

ANNOTATED READING LIST FOR A BODY OF KNOWLEDGE ON INFRASTRUCTURE REGULATION

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Chapter I. General Concepts

Introduction

As the Overview explains, utility regulation can occur for several reasons. Common arguments in favor of regulation include the desire to control market power, facilitate competition, promote investment or system expansion, or stabilize markets. In general, though, regulation occurs when the government believes that the operator, left to his own devices, would behave in a way that is contrary to the government's objectives.¹ In some countries an early solution to this perceived problem was government provision of the utility service. However, this approach raised its own problems. Some governments used the state-provided utility services to pursue political agendas, as a source of cash flow for funding other government activities, or as a means of obtaining hard currency. These and other consequences of state provision of utility services often resulted in inefficiency and poor service quality. As a result, governments began to seek other solutions, namely regulation and providing services on a commercial basis, often through private participation.

This chapter on General Concepts in utility regulation covers general themes in utility regulation. It is organized as follows. The following paragraphs describe recent utility market reforms, the development of utility regulation, market structure and how it relates to sector performance, and theories of regulation. References are organized by topic.

Utility Market Reforms

In the early and mid twentieth century many countries, especially in the developing world, sought to provide utility services by forming state-owned monopolies. By the latter part of the century, it became clear that state-owned monopolies were generally inefficient providers of utility services and ineffective in making these services broadly available to the public.

- Micro-management from politically-motivated government officials led state-owned operators to have excessive numbers of employees, provide service primarily to politically powerful groups, cross-subsidize services, and charge non-commercially-viable prices.
- Weak institutions allowed two types of political opportunism. In some instances, prices were kept artificially low so that state-owned operators needed government subsidies to finance investments and cover other costs. If fiscal constraints prevented the government from providing the subsidies consistently, then there was under investment and poor service quality. In other instances, the utility services would be used as cash cows to fund other government functions. This also resulted in under investment and poor service quality for the utility services.

¹ Recall that there is also a concern about the government's objectives. This concern implies a need for regulatory processes that enforce commitments, ensure that long term efficiency is not sacrificed for short term political expediency, and treat all stakeholders fairly.

During the 1980s and 1990s, policy makers began to conclude that regulated, privately-owned service providers might be more effective than state-owned operators because private operators might be less subject to political opportunism and might operate more efficiently than state-owned enterprises, especially if subjected to competitive pressures, because profit motives provide clear and consistent incentives to control costs, deploy infrastructure where demand is sufficient to cover costs, offer prices that encourage efficient utilization of the infrastructure, and innovate when customers find the innovation sufficiently valuable to pay for the improvement.² As part of this trend, countries began to introduce competition wherever possible and developed utility regulatory agencies that would enforce concession or licensing agreements and regulate prices.³

The shape of market reform has varied across sectors and countries. In telecommunications, liberalization and privatization have been the most prevalent features of market reform, although countries have varied in their degrees of market liberalization and privatization. Telecommunications regulators and policymakers have generally focused on removing barriers to entry, ensuring efficient network interconnection,⁴ rebalancing prices⁵ to reflect new competitive realities, and promoting access to telecommunications for the poor and in rural areas.⁶ In electricity, industry restructuring⁷ and commercialization (sometimes through privatization) have been the most prevalent market reforms. Restructuring has sometimes involved structural separation that separates the sector into competitive generating companies and monopoly transmission and distribution companies. Establishing efficient market mechanisms for electricity has been particularly challenging. Markets for natural gas have experienced reforms along the lines of some electricity reforms – production and transport are separated from distribution, gas production has been opened to competition, and gas distribution is typically left to a local monopoly. Water reforms have varied greatly, ranging from complete privatizations as in the case of the U.K., to build-operate-transfer arrangements, to private management contracts, to incentive systems for state-owned monopolies.⁸

Development of Regulation

Countries almost always establish regulatory agencies to improve sector performance relative to no regulation.⁹ This means that the regulators generally focus on controlling market power and/or facilitating competition, although regulators are also often charged with ensuring service availability and system expansion, improving cost efficiency, attracting capital to the

² The references in Section B note these trends.

³ Chapter II Section A examines the regulation of monopolies. Section H of the first chapter provides information on various regulatory instruments, such as license and concession agreements, as does Chapter VII Section B.

⁴ Chapter II Section B covers market liberalization, including barriers to entry and interconnection.

⁵ Chapter V covers tariff issues.

⁶ Chapter V Section C and Chapter VI Section C cover issues of providing service to the poor.

⁷ Chapter II Section B covers approaches to market restructuring. Section B in the first chapter examines the motives for restructuring.

⁸ Incentive mechanisms are covered in Chapter IV and Chapter VI.

⁹ Section A covers the rationale for regulation. Section D covers regulatory objectives and priorities.

sector, improving sector stability, and generating government revenues from licenses and concessions.¹⁰

Sector performance can be measured in terms of net consumer surplus, service availability and system expansion, cost efficiency, affordability of prices, range of services offered, quality, and the rate of innovation.¹¹ In fulfilling this purpose, regulators are often called upon to implement policies for attracting capital to the sector and increasing investment, generating government revenues from licenses and concessions, encouraging the development of and effectiveness of competition in the market, increasing government success in issuing licenses, providing incentives for operators to improve efficiency, and facilitating universal access. Regulation has failed when it has not provided the stability and commercially viable tariffs needed by investors.

Regulatory agencies vary in their scope of authority and responsibilities. The three main issues in defining a utility regulator's role are the sector(s) covered, the regulator's role in relation to policy makers, and the regulator's role in relation to other regulatory entities such as the competition agency. Sometimes the regulatory agency is sector specific, but multi-sector regulatory agencies are also popular. Typical duties include standard setting, regulating prices and service quality,¹² monitoring performance, licensing, handling consumer complaints, providing policy advice to ministries and parliament, monitoring market competition, managing essential or scarce resources,¹³ and settling industry disputes, such as inter-operator interconnection or payment disputes.¹⁴

Because private and public sector participation in infrastructure can take several forms, ranging from state ownership to service and supply contracts to concession arrangements to full privatization, and because countries have varied legal systems and institutional endowments, regulators vary in the type of regulatory instruments they apply.¹⁵ Regulation of state-owned enterprises is reviewed below. Some countries issue licenses that set out the regulatory conditions under which the operator will provide its service. Other countries enter into contracts with operators, such as concession contracts or franchises.¹⁶ Service and supply contracts include technical assistance contracts and complete management contracts. The government maintains ownership of the assets. Concession approaches include leasing and build-operate-transfer arrangements in which the private operator owns or is at least responsible for the assets for a set period of time. Privatization includes divestiture by the government and the development of new enterprises, often called build-own-operate, in which the private operator owns the assets until the operator chooses to retire or sell them.

¹⁰ Section C covers common roles for regulators. Chapter VII examines agency responsibilities and other issues in managing the regulatory process.

¹¹ The possibility that the government may want to use regulation to favor particular political constituents will be set aside for the moment.

¹² Pricing is covered in Chapter II Section B and Chapter V. Service quality is covered in Chapter VI Section A.

¹³ Scarce or essential resources might include telephone numbering resources, radio spectrum, and bottleneck facilities, such as monopoly distribution lines,

¹⁴ In Chapter VII, Section D notes handling consumer complaints, other relationships, and negotiation, and Section A covers independence.

¹⁵ Section F identifies special issues related to regulation of state-owned enterprises and Section G summarizes regulatory instruments. Chapter VII Section B also provides information on choices of regulatory instruments.

¹⁶ Chapter II Section C covers techniques for contracting and franchising.

Legislation may be needed to authorize the government to enter into service and supply contracts or to issue licenses or let concessions, however, the terms included in the contracts, licenses, and concession agreements govern the details of the private operators' and the government's rights and obligations. With privatization, legislation oftentimes governs the parties' rights and obligations, but these may be further defined in a license. Regardless of the form of ownership, some countries rely primarily upon statutes and laws that define the roles and responsibilities of all operators.

Market Structure and Performance¹⁷

Market structure refers to the number of firms in a sector and the nature of their interactions. Governments regulate market structure in various ways, including removing barriers to entry, restrictions on market concentration, and restrictions on vertical integration. Governments may also regulate market conduct, which includes controlling operators' pricing and production practices or providing incentives for appropriate conduct.

Regulation of market conduct is traditionally viewed as a poor substitute for competition. As a result, regulators often encourage competition whenever practicable. The advantages of competition over regulated conduct include limited opportunities for political rent seeking, fewer information asymmetries, and better incentives to serve customer interests. When an operator is subject to at least some competitive pressures, regulators generally allow the operator pricing flexibility, ranging from deregulation to the opportunity to lower prices to long run marginal cost.

Sometimes infrastructure regulators share responsibility for ensuring competitiveness of markets with a competition regulator that is concerned with all sectors, but there are also instances where the regulator plays the role of the competition regulator.¹⁸ The competition regulator generally has three functions. The first function is to remedy anticompetitive conduct, such as collusion.¹⁹ This function is generally ex post, meaning that the competition authority responds to activities that have already occurred. In contrast, utility regulators generally address competitive issues ex ante, meaning that they act to prevent anticompetitive conduct. The second function of the competition authority is to ensure that industry mergers do not significantly decrease competition. The third function is consumer protection, such as enforcing warranties and advertising claims. When sector regulators and competition authorities are separate bodies, they often cooperate in their efforts.²⁰

Regulating Public vs. Private Operators²¹

¹⁷ Section E notes the regulation of market structure versus the regulation of market conduct. Chapter II examines various market structures and related regulatory issues.

¹⁸ See Chapter II Section B and Chapter VII Sections A and D for information on relationships with other agencies, such as competition authorities.

¹⁹ Chapter II Section B examines anticompetitive conduct.

²⁰ Chapter VII Section D notes approaches for regulators to relate with customers.

²¹ See Section F.

Whether the regulator is regulating a publicly-owned operator rather than a privately-owned operator changes the nature of some issues. For example, government interference may be greater with a government-owned operator. Direct control of a public enterprise may be less costly than direct control of a private operator. However, direct control in either instance may lower operating efficiency for reasons indicated above. Also, a government's promise to not engage in political interference with utility operations is less credible with public ownership than with private ownership.

Using financial incentives may be less effective for a state-owned provider than for a privately owned provider. Using incentive regulation to motivate improved performance is effective for private operators whose profit motives are clear. However, in the case of public enterprises the regulator must identify the objectives of the managers who may be more affected by political influence, government budgeting, and bureaucratic management than are their counterparts in privately-owned operators.²²

Another financial incentive used by regulators is the levying of fines on operators for poor performance. These are generally effective for private operators if enforced, but there is a serious question about whether fines are a deterrent for public enterprises because it is the public that ultimately pays the penalty.

Ownership also affects other issues. Pricing is generally more efficient with private enterprises because the government must allow private operators' prices to cover costs over time in order to encourage investment.²³ Competition is more complicated with public enterprises than with private enterprises. Public enterprises have had success thwarting competitive entry, but experience has shown that subjecting public enterprises to competition improves efficiency relative to public ownership with no competition.

Also, the absence of equity markets for public enterprises complicates estimating the cost of capital. On the other side, the public sometimes raises concerns about private ownership of infrastructure industries, such as concerns about private investment incentives not capturing public needs for services and about foreign owners not understanding local markets and local needs.²⁴

Theories of Regulation²⁵

The development and techniques of regulation have long been the subject of academic research. Two basic schools of thought have emerged on regulatory policy, namely, positive theories of regulation and normative theories of regulation.

Positive theories of regulation examine why regulation occurs. These theories of regulation include theories of market power,²⁶ interest group theories that describe stakeholders'

²² Chapters IV and VI cover these techniques.

²³ See, for example, the case study of India electricity in Bakovic, Tenenbaum, and Woolf, March 2003.

²⁴ Section G of Chapter III covers issue of estimating the cost of capital.

²⁵ See Sections A and H.

²⁶ Chapter II addresses market power issues.

interests in regulation,²⁷ and theories of government opportunism that describe why restrictions on government discretion may be necessary for the sector to provide efficient services for customers.²⁸ In general, the conclusions of these theories are that regulation occurs because 1) the government is interested in overcoming information asymmetries with the operator and in aligning the operator's interest with the government's interest,²⁹ 2) customers desire protection from market power when competition is non-existent or ineffective, 3) operators desire protection from rivals, or 4) operators desire protection from government opportunism.

Normative theories of regulation generally conclude that regulators should encourage competition where feasible, minimize the costs of information asymmetries by obtaining information and providing operators with incentives to improve their performance,³⁰ provide for price structures that improve economic efficiency,³¹ and establish regulatory processes that provide for regulation under the law and independence, transparency, predictability, legitimacy, and credibility for the regulatory system.³²

Principal-agent theory addresses issues of information asymmetry, which in the context of utility regulation generally means that the operator knows more about its abilities and effort and about the utility market than does the regulator.³³ In this literature, the government is the principal and the operator is the agent, whether the operator is government owned or privately owned. Principle-agent theory is applied in incentive regulation and multipart tariffs.³⁴

Concluding Observations

Even though regulation is often described as a principal-agent problem between the government and the operator, there are actually several principal-agent relationships involved. The regulator is an agent for the government, serving as the principal in the government's principal-agent relationship with the operator. The government seeks to control its regulator-agent through laws, courts, budget control, fixed terms, and transparency requirements rather than through incentives. There is also a principal-agent relationship between the customers, serving as the principal, and two agents, namely the government and the regulator. Customers regulate the government and the regulator through political processes and regulatory processes reviewed in Chapter VII.³⁵

The following chapters describe numerous mechanisms of regulation. Chapter II covers the Market Structure and Competition techniques. Chapter III examines Financial Analysis,

²⁷ Chapter VII Sections A, C, and D address issues relevant to the effects of stakeholders in regulation.

²⁸ Limits to regulatory power and institutional mechanisms designed to limit opportunism are examined in Chapter VII. Incentive regulation techniques reviewed in Section IV include restrictions on regulatory discretion that are intended to limit opportunism.

²⁹ See Section H.

³⁰ See Chapters II, III, and IV for techniques for overcoming information asymmetries.

³¹ See Chapter V.

³² See Chapter VII.

³³ See Section H. See Productivity Commission of Australia (2003) for a case study in how information issues affect regulatory policy.

³⁴ Chapter IV covers incentive regulation and Chapter V notes multipart pricing.

³⁵ See Chapter VII for information regarding mechanisms used to address these principal-agent relationships.

which relates to both the information gathering and incentive regulation solutions to the information asymmetry between the regulator and the operator. It also covers additional information issues. Chapter IV focuses on using incentive regulation in Regulating Overall Price Level and Chapter V covers the related Tariff Design issues. Chapter VI focuses on Quality, Social, and Environmental Issues. Finally, Chapter VII examines the Regulatory Process, which is the public's main instrument for regulating the regulator.

Case Studies

Garg, A., M. Kabra, and R. Kacker, Regulatory Reforms in India: Effectiveness, Efficiency, and Impacts, The Energy and Resources Institute, New Delhi, India, 2003.

Guasch, J. Luis, and Pablo Spiller, Managing the Regulatory Process: Design, Concepts, Issues, and the Latin America and Caribbean Story, Washington, D.C.: The World Bank Group, 1999, Chapter 4.

Hill, Alice, and Manuel Angel Abdala, “Argentina: The Sequencing of Privatization and Regulation,” in Regulations, Institutions, and Commitment: Comparative Studies in Telecommunications edited by Brian Levy and Pablo T. Spiller. Cambridge, U.K: Cambridge University Press, 1996, pp. 202-249.

Malgas, Isaac, “Energy Stalemate: Independent Power Projects and Power Sector Reform in Ghana,” Working Paper, Management Program in Infrastructure Reform & Regulation, University of Cape Town Graduate School of Business, 2008.

Malgas, Isaac, and Katherine Nawaal Gratwick, “Through the Fire: Independent Power Projects and Power Sector Reform in Côte d’Ivoire,” Working Paper, Management Program in Infrastructure Reform & Regulation, University of Cape Town Graduate School of Business, 2008.

Mota, Raffaella Lisbôa, “The Restructuring and Privatization of Electricity Distribution and Supply Business in Brazil: A Social Cost-Benefit Analysis,” Working Paper WP 0309, University of Cambridge, Department of Applied Economics, January 2003.

OFWAT Final Determinations. Future Water and Sewerage Charges 2000-05: Periodic Review 1999. November 1999.

OFWAT, Ofwat Annual Report 2003-2004, 2004.

Paredes, Ricardo, “Redistributive Impact of Privatization and the Regulation of Utilities in Chile,” Discussion Paper 2001/19, World Institute for Development Economics Research, United Nations University, Helsinki, June 2001.

Spiller, Pablo T., and Clezly I. Sampson, “Telecommunications Regulation in Jamaica,” in Regulations, Institutions, and Commitment: Comparative Studies in Telecommunications, edited by Brian Levy and Pablo T. Spiller. Cambridge, U.K.: Cambridge University Press, 1996, pp. 36-78.

Steyn, Grové, “Investment and Uncertainty: Historical Experience with Power Sector Investment in South Africa and its Implications for Current Challenges,” Working Paper, Management Program in Infrastructure Reform & Regulation, University of Cape Town Graduate School of Business, 2006.

Toba, Natsuko, “Welfare Impacts of Electricity Generation Sector Reform in the Philippines,” Working Paper WP 0316, Department of Applied Economics, University of Cambridge, 2003.

Torero, Maximo, and Albert Pasco-Font, “Social Impact of Privatization and the Regulation of Utilities in Peru,” Discussion Paper 2001/17, World Institute for Development Economics Research, United Nations University, Helsinki, June 2001.

Table 1. Chapter I Cases by Topic Area

	Cases												
	Garg, Kabra, and Kacker, 2003.	Guasch and Spiller, 1999, Chapter 4.	Hill and Abdala, 1996.	Malgas, 2008	Malgas and Gratwick, 2008	Mota, January 2003.	OFWAT, November 1999.	OFWAT, 2004.	Paredes, June 2001.	Spiller and Sampson, 1996.	Steyn, 2006	Toba, 2003.	Torero and Pasco-Font, June 2001.
Chapter I. General Concepts													
A. Rationale for regulation			X										
B. Rationale for reform of utility markets	X					X			X			X	X
C. Common roles of regulators	X												
D. Regulatory objectives and priorities							X	X					
E. Regulation of market structure vs. regulation of conduct													
F. Regulation of public vs. private companies, of existing vs. new firms											X		
G. Private participation in infrastructure				X	X								
H. Regulatory instruments		X								X			
I. Information asymmetry and limits to regulation													
J. Law and Economics													

References

- A. **Rationale for regulation, including regulation of monopolies and oversight of competitive markets, public interest theory, interest group theory, and the difference between normative and positive theories of regulation.**

Core References

Baldwin, Robert, and Martin Cave, Understanding Regulation: Theory, Strategy, and Practice, Oxford: Oxford University Press, 1999, Chapters 2-3.

Examines the rationale for regulation, including issues of monopoly and market power, externalities, information asymmetries, and public goods. Also summarizes positive theories of regulation, including public interest theories, interest group theories, and private interest theories.

Guasch, J. Luis, and Pablo Spiller, Managing the Regulatory Process: Design, Concepts, Issues, and the Latin America and Caribbean Story, Washington, D.C.: The World Bank Group, 1999, Chapter 2.

Explains contracting issues that give rise to regulation, including problems of government commitments to the operator, market failure, desire for cross subsidies, and interest group politics.

Kahn, Alfred. The Economics of Regulation: Principles and Institutions. Cambridge, MA: MIT Press, 1988, Reissue Edition, vol. I, Chapter 1.

Explains common reasons cited for regulation, including the importance of the sector, the existence of natural monopoly or market failure, the desire of government to use franchises or to encourage non market-based outcomes (such as service distribution), problems with destructive competition or undesirable discrimination, cream-skimming, and excessive non-price rivalry. Also describes the legal rationale for regulation in the U.S.

Newbery, David M., Privatization, Restructuring, and Regulation of Network Industries. Cambridge, MA: MIT Press, 1999, Chapters 1 and 4.

Describes normative and positive theories of regulation. Explains that “regulation ... is inevitably inefficient because of problems of information and commitment and, more fundamentally, because of inefficient bargaining between interest groups over potential utility rents.”

Sectoral References

ELECTRICITY

Besant-Jones, John E., “Reforming Power Markets in Developing Countries: What Have We Learned?” Energy and Mining Sector Board Discussion Paper No. 19. Washington, D.C.: World Bank, September 2006.

Describes motivations for electricity sector reform, the strategic decisions, and lessons from case studies.

GAS

Juris, Andrej, “Competition in the Natural Gas Industry: The emergence of spot, financial, and pipeline capacity markets.” Note no. 137 in Public Policy for the Private Sector. Washington, D.C.: World Bank Group, March 1998.

Describes basic restructuring and trading arrangements in gas and pipeline markets.

TELECOMMUNICATIONS

ICT Regulation Toolkit. Washington, D.C.: infoDev and the International Telecommunications Union, 2007, Module 1.

Provides an overview of reasons for regulation of private telecommunications operators.

Wellenius, Björn, “Telecommunications Reform – How to Succeed,” in Public Policy for the Private Sector. Washington, D.C.: World Bank, October 1997.

Explains role of regulation in telecommunications reforms.

TRANSPORTATION

Kopicki, Ron and Louis Thompson Best Methods of Railway Restructuring and Privatization CFS Discussion Paper Series, number 11, World Bank, Washington, D.C., 1995.

Provides context and guidance to restructure the railways. Addresses distinct structural issues associated with rail enterprise reform, design of specialized intermediary institutions that carry out much of the work of railway

restructuring, and management techniques that are appropriately adapted to railway reform and restructuring. Focuses on "best" methods built on seven case studies of recent railway restructuring efforts: Japan National Railway, New Zealand Railways, Argentina Railways, Swedish Railways, British Railways, and railroads in the United States, and Canadian Railways.

World Bank and Sub-Saharan Africa Transportation Project [Africa Infrastructure Country Diagnostic: Stuck in Traffic: Urban Transport in Africa](#) Working Paper number 44980, World Bank, Washington, D.C., 2008.

Summarizes recent research on urban transport in 14 large African cities. Provides a comprehensive overview of the state of urban transport in Africa, with a view to drawing out the main challenges facing the sector and illustrating the different ways in which these have been addressed.

Estache, Antonio [Privatization and Regulation of Transport Infrastructure: Guidelines for Policymakers and Regulators](#), World Bank Institute Development Study, World Bank, Washington, D.C., 2000.

Addresses liberalization of transport policies and the role played by private operators and investors in transport infrastructure. Provides an overview of why economic regulation is important and examines four subsectors: airports, ports, railways, and roads. Discusses for each subsector: relevance from the viewpoint of a regulator; main privatization and regulation trends; price and quality regulation issues that characterize the sector, and performance indicators that the sector's regulators should be able to rely on to be effective in their jobs.

Amos, Paul [Public and Private Sector Roles in the Supply of Transport Infrastructure and Services](#) Transportation Paper Series number 1, World Bank, Washington, D. C., 2004.

Provides a framework for identifying and assessing the different models for public and private roles in the transport sector. Highlights policy and regulatory issues which are important in judging the suitability of different models; and summarizes the range of instruments available.

WATER

[Water Toolkit Module 1: Selecting an Option for Private Sector Participation](#). Washington, D.C.: World Bank, 1997.

Describes options for private sector participation in the provision of water services. Also gives a brief overview of why some countries choose private participation.

Key Words

Privatization, Regulation, Liberalization, Market Reform

- B. Rationale for reform of infrastructure markets (e.g. fiscal constraints, technological change, policy innovations, incentives for efficiency) and the elements of market reform, including private participation, liberalization, and regulation**

Core References

Harris, Clive, Private Participation in Infrastructure in Developing Countries: Trends, Impacts, and Policy Lessons. Washington, D.C.: World Bank, 2003.

Explains the rise and fall of both public sector monopolies and private participation in infrastructure. Describes when private sector participation improves results and how important regulatory issues, such as pricing and competition, need to be addressed if private participation in infrastructure is to succeed.

Klein, Michael, and Neil Roger, “Back to the Future: The Potential in Infrastructure Privatization,” Note No. 30 in Public Policy for the Private Sector. Washington, D.C.: World Bank, November 1994.

Describes the cycles of private and public provision of infrastructure. Examines role of regulation in providing stability to the sectors.

Laffont, Jean-Jacques, Regulation and Development. Cambridge: Cambridge University Press, 2005.

Explains that the proper mode of provision of utility services can vary over time and depends on a country’s political, cultural, and institutional features. Examines developing country context in depth.

Sectoral References

ELECTRICITY

Hunt, Sally, Making Competition Work in Electricity. New York: Wiley & Sons, 2002, Chapters 1-2.

Describes reasons for restructuring electricity markets and the economics of the alternative industry structures.

GAS

Juris, Andrej, “Competition in the Natural Gas Industry: The emergence of spot, financial, and pipeline capacity markets.” Note no. 137 in Public Policy for the Private Sector. Washington, D.C.: World Bank Group, March 1998.

Describes basic restructuring and trading arrangements in gas and pipeline markets.

TELECOMMUNICATIONS

ICT Regulation Toolkit. Washington, D.C.: infoDev and the International Telecommunications Union, 2007, Module 1.

Provides an overview of reasons for regulation of private telecommunications operators.

Smith, Peter, “What the Transformation of Telecom Markets Means for Regulation,” Note no. 121 in Public Policy for the Private Sector. Washington, D.C.: World Bank Group, 1997.

Examines the implications of dynamics of telecommunications technologies and markets for regulation.

TRANSPORTATION

CPCS Transcom, Urban Bus Toolkit: Tools and Options for Reforming Urban Bus Systems Public-Private Infrastructure Advisory Facility, World Bank.

Toolkit designed to help government officials and policy makers evaluate existing and alternative urban bus systems in developing and transitional countries. Offers practical advice to enact fundamental system reforms.

World Bank Transport Group, Port Reform Toolkit, 2nd Edition Public-Private Infrastructure Advisory Facility, World Bank.

Provides policymakers and practitioners guidance for undertaking sustainable and well-considered reforms of public institutions that provide, direct, and regulate port services in developing countries.

Kopicki, Ron and Louis Thompson Best Methods of Railway Restructuring and Privatization CFS Discussion Paper Series, number 11, World Bank, Washington, D.C., 1995.

Provides context and guidance to restructure the railways. Addresses distinct structural issues associated with rail enterprise reform, design of specialized intermediary institutions that carry out much of the work of railway restructuring, and management techniques that are appropriately adapted to railway reform and restructuring. Focuses on "best" methods built on seven case studies of recent railway restructuring efforts: Japan National Railway, New Zealand Railways, Argentina Railways, Swedish Railways, British Railways, and railroads in the United States, and Canadian Railways.

Estache, Antonio Privatization and Regulation of Transport Infrastructure: Guidelines for Policymakers and Regulators World Bank Institute Development Study, World Bank, Washington, D.C., 2000.

Addresses liberalization of transport policies and the role played by private operators and investors in transport infrastructure. Provides an overview of why economic regulation is important and examines four subsectors: airports, ports, railways, and roads. Discusses for each subsector: relevance from the viewpoint of a regulator; main privatization and regulation trends; price and quality regulation issues that characterize the sector, and performance indicators that the sector's regulators should be able to rely on to be effective in their jobs.

WATER

Bitran, Gabriel, and Pamela Arellano. "Regulating Water Services: Sending the Right Signals to Utilities in Chile," Note no. 286. March 2005.

Examines how during the 1980s and 1990s the Chilean water and sanitation sector underwent deep reforms so that private capital could finance the huge investments needed to achieve universal service. Investigates key features of the new regulatory scheme that contributed to the sustainability of the reforms: a phased approach, an efficient pricing policy and methodology, and expert panels to deal with conflict resolution.

Savedoff, William, and Pablo Spiller. "Government Opportunism and the Provision of Water," in Spilled Water: Institutional Commitment in the Provision of Water Services, edited by William Savedoff and Pablo Spiller. Washington, D.C.: Inter-American Development Bank, 1999, pp.1-34.

Describes roles that regulation may play in decreasing government opportunism for both private operators and public operators.

Other References

Wallsten, Scott J, “An Empirical Analysis of Competition, Privatization, and Regulation in Telecommunications Markets in Africa and Latin America,” *Policy Research Working Paper 2136*. Washington, D.C.: World Bank, May 1999.

Examines the effects of telecommunications reforms in Africa and Latin America. Finds that privatization and an independent regulator together improve sector performance. Privatization alone yields few benefits and has some negative effects. Competition increases per capita number of mainlines, payphones, and connection capacity, and decreases the price of local calls.

Key Words

Market Reform, Competition, Regulation, Franchising, Cross-subsidization, Privatization.

C. Common roles of regulators

Note: Readers should cross-reference this section with Chapter I Section D on objectives and priorities and with Chapter VIII Section A Subsection 2 on agency responsibilities.

Core References

Guasch, J. Luis, and Pablo Spiller, Managing the Regulatory Process: Design, Concepts, Issues, and the Latin America and Caribbean Story, Washington, D.C.: The World Bank Group, 1999, Chapters 2 and 3.

Describes the design of regulatory agencies and relates the design to the reasons for regulation. Provides a case study of Jamaica.

Kahn, Alfred. The Economics of Regulation: Principles and Institutions. Cambridge, MA: MIT Press, 1988, Reissue Edition, vol. I, Chapter 2.

Describes the basic economic functions of the utility regulator, focusing primarily on service quality, controlling the overall price level, and determining rate structure.

Smith, Warrick, “Utility Regulators: Roles and Responsibilities.” Note no. 128 in Public Policy for the Private Sector. Washington, D.C.: World Bank Group, 1997.

Examines issues of sector coverage, relationships with ministers, and relationships with other government agencies.

Sectoral References

ELECTRICITY

Brown, Ashley C., and Ericson De Paula, "Strengthening of the Institutional and Regulatory Structure of the Brazilian Power Sector," World Bank Report on the PPIAF Project for Brazil Power Sector, Task 4, December 2002.

Examines regulatory roles in granting concessions, conducting auctions, and sector planning. Roles in auctions include setting the terms and conditions and ensuring that auctions are conducted fairly and transparently. Describes potential conflicts of interest in having regulators involved in concessions and auctions. Also describes key considerations in deciding whether regulators should have roles in sector planning.

TELECOMMUNICATIONS

Henten, Anders, Rohan Samarajiva, and William H. Melody, "Designing Next Generation Telecom Regulation: ICT Convergence or Multisector Utility?" Center for Information and Communication Technologies, Technical University of Denmark, Lyngby, January 2003.

Examines how convergence raises new regulatory issues such as security, privacy and consumer protection. It may also lead to the integration of telecom and broadcast media regulation. Also examines advantages and disadvantages of multi-sector regulators.

Min, Wonki, "Telecommunications Regulations: Institutional Structures and Responsibilities." Working Paper no. 237, Organization for Economic Co-operation and Development (OECD), Washington, D.C., 26 May 2000.

Explains that there is a lot of variety among nations on the roles of regulators. Typical responsibilities of the regulator (or ministry) include licensing, interconnection, spectrum management, numbering, price regulation, universal service, and service quality.

Schwarz, Tim, and David Satola, "Telecommunications Legislation in Transitional and Developing Economies," World Bank Technical Paper No. 489, October 2000.

Examines the design of telecommunications legislation in transitional and developing economies for liberalizing and privatizing telecommunications. Provides a framework for debate on a policy level about a variety of issues. Also examines international best practice.

TRANSPORTATION

Ayogu, Melvin D. *Case Studies: Private Sector Participation in Infrastructure in Uganda, Ghana, and Nigeria* Working Paper number 44, African Development Bank, Washington, D.C., 2004.

Finds that Governments can be slow to admit private participation in infrastructure even with good evidence that involving the private sector is welfare improving. Pressure to dislodge bureaucrats and involve more private participation must be sustained. Also argues that an ideal regulatory regime is one that evolves into a buffer between operators and government, ensuring that operators conform to economic and social objectives, resolves disputes between competitors and between consumers and operators, as well as monitors changing industry conditions. The more activities that reside in the private sector, the better the prospects that the regulator would be unhampered by political interference.

Valletti, Tommaso and Antonio Estache The Theory of Access Pricing Policy, Research Working Paper 2097, World Bank, Washington, D.C., 1999.

Discusses access pricing which is an important component of a regulatory environment guaranteeing that competitors have access to the services of potential "bottleneck" facilities too costly to duplicate. Rules covering fair access to these facilities - including fair access prices - generally improve economic efficiency by easing competition in markets both upstream and downstream from the bottleneck. Appropriate access pricing rules are especially needed when a dominant firm controls the supply of one or more inputs -- for example, gas transportation, electricity transmission, local telecommunication access, or railway track -- vital for its competitors.

Estache, Antonio Privatization and Regulation of Transport Infrastructure: Guidelines for Policymakers and Regulators World Bank Institute Development Study, World Bank, Washington, D.C., 2000.

Addresses liberalization of transport policies and the role played by private operators and investors in transport infrastructure. Provides an overview of why economic regulation is important and examines four subsectors: airports, ports, railways, and roads. Discusses for each subsector: relevance from the viewpoint of a regulator; main privatization and regulation trends; price and quality regulation issues that characterize the sector, and performance indicators that the sector's regulators should be able to rely on to be effective in their jobs.

Amos, Paul Public and Private Sector Roles in the Supply of Transport Infrastructure and Services Transportation Paper Series number 1, World Bank, Washington, D. C., 2004.

Provides a framework for identifying and assessing the different models for public and private roles in the transport sector. Highlights policy and

regulatory issues which are important in judging the suitability of different models; and summarizes the range of instruments available.

Coelli, Tim, Antonio Estache, Sergio Perelman, and Lourdes Trujillo A Primer on Efficiency Measurement for Utilities and Transport Regulators World Bank, Washington, D.C., 2003.

Provides an overview of the techniques offered to regulators of recently “privatized” utilities and transport services. Designed as a starter kit, it surveys the options available and provides guidelines as to how to choose between these options, identifying the costs and benefits of the various approaches in situations most relevant to regulators. Covers the measurement of efficiency in the context of a tariff revision aiming at redistributing at least some of the efficiency gains from the producers to the users. Also addresses the challenges from comparative efficiency assessments allowing the introduction of yardstick competition.

WATER

OFWAT, “The Role of the Regulator,” 2002.

Describes Ofwat’s roles and practices in the U.K.

Other References

Hayek, F.A., The Road to Serfdom. Chicago: University of Chicago Press, 1944 (reprinted 1994), Chapter 6.

Explains how expert agencies necessarily apply their value systems in carrying out their responsibilities.

Key Words

Regulation, Regulatory agencies, Service quality, Rates, Prices, Planning

D. Regulatory objectives and priorities, including trade-offs in objectives and achieving balance in pursuing objectives.

Note: Readers should cross-reference this section with Chapter I Section C on roles of regulators and Chapter VIII Section A Subsection 2 on agency responsibilities.

Core References

Guasch, J. Luis, and Pablo Spiller, Managing the Regulatory Process: Design, Concepts, Issues, and the Latin America and Caribbean Story, Washington, D.C.: The World Bank Group, 1999, Chapters 2 and 16.

Describes the design of regulatory agencies and relates the design to the reasons for regulation. Summarizes lessons in regulatory design.

Irwin, Timothy and Chiaki Yamamoto, “Some Options for Improving the Governance of State-Owned Electricity Utilities,” Washington, D.C.: The World Bank, 2004.

Improving performance of government-owned electricity utilities rests on the development of rules and practices that reduce politicians’ willingness or ability to use the utilities for political purposes and pressures utilities to improve performance. Focuses on the relationship between the company and the government as its owner.

Kahn, Alfred, The Economics of Regulation: Principles and Institutions. Cambridge, MA: MIT Press, 1988, vol. I, Chapters 1 and 2.

Explains the traditional reasons for regulation. Describes the basic economic functions of the utility regulator, focusing primarily on service quality, controlling the overall price level, and determining rate structure.

Mwenechanya, Jorry, “Regional Electricity Regulatory Principles.”

Assesses the regulatory practices in southern Africa and recommends principles and strategies for promoting investment.

Sectoral References

ELECTRICITY

Newbery, David M., Privatization, Restructuring, and Regulation of Network Industries. Cambridge, MA: MIT Press, 1999, Chapter 6.

Describes the goals and objectives of electricity regulation and electricity market reform. Summarizes U.K. case of electricity reform.

GAS

Armstrong, Mark, Simon Cowan, and John Vickers, Regulatory Reform: Economic Analysis and British Experience, Cambridge, MA: The MIT Press, 1999, Chapter 8.

Describes the goals and objectives of gas regulation and gas market reform. Summarizes U.K. case of gas reform.

TELECOMMUNICATIONS

Armstrong, Mark, Simon Cowan, and John Vickers, Regulatory Reform: Economic Analysis and British Experience, Cambridge, MA: The MIT Press, 1999, Chapter 7.

Describes the goals and objectives of telecommunications regulation and telecommunications market reform. Summarizes U.K. case of telecommunications market reform.

TRANSPORTATION

Report of the Canada Transportation Act Review Panel. Vision and Balance. Government of Canada, 2001.

Describes the context for transportation regulation and how it has changed since 1961. The principle of competition between modes became a cornerstone of the policy. Current policy involves tradeoffs of commercialization and decentralization, with a shift toward a more commercial approach and a reduction in subsidies.

Groupe Egis and Courdert Brothers, Toolkit on Public-Private Partnerships in Highways Public-Private Infrastructure Advisory Facility, World Bank.

Provides policy makers from low- and middle- income countries guidance in the design and implementation of Public-Private Partnerships in the highway sector. Covers all types of road projects and both with and without private funding.

World Bank Transport Group, Port Reform Toolkit, 2nd Edition Public-Private Infrastructure Advisory Facility, World Bank.

Provides policymakers and practitioners guidance for undertaking sustainable and well-considered reforms of public institutions that provide, direct, and regulate port services in developing countries.

World Bank and Sub-Saharan Africa Transportation Project Africa Infrastructure Country Diagnostic: Stuck in Traffic: Urban Transport in Africa Working Paper number 44980, World Bank, Washington, D.C., 2008.

Summarizes recent research on urban transport in 14 large African cities. Provides a comprehensive overview of the state of urban transport in Africa, with

a view to drawing out the main challenges facing the sector and illustrating the different ways in which these have been addressed.

World Bank Scoping Study – Urban Mobility in Three Cities: Addis Ababa, Dar es Salaam, and Nairobi Sub-Saharan Africa Transport Program Working Paper, number 70, World Bank, Washington, D.C., 2002.

Reports the results of a study of urban mobility in three Sub-Saharan African cities - Addis Ababa, Ethiopia; Nairobi, Kenya; and, Dar-es-Salaam, Tanzania. A major impediment is poor institutional structures and, consequently, a lack of leadership. Concludes that the only way to derive significant improvements in the performance of the urban transport sector, is to reorganize the way in which urban transport is planned, and developed.

WATER

Shirley, Mary M., and Claude Ménard. “Cities Awash: A Synthesis of the Country Cases,” in Thirsting for Efficiency, edited by Mary M. Shirley. Washington, D.C.: The World Bank, 2002, pp.1-41.

Describes the major issues facing water regulators and water sector reformers. Identifies lessons from a series of case studies.

Key Words

Bargaining, Information, Monopoly, Negotiation, Competition, Efficiency, Fairness, Objectives

E. Regulation of market structure vs. regulation of conduct

Core References

Baldwin, Robert, and Martin Cave, Understanding Regulation: Theory, Strategy, and Practice, Oxford: Oxford University Press, 1999, Chapters 4 and 16.

Describes basic regulatory strategies, such as command and control, self-regulation, incentive regulation, and competition. Examines basic approaches that regulators use to facilitate competition.

Klein, Michael, and Philip Gray, “Competition in Network Industries – Where and How to Introduce It.” Note no. 104 in Public Policy for the Private Sector. Washington, D.C.: World Bank Group, 1997.

Explains concepts of competition for the market, competition over existing networks, and competition among networks with practical examples. Describes various options for using competition in these sectors, including franchising, open access, pooling, and timetabling. Explains that how network competition is introduced and how effectively and easily it is implemented will vary from one network industry to another. General rules for deciding where and how to introduce competition are discussed.

Klein, Michael, and Neil Roger, “Back to the Future: The Potential in Infrastructure Privatization.” Note no. 30 in Public Policy for the Private Sector. Washington, D.C.: World Bank Group, 1994.

Describes problems of monopoly provision of utility services. Explains that competition can overcome some of the institutional weaknesses that limit the effectiveness of regulation.

Sectoral References

ELECTRICITY

Hunt, Sally, Making Competition Work in Electricity. New York: Wiley & Sons, 2002, Chapters 1-2.

Argues that competition is more effective than regulated monopoly for efficiently providing services. Competition assigns risks to shareholders while regulated monopoly assigns risks to customers. Technical complexity of electricity industry needs to be understood before adopting reforms.

TELECOMMUNICATIONS

Smith, Peter, “What the Transformation of Telecom Markets Means for Regulation.” Note no. 121 in Public Policy for the Private Sector. Washington, D.C.: World Bank Group, 1997.

States that it is also becoming increasingly difficult to regulate telecommunications services separately due to increased substitutability of goods across sectors and a convergence within industries. Governments are finding it beneficial to use competition rather than regulation of conduct to improve sector performance.

TRANSPORTATION

Austria, M.S. Liberalization of the Philippine international air transport industry: que pasó? Competition policy is an essential factor for successful liberalization of the airline industry in Philippines. Paper provided by Philippine Institute for Development Studies (PIDS), Philippines , 2001.

Analyzes the liberalization and deregulation policy for the international air transport industry in the Philippines. Examines the effects of these policies on competition and market structure, and identifies areas where reforms are needed. Emphasizes the importance of the policy and recommends that competition policy should focus on, among others: (1) market access; (2) access to inputs; and (3) mergers and acquisitions.

Key Words

Competition, Cross-subsidization, Privatization, Regulation

F. Regulation of public companies vs. regulation of private companies, regulation of existing vs. new firms

Note: Readers should cross-reference this section with chapters on market structure, financial analysis, pricing, and regulatory process for information on these issues as they relate to public enterprises.

Core References

Eberhard, A. and M. Mtepa, “Rationale for restructuring and regulation of a low priced public utility: a case study of Eskom in South Africa,” *International Journal of Regulation and Governance* 3(2): 77-102.

Uses the case of Eskom in South Africa to examine the rationale for reforming oversight of a publicly-owned operator. Examines issues of financial performance, price levels and trends, investment, labor costs, and incentives.

Irwin, T. and C. Yamamoto, “Some Options for Improving the Governance of State-Owned Electricity Utilities,” The World Bank, Discussion Paper No. 11, February 2004.

Examines performance issues in state-owned electricity distributors and suggests options for improving performance. Considers applying private-sector company law, legislation and contracts, public reporting, corporate culture, pressure from lenders, listing minority shares, and techniques for alleviating the government’s conflict of interest as owner and policy-maker.

Jones, Leroy P., "Performance Evaluation for State-owned Enterprises," in Privatization and Control of State-owned Enterprises, edited by Ravi Ramamurti and Raymond Vernon. World Bank Economic Development Institute, 1991, pp. 179-205.

Describes an approach for regulating state-owned enterprises. The approach consists of a performance evaluation system, a performance information system, and an incentive system.

Newbery, David, Privatization, Restructuring, and Regulation of Network Utilities. Cambridge, MA: MIT Press, 2001, Chapters 3 and 5.

Compares incentives and performance of public versus private enterprises. States that public enterprises are subject to greater government control and so serve the interests of the government. Private enterprises respond to profit incentives and so are governed by incentive regulation. Empirical studies find that public enterprises have lower prices than private enterprises, but studies of cost differences are inconclusive. Liberalization is complicated by public enterprises.

Ramamurti, Ravi, "Controlling State-owned Enterprises," in Privatization and Control of State-owned Enterprises, edited by Ravi Ramamurti and Raymond Vernon. World Bank Economic Development Institute, 1991, pp. 206-233.

Examines why state-owned enterprises have in general not been successful. Suggests a contracting system that could improve performance.

Ramamurti, Ravi, "The Search for Remedies," in Privatization and Control of State-owned Enterprises, edited by Ravi Ramamurti and Raymond Vernon. World Bank Economic Development Institute, 1991, pp. 7-25.

Provides an overview of problems and possible solutions in privatizing and regulating state-owned enterprises.

Sectoral References

GAS

Productivity Commission of Australia, "Review of the Gas Access Regime: Draft Report," Melbourne, Australia, 2003.

Examines the regulation of established systems versus "greenfield" systems.

TRANSPORTATION

de Ávila, Gomide Economic regulation and cost-efficiency in Brazilian urban public transport: the case of Belo Horizonte Institute of Applied Economic Research, Brazil, 2004.

Analyses the main outcomes and consequences of the bidding process for urban bus services in Belo Horizonte, Brazil, focusing on economic efficiency and changes in fares. Concludes that contracting out bus services does not necessarily ensure cost-efficiency in the absence of a well-devised competitive tendering process and an effective regulatory framework, and that more attention should be given to these considerations in the design of future bidding processes

Kopicki, Ron and Louis Thompson Best Methods of Railway Restructuring and Privatization CFS Discussion Paper Series, number 11, World Bank, Washington, D.C., 1995.

Provides context and guidance to restructure the railways. Addresses distinct structural issues associated with rail enterprise reform, design of specialized intermediary institutions that carry out much of the work of railway restructuring, and management techniques that are appropriately adapted to railway reform and restructuring. Focuses on "best" methods built on seven case studies of recent railway restructuring efforts: Japan National Railway, New Zealand Railways, Argentina Railways, Swedish Railways, British Railways, and railroads in the United States, and Canadian Railways.

Queiroz, Cesar Launching Public Private Partnerships for Highways in Transition Economies Transportation Paper series number 9, World Bank, Washington, D.C., 2005.

Holds that there is a large potential for more private sector involvement in the financing and operation of highway assets in transition economies. Reviews potential applications of partial risk guarantees, the required legal framework (for example, concession law) for attracting private capital for PPP schemes, possible steps for a country to launch a program of private participation in highways, the concept of greenfield and road maintenance concession programs, and the treatment of unsolicited proposals.

WATER

Baietti, W. Kingdom, W. and van Ginneken, M., "Characteristics of Well-Performing Public Water Utilities," World Bank: Water Supply and Sanitation Working Notes. Note No. 9, May 2006.

Identifies attributes of well run public utilities and identifies important factors that influence their performance. It proposes a framework of assessing

public utility governance: accountability, autonomy, customer orientation and market orientation.

Nigel Annett, Chris Jones, and Jeremy Liesner, “Glas Cymru - harnessing the fundamentals of water service delivery,” Regulatory Review, P. Vass, ed., Centre for Regulated Industries, Bath University, 2002/3.

Describes the strategy, operations, and financial make-up of Glas Cymru, a not-for-profit water operator in the U.K.

Key Words

Public enterprise, Private enterprise, State-owned enterprise, Competition, Liberalization

G. Options and critiques for private participation in infrastructure

Note: Readers should cross-reference this section with chapters on market structure, financial analysis, pricing, and regulatory process for information on these issues as they relate to public enterprises.

Core References

“The Challenge of Reducing Non-Revenue Water (NRW) in Developing Countries. How the Private Sector Can Help: A Look at Performance-Based Service Contracting,” World Bank: Water Sector Board Discussion Paper Series, Paper No. 8, March 2007.

Examines a number of case studies, taken from some of the largest and most recent performance-based NRW contracts. Lessons learned from the case studies are analyzed, showing the potential benefits of NRW performance-based service contracting with the private sector

Covindassamy, M. Ananda, Daizo Oda, and Yabei Zhang, “Analysis of Power Projects with Private Participation under Stress,” Washington, D.C.: The World Bank, 2005.

Examines issues of distress in private participation situations. Concludes that reforms without a strong consensus is a major cause of distress for power projects and that power projects need financial instruments to address macroeconomic instability while maintaining politically sustainable prices.

Ringskog, Klas Mary-Ellen Hammond and Alain Locussol, “The Impact From Management And Lease/Affermage Contracts,” Washington, D.C.: Public-Private Infrastructure Advisory Facility (PPIAF), 2006.

Reviews results from contracts with the private sector in water. Examines risk allocation, impacts on performance, and cost and financing of the contracts.

Rodriguez Pardina, Martin, and Richard Schlirf Rapti, "Regulatory Requirements Under Different Forms of Utility Service Delivery," Macroconsulting, February 2007.

Examines forms of contracts with private sector participants. Draws lessons from examination of case studies from Mali (electricity production and distribution, concession), Senegal (water production and distribution; affermage), Niger (water production and distribution; affermage), Argentina (electricity distribution; concession) and Peru (water production and distribution; concession).

Sectoral References

WATER

"Engaging Local Private Operators in Water Supply and Sanitation Services: Initial Lessons from Emerging Experience in Cambodia, Colombia, Paraguay, The Philippines, and Uganda," World Bank: Water Supply and Sanitation Sector Board Working Note, Paper No. 12, December 2006.

Explains that developing effective partnerships between government institutions and local private operators of water supply and sanitation services poses a number of challenges with respect to contract design, selection criteria and procedures, financing arrangements, risk mitigation instruments, performance improvement measures to develop technical skills and promote efficiency, and the regulatory and monitoring framework. Assesses how governments in five countries supported by World Bank projects have gone about addressing these challenges.

"Getting the Assumptions Right: Private Sector Participation Transaction Design and the Poor in Southwest Sri Lanka," World Bank: Water Supply and Sanitation Sector Board Discussion Paper Series, Paper No. 7, October 2006.

Investigates how a set of basic assumptions on service coverage, service levels, tariffs, and subsidies in the proposed transactions in Southwest Sri Lanka held up against consumer preferences.

"Innovative Contracts, Sound Relationships: Urban Water Sector Reform in Senegal," World Bank: Water Supply and Sanitation Sector Board Discussion Paper Series, Paper No. 1, January 2004.

Analyzes a successful reform process in Senegal. Describes how several years of hard work reforming the sector resulted in considerable improvements in services for existing customers and expansion to new customers.

Key Words

Private Sector, Contract, Public Private Partnership

H. Regulatory instruments (primary and secondary legislation, licenses, concessions)

Core References

Baldwin, Robert, and Martin Cave, Understanding Regulation: Theory, Strategy, and Practice, Oxford: Oxford University Press, 1999, Chapter 4.

Describes basic regulatory strategies, such as command and control, self-regulation, incentive regulation, and competition. Examines basic approaches that regulators use to facilitate competition.

Guasch, J. Luis, and Pablo Spiller, Managing the Regulatory Process: Design, Concepts, Issues, and the Latin America and Caribbean Story, Washington, D.C.: The World Bank Group, 1999, Chapter 3.

Describes the basic regulatory instruments and provides examples of where they have been used. Considers legislation, presidential decrees, and contracts.

Gómez-Ibáñez, José, Regulating Infrastructure: Monopoly, Contracts, and Discretion. Cambridge, MA: Harvard University Press, 2003, Chapters 1-2.

Views infrastructure regulation as a contracting problem and examines the choice of regulatory instrument. Considers contract completeness, private contracts, concession contracts, and discretionary regulation. Also examines variants of these contract types and hybrids.

IPART, “Review of Electricity and Gas Licensing Regimes in NSW – Final Report,” Independent Pricing and Regulatory Tribunal of New South Wales, January 2003.

Examines IPART’s licensing scheme, considering transparency, compliance and monitoring costs, and incentives.

Sectoral References

ELECTRICITY

Bakovic, T., B. Tenenbaum, and R. Woolf, "Regulation by Contract: A New Way to Privatize Electricity Distribution?" Energy and Mining Sector Board Discussion Paper Series Paper no. 7, March 2003.

Describes a contracting approach to regulating electricity distribution companies. Identifies the key characteristics of this approach, how contracts deal with various financial issues, and how regulators deal with disputes.

TELECOMMUNICATIONS

ICT Regulation Toolkit. Washington, D.C.: infoDev and the International Telecommunications Union, 2007, Module 3.

Describes how to write and issue a license to provide telecommunications services, including the objectives of licensing, the relationship with other regulatory instruments and with trade agreements, licensing new entrants versus incumbents, designing and auctioning spectrum licenses, and how to maintain transparency.

Schwarz, Tim, and David Satola, "Telecommunications Legislation in Transitional and Developing Economies," World Bank Technical Paper No. 489, October 2000.

Examines elements of telecommunications legislation for developing economies. Considers privatization, liberalization, WTO agreement, licensing, numbering, infrastructure sharing, competitive issues, property law, spectrum, and the structure and role of the regulatory agency.

TRANSPORTATION

Fisher, Gregory and Suman Babbar Private Financing of Toll Roads RMC Discussion Paper Series, number 117, World Bank, Washington, D.C., 1996.

Provides an overview of the issues and challenges related to private toll road development. Eight case studies are employed, covering a range of physical and market characteristics, country and concession environments, public-private risk sharing arrangements, and financial structures.

Kerf, Michael et al. Concessions for Infrastructure: A Guide to Their Design and Award Finance, Public Sector, and Infrastructure Network, WTP 399, World Bank, Washington, D.C., 1998.

Provides a guide to the complex range of issues and options related to design, award, implementation, monitoring, and modification of concessions. The main rationale for concessions is that they can facilitate the regulation of natural monopolies. They can be used to create competition for the market under conditions in which the service provider has significant market power.

Kopicki, Ron and Louis Thompson Best Methods of Railway Restructuring and Privatization CFS Discussion Paper Series, number 11, World Bank, Washington, D.C., 1995.

Provides context and guidance to restructure the railways. Addresses distinct structural issues associated with rail enterprise reform, design of specialized intermediary institutions that carry out much of the work of railway restructuring, and management techniques that are appropriately adapted to railway reform and restructuring. Focuses on "best" methods built on seven case studies of recent railway restructuring efforts: Japan National Railway, New Zealand Railways, Argentina Railways, Swedish Railways, British Railways, and railroads in the United States, and Canadian Railways.

Amos, Paul Public and Private Sector Roles in the Supply of Transport Infrastructure and Services Transportation Paper Series number 1, World Bank, Washington, D. C., 2004.

Provides a framework for identifying and assessing the different models for public and private roles in the transport sector. Highlights policy and regulatory issues which are important in judging the suitability of different models; and summarizes the range of instruments available.

Bousquet, Franck and Alain Fayard Road Infrastructure Concession Practice in Europe French Highway Directorate, Paris, 2001.

Reviews road infrastructure concessions in Europe with special emphasis on the role of public authorities as overseers of the concessions.

WATER

Water Toolkit Module 1: Selecting an Option for Private Sector Participation. Washington, D.C.: World Bank, 1997.

Outlines the broad-brush analysis required to assess the need and potential for introducing private participation and selecting a mode of private sector participation.

The World Bank, New Designs for Water and Sanitation Transactions Making Private Sector Participation Work for the Poor, Washington, D.C.: The World Bank (undated).

Examines regulatory instruments and policies for improving water and wastewater services to the poor. Considers elements of water reform, legal and policy frameworks, contracts, tariff design, and reform strategies.

Key Words

Contract regulation, License, Regulation, Legal frameworks, Franchise, Concession, Legislation, Statute

I. Informational asymmetry, limits to regulation, and implications for using incentives versus command and control

Core References

Newbery, David. Privatization, Restructuring, and Regulation of Network Utilities. Cambridge, MA: MIT Press, 2001, Chapter 2.

Explains that the interaction between the regulator and the regulated firm can be modeled as a game in which the regulated firm has private information. The regulator chooses and announces the incentives that the regulator will provide the firm. Then the firm decides how it will operate. Next the regulator observes the operations and allows the firm the incentives promised. If the firm does not believe that the regulator will keep her commitment, the firm will not perform optimally.

Sappington, David E.M., and Dennis L. Weisman, Designing Incentive Regulation for the Telecommunications Industry. Cambridge, MA: MIT Press, 1996, Chapter 1.

Explains that incentive regulation is useful because the firm has (or can acquire) better information than the regulator about important aspects of the industry and the firm's objectives and the consumers' objectives are different. If the regulator had the same information that the firm has, then the regulator could simply micromanage the firm. If the firm had the same goals as consumers, then the firm would naturally do exactly what the regulator wanted the firm to do. In most situations, however, the firm has better information than the regulator and seeks to maximize its profits (whereas consumers seek to maximize their surplus), so incentive regulation can be used to improve the operator's performance.

Vickers, John, and George Yarrow, Privatization: An Economic Analysis. Cambridge, MA: MIT Press, 1988, pp. Chapter 2.

Explains that information asymmetry is at the heart of the economics of regulation. A fully informed regulator with complete authority could simply order the firm to choose the first-best outcome. However, regulators are never fully informed and have limited powers. “The problem for regulatory policy is one of incentive mechanism design – how to induce the firm to act in accordance with the public interest (which will depend on the state of technology and demand) without being able to observe the firm’s behavior.”

Key Words

Information, Information Asymmetry, Accountability, Forms of regulation, Price cap regulation, Rate-of-return regulation, Regulatory procedures, Commitment, Incentive Regulation

J. Law and Economics

Core References

Buscaglia, Edgardo, “Judicial Corruption in Developing Countries: Its Causes and Economic Consequences,” Berkeley Olin Program in Law & Economics, Working Paper Series, University of California, Berkeley, 1999.

Provides an overview of the economics of development and corruption. Describes how corruption affects economic development and remedies for corruption.

Buscaglia, Edgardo and William Ratliff. Law and economics in developing countries. Stanford, Calif.: Hoover Institution Press, 2000.

Examines the link between legal systems and reform of economic institutions and practices in developing countries. States that poverty largely results from flaws in legal institutions. Recommends substantive and procedural legal factors for developing countries, including recommendations on judicial review and dispute resolution.

North, Douglass C. Institutions, Institutional Change and Economic Performance. Cambridge, U.K.: Cambridge University Press, 1990, Chapters 12 and 13.

Explains the importance of institutions to the stability and performance of the economy.

Posner, Richard A. Economic Analysis of Law. Fifth Edition, New York, NY: Aspen Publishers, 1998, Chapters 1, 2, 9, 10, 12, 13, 19, and 20.

Explains economic principles that underlie laws in the common law context, specifically the U.S. Chapters cited cover basic economic approaches, monopoly, competition law, utility regulation, the choice between regulation and common law, the adversary system, and the process of rulemaking.

Key Words

Institutions, Law, Regulation, Corruption, Opportunism, Legal Process