately value the assets being privatized. In addition, if rate rebalancing precedes privatization, the government will have demonstrated its commitment to reducing cross-subsidies.

The rationale for privatization is developed in an accompanying paper.(Gutierrez and Berg,1998) For economic growth, it is essential that policymakers adopt rules and incentive mechanisms that promote efficient and reliable infrastructure service. Thus, present industry players will either adapt or go into decline. Some laggards will exit the industry. This is a Darwinian view of industry evolution --survival of the fittest.

Suppliers who cannot or will not perform up to best practice will ultimately be driven from the marketplace because it is in no one's interest to keep incompetent managers or under-performing suppliers around. Poor performers will be absorbed or by-passed. Some successful suppliers may be bought by others. Good performers will be valuable, and other suppliers may be willing to pay for that value.

For investor-owned firms, the market price of the stock provides a good index of the value of the firm. Poor performance leads to a low stock price, which leads to dissatisfied owners. Management is either ousted or the firm is taken over by another entity that can create more value with the firm's assets. In the process of restructuring, costs are reduced, customers are better served, and competitive threats are met. Of course, a low stock price (reflecting low expected returns) may also be due to poor regulation.

Since shares of publicly-owned entities are not traded on an hourly basis, value is harder to determine for nationalized systems and municipal utilities. Most government-owned infrastructure providers do not have indicators of value maximization, though they should. One should look at value for the ratepayer/taxpayer, since this is the constituency that is at risk if performance deteriorates. The net present value of the utility can be calculated in terms of low prices paid by customers and high transfers to national and state treasuries and to municipalities. The beneficiaries of cost containment and improved customer services are the ratepayers and taxpayers. Here is where the pressure for good performance comes. In a democracy, politicians represent citizen-owners. Elected officials ought to want value-maximization, though the voices of special interests can drown out broader concerns. Customers want efficiency and low prices while governments want large transfers and low prices to politically powerful groups. Poor managers can survive in an era of franchised service territories, an absence of benchmark information (for yardstick comparisons), and protective regulation. How long such protection is likely to remain depends on national policies and how regulators apply the tools at their disposal.

## **7. Concluding Observation**

There is no simple and comprehensive roadmap for policymakers in this decade of dramatic change. Rough maps of relatively unexplored territory are bound to contain errors and omissions. Mistakes will be made--some turns to the left or right will lead to dead-ends. Then politicians will have to retrace their steps or strike out over uncharted territory. The regulatory lessons from the U.S. suggest that the politics and economics of infrastructure industries are complex.<sup>3</sup> The best decisions are those which are based on reality. That which seems familiar is not necessarily appropriate in new territory.

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<sup>3</sup> The evolution of U.S. regulation has reflected the addition of policy objectives over time. As more and more goals were identified, laws and regulations sometimes added new instruments to enable the achievement of the objectives. More often than not, public expectations increased, regulators were not always able to induce appropriate corporate responses--either because objectives conflicted with one

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another or the tools proved inadequate for the job. The companion paper, "Lessons from U.S. Electricity" illustrates the issues raised by assigning regulators an excessive number of policy objectives.

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## References

- Berg, Sanford and John Tschirhart, 1988. *Natural Monopoly Regulation: Principles and Practice*, NY: Cambridge University Press, xii-564.
- Bergara, Mario E., Witold J. Henisz, and Pablo T. Spiller, 1998. "Political Institutions and Electric Utility Investment: A Cross-nation Analysis," *California Management Review*, 40-2, p. 18-35.
- Boyes, W.J. 1976. "An Empirical Examination of the Averch-Johnson Effect," *Economic Inquiry*, 14, 25-35
- Costello, Kenneth W. and Robert J. Granieri, 1997. "The Outlook for a Restructured U.S. Electric Power Industry: Lesons from Deregulation," *The Electricity Journal*, May, 81-91.
- Hadley, Graham, 1997. "Restructuring Today: A Brief Tour," *The Electricity Journal*, July, pp. 62-66.
- Kaserman, D.L., J.W. Mayo, and J.E. Flynn, 1990. "Cross Subsidization in Telecommunications: Beyond the Universal Service Fairy Tale," *Journal of Regulatory Economics*, 2(3), September, 231-249.
- Perl, Lewis J., 1997. "Regulatory Restructuring in the United States," *Utilities Policy*, 6:1, pp. 21-34.
- Peoples, James, 1998. "Deregulation and the Labor Market," *Journal of Economic Perspectives*, Summer, 12:3, 111-130.
- Sappington, David E. M., 1994. "Designing Incentive Regulation." *Review of Industrial Organization*, 9, 1994, 245-272.
- Smith, W., 1997a. "Utility Regulators – Roles and Responsibilities," *The Private Sector in Infrastructure: Strategy, Regulation and Risk*, 25-27.
- \_\_\_\_\_, 1997b. "Utility Regulators – Decision Making Structures, Resources and Start-up Strategy," *The Private Sector in Infrastructure: Strategy, Regulation and Risk*, 29-32.
- \_\_\_\_\_, 1997c. "Utility Regulators – The Independence Debate," *The Private Sector in Infrastructure: Strategy, Regulation and Risk*, 21-24.
- Winston, Clifford, 1998. "U.S. Industry Adjustment to Economic Deregulation," *Journal of Economic Perspectives*, Summer, 12:3, 89-110.

\_\_\_\_\_ (1996). "What can we Learn from the U.S. Experience in Regulating Monopolies?" *Infrastructure Pricing Policy Forum*, Bureau of Industrial Economics, Canberra, Australia, May.

\_\_\_\_\_ (1998). "Lessons in Electricity Market Reform: Regulatory Processes and Performance," *Electricity Journal*, June.

Zimmer, M.A., 1978. "Empirical Tests of the Averch-Johnson Hypothesis: A Critical Appraisal," in G.S. Maddala, W.S. Chern and G.S. Gill (eds), *Econometric Studies in Energy Demand and Supply*, NY: Praeger, 152-71.