

Markets and Regulation in Infrastructure

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“If you don’t know where you are going, any road will get you there.”
William Hogan

Three Caveats!

1. Confusing Means and Ends
2. Confusing Competition and Deregulation
3. Institutions Matter

1. Confusing Means and Ends

- **Means**

- Competition
- Regulation

- **Ends**

- Efficiency and productivity
- Service quality
- Responsiveness to consumers
- Meeting defined social expectations

2. Confusing Competition with Deregulation

- **Competition**
 - State of a market
- **Deregulation**
 - Public policy position

3. Institutions Matter/Not All Economic Theory

Jurisdictional Boundaries

- Wholesale/retail
- Scope of authority

■ **Relevant Regulatory Missions**

- Licensing and siting
- Economics
- Fulfilling social expectations (e.g., environment, low income)

Economic Efficiency vs. Social Considerations

- Are results of market acceptable to society?
- Key social considerations
 - Universal service (e.g., rural, poor)
 - Environment
 - Economic development
 - Resource preferences

Privatization and competition do not change social expectations!

Regulatory and Market Environments

- Tensions between Certainty and Flexibility

Market Environment

- Rules Certainty/Uncertainty
- Market Uncertainties/Certainties
 - Micro
 - Macro
 - Controllable
 - Uncontrollable

Regulatory Environment

Tensions between Certainty and Flexibility

Demands

- Investors and consumers look for certainty and predictability in the regulatory process
- Flexibility, however, is often required to adapt to changing circumstances

Responses

- Regulation by contract
 - Bilateral change only
 - Role for regulator?
- Discretionary regulation
 - Unilateral change with process protections

Regulatory Environment

Rule based	Contract based
Discretion defined by law	Discretion defined by license
Regulator can change rules	No unilateral change
Procedural safeguards	Contractual safeguards
Ability to adjust to changed circumstances	Pressure to be correct from the start
Short-term uncertainty	Certainty in short term
Politically stable	Political stability dependent on concessionaire's flexibility

Can Markets and Regulation Co-Exist?

Spectrum of Regulatory Approaches

Market designs and institutional structures matter!

- Heavy
 - Pro-active regulation
 - Pervasive regulation (e.g., pricing)
 - Prescriptive

- Medium
 - Reactive regulation (e.g., anti-trust)
 - Bottlenecks only
 - Use of norms and indices

- Light
 - Self-regulation (including litigation)
 - Monitoring only (i.e., how much transparency)

- Deregulation

Extent of Reliance on Markets

- Ideological leaps of faith (e.g., deregulation means functional markets)
- Contestability? Actual and contested?
- Treatment of externalities/social outcomes
- Using market mechanisms or pure markets
- Good market design is essential

Market Environment

Demands

- Private investors and consumers will want to know to what degree market forces will be relied upon

Responses: Developing the standards

- Mere possibility of competition is sufficient?
- Contestable or contested?
- Is competition sustainable and viable?
- Policy response to monopoly breakdown or leakage?
- If market forces will be relied upon, all interested parties certainly want to know what the rules of the marketplace will be
 - How will markets operate long term?
 - How will markets function short term?
 - What institutions will be put in place?
 - Market power: horizontal? Vertical?
 - Antitrust
 - Vertical integration
 - How much price volatility is tolerable upside and downside?
 - How can we be assured that investment will be made?

Regulation of Markets

Promoting and Maintaining Competition

Behavioral Fixes

- Easier to enact
- Difficult to enforce (e.g., brokerage research)
- Management priorities (e.g., talent and effort follow dollars)

Structural Fixes

- Difficult to enact
- Easier to enforce
- Clearer management focus

When Are Essential Service Providers Market Participants?

Examples

- Electric transmission owners, local exchange carriers, distribution companies

Alternatives

- How effective?
- How expensive?
- How complicated to administer market mechanisms (e.g., number portability vs. transmission expansion)

Regulation of Markets

Diversification and Convergence

Effects of diversification

- Enhanced risks/rewards
- Who benefits? Who loses?
- Management focus and resources
- Impact on competition

Effects of convergence

- Enhanced risks/rewards
- Who benefits? Who loses?
- Management focus and resources
- Impact on competition

Pricing Monopoly Services

Demands

- Provide investor with reasonable opportunity to recover capital
- Provide investors with reasonable opportunity to earn profits commensurate with risks taken
- Incentives to perform
- Replicate results of market

Responses

- If there is competition
 - Prices are market determined
- If a monopoly
 - Cost or service (rate-of-return pricing)
 - Price cap?
 - Revenue cap?

Pricing Monopoly Services

Rate-of-Return vs. Price Cap

- Rate-of-Return Formula
(capital investment – depreciation)ROR + expenses
- Price Cap Formula
(cost basis)RPI (-x?)
- Revenue requirement
(cost basis)RPI (-x?) capped by revenue adequacy

Pricing Monopoly Services

Rate of return	Price cap	Revenue cap
Fact intensive	Theory intensive	Theory intensive
Regulatory review of management	Clear boundary between management and regulation	Clear boundary between management and regulation
Direct review of profits	Indirect review of profits	Indirect review of profits
Factors may/may not be internalized	Internalization of many factors (but not all)	Internalization of many factors (but not all)
Rates may/may not have specific terms in time	Rates may/may not have specific terms in time	Rates may/may not have specific terms in time
Throughput based (volume)	Throughput based (volume)	Focus on revenue requirement (non-volumetric)

Pricing Monopoly Services

Alternative Pricing Foundations

A. Historic Costs

Advantages

- Tested reasonableness
- Ascertainable/documented
- Established applicability

Disadvantages

- Prudence filter
- Little inherent incentive for efficiency gains
- Embeds inefficiencies/waste
- Accounting controversies
- Original costs – depreciation? Replacement cost? Other?

Pricing Monopoly Services

Alternative Pricing Foundations

B. Comparative Costs

Advantages

- Benchmarks good performance (partially ascertainable)
- Promotes competition

Disadvantages

- Uncertain applicability
- Uncertain accuracy
- Could embed inefficiencies

Pricing Monopoly Services

Alternative Pricing Foundation

C. Theoretical Costs

Advantages

- Sets performance objectives
- Avoids accounting controversies

Disadvantages

- Untested/potential for being unrealistic
- Potential for uncertainty

Boundaries between Regulation and Management/Risk Allocation

Demand

- Investors need to be able to manage their own assets and affairs if they are to be held accountable
- Regulators must be able to allocate risks in accordance with controllability

Responses

- Reasonableness of costs?
- Prudence?
- Effectiveness of incentives?
- *Ex post* or *ex ante* regulation?
- What is internalized (socialized)?
- What is externalized (privatized)?

Social Expectations and Standards

Demands

- Economic efficiency
- Social expectations (e.g., universal service, environmental, low-income subsidies, quality of service)
- Consumer expectations (e.g., timely payment of bills, reasonable access, protection from theft of service)

Responses

- Articulate expectations in license or law (*ex ante*)
- Internalize into privatization

Institutions Matter

- Jurisdiction symmetrical with markets? (e.g., siting electric transmission)
- Sensitivity to local interest? (e.g., resource selections)
- Filling regulatory vacuums? (e.g., PUHCA)
- Sensitivity to consumers?
- Sensitivity to industry needs?
- Sensitivity to larger market needs?

Appellate processes

- Protracted disputes?
- Curbs on regulatory abuse?

Institutions Matter: Who Sets Policy?

- What is policy?
- What is regulatory?
- Role of policymakers/lawmakers
- Role of regulators/role of policymakers