

# Regulatory Economics: Thirty Years of Progress?

John C. Panzar

Professor of Economics, University of Auckland

Louis W. Menk Professor Emeritus, Northwestern University

13<sup>th</sup> ACCC Regulatory Conference 2012:  
Lessons Learned and New Approaches

Brisbane, QLD

26 July 2012

# Theory *or* Practice?

- By definition, Regulatory Theory only progresses
  - Knowledge is cumulative
- However, Regulatory Practice can regress as well as progress
  - Including the appropriate use of Theory *in* Practice.
- Regulatory Theory is (largely) based upon economic analysis
- Regulatory Practice is based to a great extent on political conditions.
- I will focus on regulatory policy toward natural monopoly infrastructure industries with substantial sunk costs.

# Introduction and Summary

- History: Progress or Cycle?
  - Where we were (1982) versus where we are (2012)
- Review of the problem:
  - Natural Monopoly and Sunk Costs require a long-run relationship
  - But, Why Regulation?
    - Understanding/Evaluating Change requires a Positive Theory of Regulation
- Persistent Tradeoffs
  - Vertical Economies vs. Competition
  - “Cost of Service” vs. “Incentive” Regulation
    - Price Caps
    - Rate Base Evaluation
    - Forward Looking Costs
- The “Political Pendulum”
- Concluding Remarks

# Regulatory Economics in 1982

- For perspective, it is useful to go back a few years earlier, to the mid 1970s (when I was finishing graduate school).
- At that time, it seemed as though the US regulatory structures imposed in the 1930s would endure indefinitely.
  - In the transportation sector, industries that were structurally competitive were subjected to detailed price and entry regulation.
  - In the case of traditional public utilities, competitive inroads “around the edges” of vertically integrated monopoly industries were largely unsuccessful.
- But then, there was a dramatic reversal in regulatory policy.
  - Transport deregulation and the break-up of the Bell System took less than a decade in the US, paralleled by Thatcher inspired privatization movements in Europe.
  - The Depression-era policies of regulatory control and government sponsored monopoly had been largely reversed in the transportation sector.
  - At least as remarkable, in the telecommunications sector, the Modified Final Judgment that settled the antitrust suit against mighty AT&T spelled the beginning of the end of decades of monopolization.

# Regulatory Policy Issues 1982

- The theoretical and practical progress made in the late 1970s and early 1980s had clarified the ongoing policy issues:
  - **Reform of Cost of Service Regulation**
    - Poor incentive properties of Rate of Return regulation recognized
    - Price Caps had yet to emerge, but were foreshadowed by Vogelsang – Finsinger (1979).
  - **Defining the vertical boundaries of the regulated firm.**
    - Tradeoff between the sacrifice of economies of vertical scope and facilitating competition
    - E.g., Vertical separation of AT&T in the Modified Final Judgment
      - Separation of local and long distance cost 100s of millions dollars
      - Separating equipment manufacturing seems to have cost little

## Subsequent Policy Developments reinforced the importance of these policy issues

- Interest in “Incentive Regulation” spurred by privatization of state owned infrastructure monopolies
  - Price Caps introduced in UK and spread to US
- Every privatization involved decision about what “competitive” services the incumbent would or would not be allowed to provide. E.g., typically
  - Yes, for long distance telecommunications (outside US)
  - No, for electricity transmission and distribution
  - No, for “above rail” services (outside US)
- Introduction of competitors required the further development of *access pricing*.

# These tradeoffs remain the focus of Regulatory Policy Today

- Experience over the past three decades has demonstrated that Price Caps are no panacea
  - Hence the continuing tension between rent control and efficiency incentives
  - Debates over Asset Valuation and Cost of Capital
- The boundaries of the Regulated Enterprise continue to be “adjusted”
  - Vertical separations continue to take place
    - E.g., New Zealand CHORUS this decade

# Has Regulatory Economics and Policy Progressed?

- What do we mean by “Progress”?
- Requires answering a prior question: Why regulation?
- Why is there regulation of infrastructure monopolies? (Why do dogs lick their private parts? Because they can!)
  - Infrastructure assets give rise to sizable ECONOMIC RENTS
  - Vulnerable (because sunk) to coercive power of the state
  - Political coalition able to form to intervene
- How to model “state action”?

# Modeling the State's role in Regulation

- “Single agent” optimization models
  - Public Interest Theories: objective is to maximize total surplus subject to constraints
    - Ramsey/Boiteux
    - Institutional Design Approach
  - Capture Theory: maximize industry profits subject to constraints
  - Stigler/Peltzman “Economic Theory”: maximize politician’s preferences subject to constraint

PREDICTS “PARETO EFFICIENT” OUTCOMES

- Game theoretic, “Interest Group Theory” (Becker).
  - Multiple stake-holders “play” to a Nash equilibrium.

OUTCOMES NEED NOT BE PARETO EFFICIENT

# Public Interest “Planning”

- “Has the regulatory process improved its ability to attain the maximal possible total surplus potentially available from an industry?”
- In the Ramsey/Boiteux context, the question is simply whether the instruments available to the Planner allow for the achievement of greater total surplus.
- Presumably, increased application of advances such as nonlinear and peak – load pricing, etc. have improved matters.
- But, “Ramsey pricing” still not widely embraced by regulators.
- Planning Model an overly naïve way to view PI Theory

# Regulatory Policy as “Institutional Design”

- Victor Goldberg, “Regulation and Administrated Contracts,” *Bell Journal of Economics*, Autumn 1976.
- Government seeks to maximize total surplus:
  - Doesn’t directly set prices, etc.
  - Designs Institutions that lead to best possible results given the behavior of self-interested optimizing agents (firms, consumers, etc.)
- Optimal Institutions (Mechanisms) have characteristics that are “inefficient” by naïve Ramsey criteria.

# The basic problem of natural monopoly regulation: Sunk Costs

- Sunk costs create “commitment problem”
  - Inability of state to commit *not* to regulate prices deters investment
- Commitment issue resolved “early” in the US by evolution of rate of return regulation
  - But it took 78 years!
    - *Munn vs. Illinois* (1877) to *Hope Natural Gas* (1945)
  - By 1980s economists had largely forgotten this positive aspect of ROR and saw only its poor incentive properties
- Remains a major problem elsewhere
  - Especially in developing countries
  - But also in OECD

# Two Types of Regulatory Policies: Pricing and Industry Structure

- Pricing Policies
  - Rate Level
    - Cost of Service/Revenue Requirement
    - Fixed Price, Incentive Regulation
  - Rate Structure
    - Cost Allocation
    - Flexible through weighted average revenue caps
    - Ramsey/Boiteux
- Industry Structure
  - Horizontal Structure
    - Legal entry restrictions
  - Vertical Structure
    - Legal restrictions on the extent of vertical integration

	Ramsey/Boiteu x “Social Planner”	1970s practice (US)	1980s practice (emerging)	Today’s practice
<b>Pricing:</b>				
<b>Rate Level</b>	Zero Economic Profits	Cost of Service (ROR) regulation. (Incentives provided by regulatory lag.)	Price Cap regulation (with 3-5 years before reset)	Price Caps Forward-looking costs
<b>Rate Structure</b>	“Optimal Pricing:” Inverse elasticity rule, non linear pricing, etc.	Cost Allocation. Mandated Cross-subsidy	Revenue Caps for pricing flexibility	Revenue caps Cost – based access prices
<b>Industry Structure:</b>	“Salt, too”			
<b>Horizontal</b>	Franchise Monopoly with Entry Restrictions	Franchise Monopoly with Entry Restrictions	Monopoly franchises removed	Entry encouraged, even in core activities
<b>Vertical</b>	End to end responsibility	End to end responsibility	Structural separation; Incumbent exclusion	<i>More</i> structural separation and incumbent exclusion

# Progress?

- Pricing: Vogelsang-Finsinger Revenue Caps (i.e., price indices with Laspeyres quantity weights) advance for final product prices.
  - Theoretical convergence to Ramsey Optimum.
  - Very practical
    - Easy to implement
    - Transparent
  - *Exclusion* problems when access prices included
- Industry Structure: is increased vertical disintegration consistent with optimal Coasian tradeoff between firm and market? E.g.,
  - Railroad industries separated into “below the rail” and “above the rail” components. (Wasn’t this structure tried – and abandoned – in the 19<sup>th</sup> Century?)
  - Local exchange competition through “unbundling”

## Why has policy shifted to more “market orientated” approaches?

- For example, contrast “modern” policy toward the electric power industry with relatively recent expert opinion:
- “There appear to be large potential efficiencies associated with vertical and horizontal integration, especially at the generation and transmission levels. While vertical and horizontal disintegration may increase the competitiveness of wholesale markets, significant costs may thus be associated with any such restructuring.”
  - Joskow and Schmalensee, *Markets for Power* (1983)

# What has shifted policy from infrastructure as a “public function”

“When, therefore, a business of real public importance can only be carried on advantageously upon so large a scale as to render the liberty of competition almost illusory, it is an unthrifty dispensation of the public resources that several costly sets of arrangements should be kept up for the purpose of rendering to the community this one service. It is much better to treat it at once as a public function.”

- John Stuart Mill – Principles of Political Economy (1848)

## Toward a Libertarian solution to the Institutional Design problem:

- “There is unfortunately no good solution for technical monopoly. There is only a choice among three evils: private unregulated monopoly, private monopoly regulated by the state and government operation.  
It seems impossible to state as a general proposition that one of these evils is uniformly superior to another. .... I am inclined to urge that the least of the evils is private unregulated monopoly whenever this is tolerable.”
  - Milton Friedman – *Capitalism & Freedom* (1962)
- This is clearly *one* solution to the trade-off between incentives and rents, but
  - Is it optimal in any economic sense
  - Can the state really *commit* to this solution? (E.g., NZ)

# An Alternative Explanation: The Political “Policy Pendulum”

- Politics runs in cycles, with public opinion and sentiments swinging regularly, if unpredictably, from “left” to “right.”
- Government policy toward infrastructure industries follows similar cycles:
  - New infrastructure markets were developed entrepreneurially in the 19<sup>th</sup> Century
    - Though not without state support
  - Consolidated by merger or nationalization in the early 20<sup>th</sup> century
  - Public ownership or regulated monopoly well established by 1930.
- Until the mid 1970s, competition was suspect in such industries
  - Even for structurally competitive/oligopolistic markets
- Now, “competition” is the watchword
  - Even for natural monopoly industries

# Conclusions

- Economists should not try too hard to “rationalize” regulatory policies.
- None of the “optimizing” positive theories seem to fit:
- Perhaps a Beckerian Interest Group model provides the best analytical framework
- “Equilibrium” outcome would not, in general,
  - Maximize *any* objective function.
  - Or, be Pareto Efficient
- But don’t discount the contribution of Regulatory Economists entirely:

Economists, persevere! “Competitive excess” can be ended just as over regulation was. The pendulum will swing back!

“The **ideas of economists** and political philosophers, both when they are right and when they are wrong, **are more powerful than is commonly understood**. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influence, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back. I am sure that **the power of vested interests is vastly exaggerated compared with** the gradual encroachment of **ideas**. It is ideas, not vested interests, which are dangerous for good or evil.”

- John Maynard Keynes, *The General Theory*