

REGULATING INFRASTRUCTURE FOR THE POOR

PERSPECTIVES ON REGULATORY SYSTEM DESIGN

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Governments around the world are transforming their infrastructure sectors to better meet the needs of their people. Regulatory reform is an essential part of this process, and there is a growing consensus around the key principles that should shape the design of regulatory systems for infrastructure in industrialized countries. To date, however, much less attention has been given to how well the same principles meet the needs of the world's poorest citizens.

This paper explores this question in three parts. *Part A* considers the design of regulatory systems for infrastructure, and outlines three broad principles that reflect contemporary notions of best practice in industrialized countries. *Part B* outlines the special challenges associated with regulating to meet the needs of the world's poorest people, and assesses the implications for the principles derived from industrialized country experience. *Part C* concludes by outlining the key challenges associated with implementing a "pro-poor" regulatory strategy.

1. REGULATING INFRASTRUCTURE

Government regulation—defined here as the exercise of state control over private conduct¹—is a pervasive feature of modern society. Regulatory interventions are usually asserted to be in the "public interest", and there is a rich literature offering explanations about why governments define the public interest in the way they do, and why the results achieved do not always correspond with the stated objectives.²

Most economists insist that regulation is justified only in cases of "market failure"—that is, a situation where unregulated activity fails to maximize social welfare. In the case of infrastructure, regulatory interventions are typically justified by reference to one or more of three potential sources of market failure: (a) monopoly, with implications for the control of prices and related quality and quantity parameters; (b) externalities, where the full costs or benefits of an activity are not captured by the immediate parties to the transaction, with implications for the control of technology choices, project siting, quality standards or other parameters; and (c) imperfect information about the nature or quality of the services in question, with implications for regulating public health, safety and other standards to protect consumers.

Governments may exercise control over infrastructure in many ways. For a large part of the last century, most governments tried to exercise control primarily through public ownership of service providers. Combining ownership, regulatory and operational roles in one entity leads to poor performance in each role,³ however, and over the last decade or so governments around the world have been retreating from ownership and focusing on improving their performance as regulators of private firms. Modern regulatory systems typically comprise three distinct but related elements:

- a set of *regulatory rules* embodied in laws, licenses, contracts or similar instruments that define acceptable conduct;
- one or more *regulatory bodies* responsible for administering and enforcing those rules, and

¹ This definition of regulation excludes tax and subsidy measures that influence but do not directly control activity. Tax and subsidy measures may be an important complement to, or even substitute for, traditional regulation, particularly in addressing externalities or distributional concerns, but are beyond the reach of this paper.

² See, for example, Wilson (1980), Kahn (1988) and Noll (1989).

³ See Willig (1993) and World Bank (1995).

- a set of *regulatory processes* undertaken or managed by regulatory bodies to discharge their responsibilities.

Regulatory systems fashioned along these lines have a long history in the United States, and the approach has emerged as the dominant model worldwide. While details vary between sectors and countries, there is now general consensus in industrialized countries around three broad principles that should inform the design of regulatory systems for infrastructure.

1.1. Regulatory rules—Intervene sparingly, and with care

For many decades, infrastructure regulation was typified by fairly heavy-handed intervention, including regulatory barriers to support monopolies and intensive regulation of prices and most other attributes of service delivery. By the 1980s, however, governments began to realize that regulation involves costs, often substantial costs. These include the direct costs of administration by government and of compliance by firms. They also include more significant costs associated with rigidity, stifled innovation, distorted incentives, rent-seeking behavior, and other deficiencies flowing from the political economy of regulation and the inevitable asymmetry in information between regulators and firms. The likelihood of “government failure” thus needs to be weighed against the potential consequences of “market failure”. These insights have found expression in a new consensus around each of the main focal points of regulatory intervention: market entry, prices, and quality.

1.1.1. Controlling Market Entry⁴

Most infrastructure services were once considered to be “natural” monopolies, in the sense that a single firm could supply the market at lower cost than two or more firms. To sustain this structure—and, often no less important, to allow cross-subsidies between different categories of users—most governments controlled market entry by creating legally-sanctioned monopolies. However, advances in technology and in economic thinking have expanded opportunities for more competitive delivery of infrastructure services, leading to efforts to relax or eliminate regulatory barriers to entry and to actively facilitate competition by restructuring existing enterprises. These measures have been accompanied by a re-evaluation of the costs and true beneficiaries of traditional cross-subsidies, and the establishment of more targeted and transparent subsidy measures. Strategies of this kind are now widely adopted in transport, telecommunications, energy, and water services.⁵ Expanding the role of competition can provide large benefits. One study showed that the welfare benefits of *deregulating* airlines, trucking, railroads and telecommunications in the U.S. provided *annual* welfare gains of nearly \$45 Billion of 1990 dollars, or over 7% improvement in the part of GDP affected by regulatory reform. Over 90% of these benefits flowed to consumers.⁶

1.1.2. Controlling Prices

The main economic rationale for price regulation is the existence of monopoly power. Introducing competition thus reduces the need for price regulation. In many cases, intensive

⁴ For a fuller discussion of market structure issues relevant to serving the poorest, see Ehrhardt (2000).

⁵ Even if issues of scale economy in a particular market do not permit traditional “head to head” competition between rival suppliers, competitive disciplines may be tapped by awarding franchises through competitive bidding and re-bidding, and by stimulating “yardstick” competition by increasing the transparency of firms’ performance according to key performance indicators.

⁶ See Winston (1993).

control can be limited to access to networks—such as transmission grids or local telephone exchanges—which continue to exhibit substantial market power.

Where price regulation is justified, the details matter. This relates to the level and structure of regulated prices, as well as to the mechanics for adjusting prices over time. To illustrate the last point, controlling prices on a “cost-plus” basis by reference to particular rates of return will reduce the firm’s incentives to minimize costs, as these can be passed on to consumers with impunity. And where regulated rates of return are calculated by reference to specified cost elements—such as capital investments—there can be incentives to over-invest in those elements relative to other potential inputs.⁷ Recognition of these effects has led to a growing interest in “incentive” or “performance based” forms of price regulation.

1.1.3. Controlling Quality⁸

Regulation of service quality may be justified by concerns over monopoly abuse or by environmental, safety, health or other consumer protection concerns. Introducing competition reduces the need for quality regulation based on monopoly concerns alone. Where quality regulation is justified, modern notions of good practice require attention to a range of issues. Setting standards at the appropriate level is obviously essential, as higher standards will be reflected in increased costs and hence higher prices. As with price regulation, the form of intervention can matter a great deal; for example, regulating inputs or processes rather than outputs or outcomes will reduce firms’ incentives to search for and apply lower cost ways for achieving the required result.

The general thrust of the new approach is to minimize reliance on regulatory intervention to the extent feasible and, where intervention is required, to pay close attention to the costs involved, including unintended consequences for costs and incentives. To help meet these objectives many OECD countries now undertake regulatory impact assessments before imposing new rules, and review existing rules at regular intervals to ensure the expected benefits exceed the inevitable costs.⁹

1.2. Regulatory bodies—Expertise, “independence”, and tier of government

Most regulatory systems for infrastructure include some body or bodies charged with administering the rules. The optimal characteristics of such bodies will depend on the tasks to be performed and the environment in which they operate. Experience in industrialized countries provides insights into matters such as the expertise required, notions of “independence”, and the optimal location among tiers of government.

1.2.1. Expertise

Regulatory frameworks for most infrastructure sectors require a body to administer pricing and interconnection rules, to monitor compliance with these and other norms and to enforce those rules, directly or through the courts. These are demanding tasks, requiring skills in economics, finance, law and other disciplines, as well as integrity and some measure of political acumen.

⁷ The incentive to over-invest in items covered in the rate base under traditional U.S.-style rate of return regulation is referred to as the “Averch-Johnson effect”. See Berg and Tschirhart (1988).

⁸ For a fuller discussion of quality regulation issues, see Baker and Tremelot (2000).

⁹ For a review of recent experience, see Organization for Economic Cooperation and Development (1997).

Specialist skills in these areas are scarce in many societies, and it can be difficult to attract and retain qualified professionals when subject to the salary restrictions often applied to the civil service. This is particularly so when the regulator is expected to interact effectively with regulated firms that face no similar restrictions. In response to this concern, many systems provide regulatory bodies with more flexible salary arrangements than is the case for the general civil service. Efforts are also taken to ensure the regulator has access to secure funding to enable it to meet its responsibilities.¹⁰

1.2.2. “Independence”

It is now widely accepted that regulatory bodies for infrastructure should be “independent”—in the sense that they operate at arm’s length from regulated firms and from political authorities.¹¹

The rationale for ensuring regulators are independent of regulated firms is clear: the interests of the regulator and regulated firms will often be in conflict, and it will be impossible to secure effective regulation if the regulator does not operate at arm’s length from those it regulates. This conflict of interest helps to explain some of the benefits of private sector participation in infrastructure—by helping to create an arm’s length relationship between regulators and firms, both functions can be performed more effectively. The same requirement is reflected in the safeguards put in place to prevent regulators from becoming “captured” by the firms they regulate. This notion of independence has an additional dimension in competitive markets, where a relationship between the regulator and one of the rival firms will make it impossible to ensure a level playing field.

The rationale for ensuring regulators are independent of political authorities depends on the nature of the regulatory intervention involved and the extent of the discretion entrusted to the regulator.¹² As infrastructure services are consumed widely in society, and are often viewed as essential, infrastructure prices are notoriously “political”. Most political authorities are loath to make decisions that will be unpopular with most voters, and so face pressures to restrain regulated prices below economic levels. Short-term pressures of this kind conflict with the goal of ensuring infrastructure services are financially self-sustaining. They also threaten the profitability of firms making long-term and immobile investments, with the risk of such action reflected in a higher cost of capital and hence reduced investment and/or higher prices. In recognition of these pressures, most reforming countries take steps to ensure the regulatory body enjoys some insulation from the day-to-day politics, and a package of safeguards is usually adopted to achieve this result.¹³ The extent and effectiveness of these safeguards can have a measurable impact on the cost of capital, even in countries with long experience in regulating private firms fairly.¹⁴

¹⁰ For a review of some of the general principles, see Smith (1997a).

¹¹ For a fuller discussion see Smith (1997b).

¹² The extent of the discretion entrusted to regulators is a key variable in any regulatory system. Discretion allows regulators to adapt rules to individual circumstances and to changing conditions, but also introduces uncertainty—and hence risk—for investors. While efforts can be taken to limit discretion, in practice it is impossible to eliminate it entirely, and highly rigid schemes will require more regular renegotiation which can introduce similar risks for firms.

¹³ The main safeguards include appointing regulators based on technical rather than political criteria; ensuring terms of appointment are not co-terminus with political terms, and that the terms of commission members are staggered; and providing protection against dismissal without just cause. See Smith (1997b).

¹⁴ For example, studies show that electing rather than appointing regulators can result in a higher cost of capital, as reflected in bond ratings. See Costello (1984).

1.2.3. Tier of Government¹⁵

Regulatory bodies might be located at the supra-national, national, or at various sub-national tiers of government. There is general consensus around the main factors that should be considered in deciding on the optimal location, although there can be difficult tradeoffs are involved.

Factors supporting decentralization to lower tiers of government include: greater proximity to users, which enables approaches to be adapted to local preferences and conditions; greater proximity to service providers, which facilitates effective monitoring; and enhanced opportunities to innovate. Factors supporting more centralized approaches include: improved ability to deal with spillovers that cut across jurisdictional boundaries; economies of scale in administration, particularly when professional and financial resources are scarce; and reduced vulnerability to “capture” by regulated firms and by local political authorities. Weighing these factors in the context of local constitutional and political realities may lead to different results in different societies, and indeed to the division of regulatory roles between several tiers of government within even a single infrastructure sector.

1.3. Regulatory process—Involve stakeholders through a transparent process

Regulatory bodies—no matter how expert and independent—need access to reliable information to make sound decisions. This includes information about the needs and priorities of consumers, firms and other stakeholders, as well as about the performance of regulated firms. Regulators that enjoy safeguards of their independence from the political process also need measures to ensure they are accountable, and transparent processes for engaging those affected by their decisions can play an important role. Processes for engaging stakeholders can thus have an important impact on the quality of regulatory decisions as well as on the legitimacy of the regulatory body itself.

Designing processes to engaging stakeholders needs to take account of a range of factors. These include: the effectiveness in reflecting a full range of relevant views and perspectives; accessibility to parties in remote locations or with limited sophistication; safeguards associated with being seen to be “too close” to any particular interest; and the impact on the costs and delays associated with regulatory decisionmaking. Diverse approaches have been developed. These include formal regulatory hearings of the kind common in the U.S., specialist consultative or advisory committees, such as those established in the water sector in the U.K., as well as a range of less formal approaches. A key feature of all modern approaches is transparency—to ensure accountability, to provide assurance to stakeholders, and to increase the predictability and perceived fairness of decisions.

2. REGULATING FOR THE POOREST

Most countries—rich and poor alike—espouse common objectives for their infrastructure sectors. These include universal access to affordable, efficient, safe and reliable services produced and delivered in an environmentally responsible way. At least at one level, therefore, we would expect that regulatory principles developed from experience in the industrialized countries should be compatible with the aspirations of developing countries

¹⁵ For a fuller discussion, see Smith (1996).

concerned about the welfare of their poorest citizens. But there are some special challenges associated with reaching the poorest than can lead to important differences in emphasis and approach.

2.1. Special challenges

While care must be taken with any generalization, there are four special challenges associated with regulating to reach the poorest. These relate to regulatory priorities as well as to institutional constraints.

The Access Priority: In industrialized countries, the majority of citizens have access to modern infrastructure services, and regulatory strategy focuses on overseeing established industries and customer relationships. In contrast, large proportions of the populations of developing countries lack access to any formal infrastructure services. Two billion people lack access to adequate sanitation, two billion lack access to electricity, and one billion access to clean water. Transportation and communication networks also remain poorly developed. Those living in urban slums and in rural communities are least likely to have access. The effectiveness of any pro-poor regulatory strategy must thus be tested against the goal of expanding access to services, rather than just improving the convenience of those who already have service.

Affordability Concerns: Infrastructure prices are sensitive in every country, rich and poor alike. But the world's poorest people face real constraints on their ability to pay, which impacts both on access and on the consumption possibilities of those with access. At the same time, the costs of providing service to the poor living in rural or peri-urban areas may be higher than average. This does not necessarily imply that the poor must receive services at subsidized prices. Many of the world's poorest have a willingness and the ability to pay cost-covering prices, but are denied this opportunity through lack of access to formal systems, and often pay very high prices for poor quality substitutes. Nevertheless, any strategy to improve services for the world's poorest must place particular emphasis on affordability concerns, and thus strive to minimize costs, including costs influenced by regulation itself.

Constrained Administrative and Regulatory Capacity: Most industrialized countries have well-established administrative and regulatory capacity, including a pool of qualified professionals and the administrative and physical infrastructure to interact effectively with the overwhelming majority of their citizens. Countries that are home to the world's poorest people are rarely so well endowed. Administrative and regulatory capacity are typically under-developed, particularly outside the principal cities. Poor transport and communication networks exacerbate the difficulties faced by regulators in monitoring the behavior of firms and interacting effectively with consumers and other stakeholders. While not unique to developing countries, weak administrative and regulatory capacity often co-exists with corruption concerns. In such environments, regulation can often be used to create corruption opportunities for officials rather than to pursue legitimate public purposes. Capacity constraints of these kind affect the basic calculus of whether regulatory intervention is likely to provide net social benefits, as well as the design of particular interventions.

Political and Regulatory Risk Environment: Most industrialized countries have relatively stable political systems and reasonably independent and trusted judiciaries. They have also established long track-records in treating private investors fairly, and so are perceived by

investors to involve relatively little political and regulatory risk. In contrast, many developing countries are still transforming their political and judicial institutions, and have not yet had established a long track-record in protecting private property rights. Indeed, some have nationalized assets within living memory. As a result, investors often perceive high political risks associated with infrastructure investments in developing countries, which in the regulatory sphere usually translates into particular sensitivity about regulatory discretion. Absence of sufficient safeguards against the misuse of such discretion will increase firms' cost of investment capital, which will be reflected in reduced investment, higher prices, or both.¹⁶

These challenges do not apply equally to all infrastructure sectors in all developing countries. Indeed, even within a single sector within a single country, differences may exist between regions. It is nevertheless useful to consider the implications of these special challenges for the broad regulatory principles derived from experience in industrialized countries.

2.2. Implications for regulatory rules

The injunction to intervene sparingly, and with care, arguably applies with even greater force in the context of pro-poor regulatory strategy. At the general level, constraints in administrative and regulatory capacity and other adverse features of the regulatory environment will reduce the likelihood that regulation will achieve its intended results, and increase the likelihood of unintended costs. This affects the basic calculus of whether the expected benefits of intervention will exceed the likely costs, and should thus lead to much more modest regulatory ambitions. There are also implications for each of the main forms of regulatory intervention.

2.2.1. Controlling Market Entry

As in the industrialized countries, most infrastructure providers in the developing world were granted monopolies supported by regulatory barriers to entry, whether set out in law or in exclusive licenses or concession contracts. In return, the monopoly was mandated to provide "universal service", usually within a framework of uniform national tariffs. Service expansion was expected to be funded through cross-subsidies between more affluent and poorer customers. Results, however, have been disappointing.

Firms operating under such a regime faced limited incentives to minimize costs or to innovate. They also have no incentives to expand services to customers for whom the costs of providing service exceeds the regulated price. Political interference through price regulation has also made it difficult for firms to generate sufficient revenue to fund significant service expansion. Decades after the monopolies were established, most of the world's poorest are still waiting to receive access to service from traditional utilities. In the meantime, they either lack any service, or are required to pay high prices for poor quality substitutes provided by informal (and often technically "illegal") suppliers. Forcing alternative providers into the "black" or "gray" economy also reduces opportunity for scrutiny against other regulatory objectives, such as basic environmental, public health and safety concerns.

A more pragmatic response is to deregulate market entry and allow a variety of different service providers to respond to the needs of the unserved. This is already de facto the case

¹⁶ See Smith (1997D).

with private water vendors that are common throughout the developing world; countries such as Yemen and Cambodia allow private power suppliers to compete for customers in areas unserved by the traditional utility; and experience in many countries shows how liberal licensing of cellular telephone operators can dramatically expand access to communication services.¹⁷

Implementing a deregulatory policy of this kind raises several issues relating to the scope of liberalization and the role of non-traditional barriers to entry.

Extent of Market to be Liberalized: Should liberalization of entry extend to the market as a whole, or apply only to people not served by the traditional utility? If the former, the potential for “cream skimming” will reduce the ability to use cross-subsidies to meet social and political objectives, as customers paying higher prices will be able to defect to other suppliers. This strategy may also lead to duplicate networks competing with each other, such as several power or telephone firms running separate lines down a street. Neither concern need be an insuperable obstacle, however, and indeed such approaches were common during the early stages of infrastructure development in the United States.¹⁸ If liberalization is limited to people who are currently unserved by the traditional utility, the challenge becomes one of managing the boundaries between areas served by the utility and other areas. This may not be a major issue, however, as utilities providing services through networks should enjoy significant cost advantages over smaller-scale suppliers, which will allow them to win customers from smaller rivals as the network expands.¹⁹

Extent of Relaxation of Entry Controls: Should regulatory barriers to entry be eliminated in the liberalized area, or should some residual, lighter-handed form of entry control be applied? For example, new and typically smaller-scale entrants might still be required to register with or receive some kind of permit or authorization from the regulatory body to provide a basis for controlling essential safety, environmental or public health concerns, to provide a mechanism for disciplining firms that are found to engage in unacceptable behavior, and to facilitate monitoring of market developments. Indeed, it is possible to envisage a multi-tiered regulatory structure, with the smallest providers subject to minimal regulatory scrutiny at entry, larger firms subject to closer scrutiny, and the traditional utility subject to a more conventional licensing regime. If such a scheme is to be applied, it will be important to ensure entry restrictions are not misused to create local monopolies or as a mechanism for graft. Clearly defined entry criteria applied through a transparent process can help to meet these concerns.

Other Public Barriers to Entry: Statutory monopolies and exclusivity provisions contained in licenses and concession contracts are the most conspicuous forms of regulatory barriers to entry. But entry and effective competition may be limited by other kinds of public barriers, with examples including zoning restrictions, technical standards, and import tariffs or taxes on essential equipment. Effective market liberalization strategy may thus require scrutiny of

¹⁷ For a review of recent experience with mobile telephony, see Rossotto, Kerf and Rohlfs (1999).

¹⁸ For example, in 1880 Denver granted a general electric utility franchise to “all comers”, and in 1887 New York City gave franchises to six electric utility companies at the same time. See Phillips (1993). For interesting discussions of how political factors led to the introduction of regulation in the U.S., see Keller (1990) and Goldin and Libecap (1994).

¹⁹ The same reasoning is relevant when assessing objections that firms will not invest in a privatized utility without guarantees of market exclusivity. The privatized utility should have substantial cost advantages over smaller providers. In any event, investors in privatized utilities are usually more interested in secure access to affluent and commercial customers, and so are unlikely to be greatly concerned about competition to serve rural communities or urban slums.

a range of regulatory barriers that are not within the traditional remit of infrastructure regulators.

Private Barriers To Entry: There may be concern that state-sanctioned barriers to entry will be replaced by private barriers erected through collusive market sharing arrangements or other anti-competitive behavior. These are the traditional concerns of economy-wide anti-trust law, which is often lacking in developing countries. In countries without existing anti-trust regimes, a pragmatic response may be to include key norms within industry-specific regulatory frameworks—this was the approach taken in Bolivia, for example.

2.2.2. Controlling Prices

Price regulation is often claimed to benefit the poor. In practice, however, such regulation benefits only those who receive services from regulated firms, which in developing countries typically excludes the poorest. Regulated prices are also often set at levels below the cost of supplying people in remote or high-cost locations, which destroys incentives for firms to expand access to those people. And any form of price regulation introduces the risk of misuse to meet short-term political objectives, thus potentially increasing the risks faced by private firms and so deterring investment.

Given the problems associated with price regulation, and the administrative and technical demands involved, a strong case can be made for relaxing intensive price regulation and relying more heavily on competitive disciplines imposed by rival suppliers. More intensive price control can be limited to access to networks such as transmission grids and local telephone exchanges which continue to enjoy substantial market power.

Implementation of a price liberalization strategy raises important issues relating to the extent of the market to be liberalized and the extent to which price control is to be relaxed or eliminated.

Extent of Market to be Liberalized: Should retail prices be deregulated for the market as a whole, or apply only to those not served by traditional utilities? The answer should depend on the approach taken to liberalization of market entry. If all customers are contestable, there is no economic rationale for regulating retail prices. If only people unserved by the traditional utility have effective choice, more intensive supervision will be required of the dominant firm and the challenge will remain of how to manage the boundaries between the two market segments.

Extent of Relaxation of Price Controls: Should price controls in liberalized areas be eliminated, or should some residual, lighter-handed form of price regulation be applied? The main argument for full liberalization is to let markets do their work.²⁰ High prices would signal profitable opportunities for new entrants, with even the threat of potential competition constraining pricing behavior.²¹ And even where considerable monopoly power remains, profit-maximizing suppliers would engage in price discrimination among customers that would reduce the inefficiency associated with monopoly provision.

A bold price liberalization policy might nevertheless face several obstacles. New entry may be slow or uneven, particularly if the regulator cannot address the full range of regulatory barriers to entry, or is ineffective in addressing possible private barriers to entry. Price

²⁰ For a discussion of how this approach might apply to water utilities, see Brook and Cowen (1998).

²¹ For a discussion of the effectiveness of “potential competition”, see Gilbert (1989).

discrimination, despite its efficiency features in monopolistic markets, often provokes public concern about unequal treatment. No less important, governments and regulators may find it difficult to resist the populist urge to intervene to “protect” consumers from paying what are perceived to be “excessive” prices. In this environment, several compromises between pure *laissez-faire* and the heavy-handed ways of the past might be considered:

- The regulator could facilitate the operation of market forces by monitoring and publishing prices, thus helping to inform consumers of what kinds of prices might be “reasonable”, and also signaling market opportunities to potential rival suppliers. The main weakness of this approach is that the political pressures to intervene may remain.
- The regulator could be given a “reserve power” to impose price regulation on particular suppliers if their prices were found to be excessive. While this kind of “potential regulation” has been adopted in some industrialized countries,²² the approach may not be well-suited to other contexts. In particular, it is not hard to imagine regulators facing strong pressure to intervene to meet short-term political objectives, which would see a return to the failings of past approaches. Giving regulators a broad discretion over when to intervene, and if so on what basis to set maximum prices, would create considerable risks for firms, potentially deterring entry and raising the cost of investment capital. For this reason, adoption of this strategy would require careful attention to the design of appropriate safeguards against the misuse of discretion.
- The regulator could establish a relatively loose ceiling for infrastructure prices, allowing firms the freedom to price up to that level. Regulators would need to pre-determine a ceiling that would still provide high-powered incentives for firms to enter difficult and potentially more risky markets to serve the poorest. Establishing such a limit by reference to the “reasonableness” of particular rates of return would be complex to administer and enforce. An alternative would be to set maximum prices in liberalized areas by reference to some fixed multiple of the regulated prices for the incumbent utility. This would expose investors to less risk than under the more discretionary “potential regulation” approach. The main downsides are that setting any ceiling may result in prices too low to attract firms to serve people in high cost locations, and that the effectiveness of the regime is tied to the trajectory of regulated prices for the traditional utility.

The success of more liberal approaches to price regulation hinge critically on political factors. The implications for the design of regulatory bodies and processes are considered below.

2.2.3. Controlling Quality

Competitive approaches can do much to relieve the burden on quality regulation. Regulatory policy towards other dimensions of service quality will need to be assessed carefully. Quality has a price, and it will be necessary to ensure the tradeoff is reasonable having regard to the affordability constraints faced by the poorest. High technical, health, safety or environmental standards will not meet their objectives if large parts of the population cannot afford service from formal utilities as a result, and rely instead on informal suppliers that evade any regulatory oversight. Care also needs to be taken to ensure quality standards are not used to limit unjustifiably competition.

²² In New Zealand, the Commerce Act gives the Minister the discretion to impose price controls if he is satisfied that conditions of effective competition do not exist and control is necessary to protect users or consumers.

Pragmatically, regulators concerned about the poorest may need to apply different quality standards to different categories of suppliers and customers. Minimal standards tied to essential health and safety concerns may be appropriate in areas not served by traditional utilities, with progressively higher standards applied to more affluent customers with access to network services. A multi-tiered entry regime along the lines outlined above could provide a simple structure for implementing such an approach, although care needs to be taken to avoid creating disincentives for firms to grow and so “graduate” into a more intensive regulatory environment. In each case, the costs of intervention will need to be weighed against the expected benefits, having regard to the likelihood of the regulation achieving its intended objectives.

2.3. Implications for regulatory bodies

The desirable features of regulatory bodies will depend on their responsibilities and the environment in which they must operate. In this regard, the capacity constraints and risk characteristics associated with regulatory environments where the poorest tend to reside, and the more liberal approaches to regulatory intervention suggested above, require some variations on the standard prescriptions coming from experience in industrialized countries.

2.3.1. Expertise

The expertise required will depend on the tasks entrusted to the regulator. In most systems, this will need to include the ability to administer price regulation, even if this is limited to regulation of interconnection to networks. There will also be a need to monitor and perhaps enforce compliance with at least minimal quality standards.

More liberal approaches to market entry and price and quality control will lighten the burden of this work. But the regulator will need to shift its focus from supervising a single utility and its existing customers to overseeing a larger number of more diverse suppliers adopting different technologies and business strategies to serve customers with a more diverse packages of service. Depending on the regulator’s roles in this broader market, different strategies for monitoring performance may be required. The regulator may also have a role in identifying and evaluating possible barriers to market entry, which involves a broader set of skills than often required of traditional utility regulators. Skills in monitoring and evaluating potentially anti-competitive conduct by firms may also be required if an economy-wide anti-trust agency does not exist.

Regulators will also need skills in community outreach and public education, both to understand customer needs and preferences and to respond to possible pressures to reintroduce more intensive regulation that may have adverse consequences for the poor. Regulators will also benefit from skills in building partnerships with other actors who might assist in performing these broader functions. While these skills are an asset for regulators in any country, they become more important for regulators who place special emphasis on meeting the needs of the poorest.

While many technical and analytical tasks can be contracted out to consultants, regulators still need the ability to be discriminating consumers of such advice. The benefits of adopting salary and budget arrangements that facilitate the hiring and retention of qualified staff thus remain.

Constraints in administrative and regulatory capacity, and enhanced risk of political or political capture, may also weigh in favor of creating a single regulator for all or most infrastructure services, rather than a proliferation of industry-specific bodies.²³

2.3.2. “Independence”

The objective of ensuring regulators operate at arm’s length from the firms they regulate continues to be important under a pro-poor regulatory strategy. Failure to meet this requirement can undermine the effectiveness and the legitimacy of the regulatory system, and thus increase the risk of political backlash against more liberal approaches. Moreover, in liberalized markets it will be essential for the regulator to maintain a “level playing field”, which would be impossible if the regulator has an interest in the success of some of the rival firms.

The importance of ensuring regulators operate at arm’s length from political authorities will depend on the responsibilities entrusted to the regulator. Insofar as the regulator controls prices or other politically-sensitive issues, insulation from short-term political pressures will be required to reduce regulatory risks faced by investors. This may be even more important if the regulator is entrusted with a broad discretion to impose price or other regulation, as such authority can easily be misused to meet short-term objectives. Pragmatically, however, establishing a fully “independent” regulator is difficult in any country, let alone in countries where political systems are still evolving and where even the courts may not be seen as completely independent. This argues for carefully circumscribing discretion and establishing additional safeguards. For example, in Mexico responsibility for deciding whether or not to impose price regulation and responsibility for administering such regulation are entrusted to separate bodies: price regulation can only be imposed if the Federal Competition Commission—an independent body with an economy-wide focus—determines that the conditions of effective competition are absent.

As discussed below, the regulator may delegate certain monitoring or other roles to other actors, including sub-national governments. Insofar as these actors lack discretionary authority over politically-sensitive issues, more limited safeguards of their independence may be necessary.

2.3.3. Tier of Government

The factors influencing the optimal location of regulatory bodies remain valid even in pro-poor regulatory settings, although the trade-offs may be more vexing. On the one hand, a greater scarcity of skilled resources, and a greater risk of “capture” by firms and local political authorities, argue for greater centralization of decisionmaking authority. On the other hand, a more diverse market with more small scale firms supplying more distinctive and localized sub-markets argues for greater decentralization of at least monitoring activities.

Pragmatically, this may require a division of regulatory responsibilities. A central body may be responsible for overseeing the market as a whole, dealing with inter-connection and pricing issues for the traditional utility, and adjudicating anti-trust complaints. More decentralized actors—such as municipal governments or NGOs—may be responsible for monitoring performance of individual service providers, dealing with customer complaints

²³ Multi-sectoral regulatory bodies have a long history at the state-level in the U.S., and have been adopted at the national level in several developing countries. See Smith (1997c).

that cannot be resolved directly between the supplier and its customers, and helping to manage relations with local communities. This implies a major change in the roles played by these entities, with implications for capacity-building efforts.

2.4. Implications for regulatory process

Engaging stakeholders becomes even more important, and more challenging, when pursuing a pro-poor regulatory strategy of the kind discussed above. The regulator will need to:

- Understand the needs and priorities of the poorest, including those who are not customers of traditional utilities. They may be located in urban slums and remote rural localities, and have limited access to reliable transport and communication links.
- Understand the needs and perspectives of a larger and more diverse group of actual and prospective service providers, ranging from small-scale entrepreneurs to more traditional utilities. In some cases, these firms may operate in the informal sector, and even have been operating illegally.
- Engage municipalities, NGOs and other groups with an interest in representing or advancing the needs of the poorest.

Moreover, the regulator will need to engage this larger and more diverse group of stakeholders not only on traditional price and quality regulation matters, but also on a potentially broader set of issues, such as those associated with identifying and evaluating barriers to entry and anti-competitive conduct. The regulator will also need to do all of this in a way that helps to curb populist pressures to reintroduce more intensive regulation that may adversely affect the poorest. Public education thus becomes an important part of the new regulatory agenda.

In this setting, exclusive reliance on formal hearings of the kind adopted in some industrialized countries will not be enough. Greater effort will be required to reach out to and engage stakeholders, both to ensure decisions are well-informed and to underpin the legitimacy of the regulatory system. There is no single model for how this might be done. But there are some promising experiments being undertaken in many developing countries. These include:

- Taking active steps to visit communities and engage them in a dialogue on needs and priorities. For example, the regulator in Jamaica reaches out to communities through local churches, and regulators in Bolivia hold town hall meetings across the country. The feasibility of these approaches will depend on the size of the regulator's jurisdiction and the adequacy of roads and other transport links.
- Establishing specialist consultative or advisory bodies to provide the regulator with convenient access to a broad range of views. For example, in Brazil concessions in the power sector each include a special committee that comprises representatives of local government as well as different categories of users, including slum dwellers, farmers, businesses, and the like. The challenge with this approach is to ensure the bodies are in fact representative, and do not become vehicles for patronage appointments or for building the political careers of appointees.

- Developing information strategies aimed at educating citizens about the regulatory system and their rights under it. For example, regulators in Peru make extensive use of radio commercials. While this form of communication is by definition only one-way, it can help to build support for the chosen regulatory strategy and inform people of opportunities to interact with the regulator.
- Delegating to municipal governments or NGOs particular roles in monitoring service provision and managing more intensive consultations with their constituencies. For example, in Brazil there is a national system of consumer protection which delegates to sub-national governments certain responsibilities for dealing with consumer issues within their jurisdiction.

Some combination of all of these strategies may be necessary and desirable. Much will depend on the size and diversity of the regulator's jurisdiction and the effectiveness of alternative channels of communication.

3. IMPLEMENTING A "PRO-POOR" REGULATORY STRATEGY

The principles of regulatory system design derived from experience in industrialized countries are useful in thinking about the design of pro-poor regulatory systems. While the broad principles remain applicable, there are important differences in emphasis and in approach, as well as some new challenges associated with implementation of the strategy as a whole.

First and foremost, greater emphasis should be placed on *deregulation*, including relaxing or eliminating regulatory barriers to entry, reducing the scope and intensity of price control, and being much more pragmatic in attempting to control service quality. The corollary is that more effort will be required in identifying and removing other regulatory obstacles to effective choice, applying anti-trust norms, and doing all of this in a much more complex and diverse market. While many industrialized countries are now moving in this direction, there is no established template for such a regulatory system. What is clear, however, is that uncritically transplanting systems from industrialized countries is unlikely to respond to the needs of the world's poorest.

As we have seen, one of the key policy questions is how much of the market should be liberalized. Should liberalization be limited to areas that are currently unserved by traditional utilities, or should this approach be extended to the market as a whole? Cautious reformers may prefer the first approach, as it does not threaten the prerogatives of incumbent firms and does not involve major change for customers who already have access to services (and benefit from cross-subsidies). The main downsides are that this approach will limit the benefits of competition in driving improved service, and creating a bifurcated system will require management of the boundaries between the two. Early and more extensive deregulation will be indicated in countries and sectors with low coverage by traditional utilities, heavily constrained administrative and regulatory capacity, and higher risk regulatory environments.

In framing overall strategy, it is important to heed one other lesson from experience in industrialized countries. Efforts to deregulate infrastructure industries have proven slow and difficult. Incumbent firms that benefit from barriers to entry, utility consumers who benefit from cross-subsidies, and even regulators that have grown accustomed to exercising

substantial influence, often have incentives to resist liberalization. The major beneficiaries of reform—including, in the case of developing countries, the poorest—are more diffuse and usually have much more limited voice in the political process. This makes it difficult to liberalize once intensive regulation is already in place, and can create pressures for applying more interventionist approaches over time, often under the populist banner of “protecting” the poor.

Recognizing this dynamic, reformers should place greater emphasis on establishing more liberal regimes from the outset, knowing that it will be usually be easier to intensify rather than to liberalize subsequently. To curb momentum toward more interventionist approaches with adverse consequences for the poor, regulators also need to be sensitive to the political environment. While government commitment to its chosen strategy is essential, the solution arguably lies in effective public education about the real winners and losers of alternative approaches. Regulators need to become effective advocates of the needs of the poor, and to help in ensuring their perspectives are heard. This may involve building new partnerships with civil society. It also requires access to reliable information about the practical effects of particular regulatory approaches. Seen in this light, effective regulatory processes are a critical element in sustaining and developing the regulatory system.

Reformers in developing countries may be helped by two additional factors. First, advances in technology are reducing the role of scale economies in many infrastructure services. This makes it easier to tap the benefits of competition, and also presents opportunities for local entrepreneurs, who may be less likely to be targeted for intensive regulation than more monolithic, foreign-owned firms. Second, reforms of this kind will be implemented at a time when more liberal approaches are in the ascendancy worldwide, which can help to legitimize policy choices that would have been regarded as “radical” a decade ago.

Looking forward, there will be benefits in monitoring closely the regulatory experiments currently underway, to learn what works and what doesn’t, and to facilitate the rapid dissemination of examples of good practice as they emerge. As with the provision of infrastructure services, the goal should be to expand the menu of options available, rather than attempt to prescribe any universal solution.

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