Ratemaking and Price Regulation

Objectives and Regulated Sectors

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Economic Regulation Emerged from the Coincidence of Four Factors

- Legislative and judicial concept of a “business affected with the public interest”
- Supreme Court support of legislative powers to regulate private enterprises
- Experience with past behavior of the utility industry, especially the railroads
- Acceptance of the natural monopoly concept as the basis for organizing the public utility industries
  - *with recognition of constitution protections of due process and private property*

Obligations and Rights of Firms "Affected with the Public Interest"

- Obligations
  - *Adequate service provision to all customers*
  - *Service at* **just and reasonable** *rates*
  - *Service without unreasonable price discrimination*
- Rights
  - *Opportunity to earn a* **fair** *return*
  - *Right of eminent domain*
  - *Limited exemption from intra-industry competition through franchises and certification*

Early Experience with Utilities

- 16 holding companies controlled 85% of the electric utility industry in the 1920's

- Abuses:
  - *exploitative pricing (abuse of monopoly power)*
  - *predatory pricing (below costs to eliminate comp.)*
  - *price discrimination*
  - *unstable prices that made it difficult for suppliers and customers to plan ahead*
  - *stock manipulations*

Bringing Abuses Under Control

- Possible Public Policy Options
  - *public ownership*
  - *yardstick regulation*
  - *regulatory commission*

- Regulatory response: Federal Power Act (1935) and PUHCA (1935)
  - *FPC controls all generation sales for resale + trans rates*
  - *SEC restructuring of utilities and control over securities*
  - *Accepted natural monopoly concept for generation, transmission, and distribution (vertical integration)*

Regulation of Utility Industry Introduced To:

- Reduce the inefficiencies caused by various forms of market failures and imperfections
- Reduce undesired inequalities resulting from the working of imperfect competition and market power
- Serve as a surrogate for competitive markets

Proper Role of Regulation

- If market forces fail to align social benefits and social costs of utility services, regulation can attempt to reduce or eliminate welfare losses.
  - *Elimination of adverse pricing practices*
- Maximize overall efficiency
- Factor social objectives into decision-making, considering both demand and supply side issues

Types of Utility Regulation

- Comprehensive
  - *establishment of public policy goals, forecasting of demand and supply, detailed control of revenues, costs, prices and the controls over the entry and exit of firms*
- Selective
  - *controlling only certain parameters of an enterprise through indirect intervention. Emphasis on tax policies, subsidies, and incentives. Possible emphasis on PBR*
- Light (or weak)
  - *information gathering and dissemination, often without staff support*

Structural Challenges of Regulation

- Asymmetric information between the regulated utilities and regulators. Can be reduced by:
  - *Adequate and competent commission staffing*
  - *Standardized reporting requirements*
  - *Proper use of hearing and public input process*
  - *Performance based regulation*
- Necessity to sometimes reconcile conflicting goals
  - *e.g. economic efficiency vs. distributional equity*
- Need to judge where necessarily imperfect regulation is better than imperfect competition

Choosing the Form of Regulation

- Depends on the Need for Action:
  - *If markets are <u>competitive</u>, market power concerns are minimized, and emphasis can be on achieving social goals, market efficiency and consumer education*
  - *if markets are <u>non-competitive</u> and market power exists, focus must be on direct regulatory intervention*
    - rate base/rate of return regulation
    - cost of service pricing
    - price/revenue cap regulation
    - performance based regulation (PBR)
    - restructuring, divestiture
    - direct monitoring of performance

Attributes of Regulatory Ratemaking (Bonbright)

- Simplicity and public acceptability
- Freedom from controversy
- Revenue sufficiency
- Revenue stability
- Stability of rates
- Fairness in apportionment of total costs
- Avoidance of undue rate discrimination
- Encouragement of efficiency (Note: frequently there exist tradeoffs among the goals)

Cost and Pricing Functions of Regulation (Bonbright)

- Creation of capital attraction incentives sufficient for investors to devote resources

- Creation of efficiency incentives that encourage firms to provide services at the lowest possible costs

- Consumer rationing - to prevent waste, pricing should limit consumption to levels where incremental benefits equal or exceed incremental costs

- Compensatory income transfer

Basic Approaches to Costing and Pricing

- Fully allocated cost pricing (avg. cost pricing based on current and embedded costs)
  - *costs segregated between directly assignable and overhead or common costs*
  - *developed as constraint on value of service pricing*
  - *Advantages:*
    - total allocation matches revenue requirement
    - provides estimate of cost causation
  - *Disadvantages:*
    - little attention to demand criteria, based on historical usage
    - little agreement on how to allocate costs

Basic Approaches to Costing and Pricing

- Marginal or Incremental Cost Pricing:
  - *Attempts to equate demand for service (willingness to pay) with marginal cost of providing that service*
    - recognizes both demand and supply side aspects
  - *Applied to both peak and off peak pricing and pricing of individual services*
  - *Advantages:*
    - attempts to correct deficiencies of value based and fully allocated cost of service pricing
    - forward looking, based on projected economic costs (not historical)

Basic Approaches to Costing and Pricing

- Marginal or Incremental Cost Pricing: *(cont'd)*
  - *Disadvantages:*
    - Revenue reconciliation problem (could result in revenue deficits not covering embedded costs, or monopoly profits)
    - marginal costs difficult to determine, potential for abuses in inelastic markets

What is Performance Based Regulation?

- Regulatory approaches that aim to better align consumer and utility shareholder interests through a framework of rewards and penalties

- PBR approaches include:
  - *supplements to rate of return regulation (e.g. fuel purchasing incentives*
  - *regulatory lag*
  - *targeted and sharing incentives (e.g. DSM performance)*
  - *price and cost indexing*
  - *revenue and price caps*

Effects of Performance Based Regulation

- Better able to set targets that meet public and utility objectives
- Reduces problem of “asymmetric information”
- Efficiency improvements rewarded through higher profitability. Profits based on performance
- Inefficiency penalized as lower profitability
- Strong efficiency incentives if management motivated by profits
- Still requires competent and committed management to effectively and efficiently manage the regulated company

Movement Towards a More General Definition of Economic Regulation

- Natural monopolies often an “extreme” case
- Most public utilities combine sub-sectors which are monopolistic with others which are not strictly monopolistic
- Task is to delineate the “core” areas of public utility industries that should be subject to regulation from those which might be opened to competition
  - *exercise care to avoid unregulated monopolies and excessive market power*

Evolving Rationale for Economic and Social Regulation

- Three factors affect the need for regulatory intervention
  - *Potential high market concentration and market power*
  - *Attainment of social policy objectives*
    - may not be consistent with profit objectives
  - *Promoting greater market efficiency and enhancing customer choice*

The Movement Towards Deregulation

- Based on three primary assumptions:
  - *Efficiency through competitive markets will reduce prices and improve the quality of service*
  - *Inability of regulation to match the performance of markets where competition is viable*
  - *Competition will spur innovation (e.g. communications)*

- Recognition that regulation still superior to imperfect competition for many utility functions:
  - *transmission and distribution rates and service*
  - *load pocket problems*
  - *certain public benefit programs*

Market Based Pricing

- Market, not the regulator, determines prices based on supply, demand interaction
- Competitive market conditions satisfied in terms of number of buyers/sellers, ability to exercise market power, information flow etc.
- There is recognition that customers have choices of other fuels, providers - short term vs long-term
- Alternate choices act as surrogates to competition
- Price to customer tied to alternate choices available to customer - to be competitive
- Price elasticity of customer is key

Emerging Realities

- Fundamental challenges remain the same. How to deal with:
  - *Excessive market power*
  - *Attainment of public policy objectives*
  - *Promotion of operational efficiencies to correct market failures*
- Instant deregulation is not the answer
- Implementing competitive markets, while continuing to regulate those that are not competitive, requires significant Commission effort and resources