REGULATION OF LINES NETWORKS

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Traditional and Incentive Regulation

• Traditional regulation attempts to determine the profitability of the firm
  – Often by setting the rate of return on investments approved by the regulator

• Incentive regulation attempts to provide the firm with incentives to reduce costs and require those cost savings to be shared with customers
  – Price cap allows firm to keep all savings in excess of those required to break even at the regulated price
  – Planned reductions in the price cap force the cost savings to be shared with consumers
Lines Companies and Regulation

- The Commerce Commission is required to implement some form of price control

- Purpose of regulation is to
  - Limit excessive profits
  - Create incentives to improve efficiency and provide the quality that consumers demand; and
  - Share the benefits of efficiency gains with consumers, including through lower prices.

- The Commission has great discretion in design and implementation
The proposed scheme is

- August 2001 starting price level (trusts net of consumer discount)
- CPI-x
- Assign companies to categories x = 2%, 3%, 5%
- Value added (Profit) accumulated over 5 years at some WACC: (enters re-set of x ?)
- Reliability statistics to be monitored
- Breach triggers investigation of x: if x is found to be reasonable it is imposed on the company.
Background

Three themes from recent ISCR work on regulated network industries

- Optimal profit caps in relation to the WACC
- Impact of setting profit cap above and below the optimal level
- Impact of historical cost and replacement cost base for the profit cap
Optimal Profit Cap

• Implications of a profit cap when the regulated firm is not guaranteed this return

• Real options
  • Timing
  • Options provided to customers

• Compensation for stranded assets
Profit Cap Above and Below the Optimal Level

• Above
  • Welfare losses; *but*
  • Entry and appropriate investment timing encouraged

• Below
  • Investment delayed
  • Very large welfare losses from missing market
Historical Cost and Replacement Cost

• Interplay of profit cap, implications of regulatory error and the basis for asset valuation

• Recommended reading
  • Evans, Quigley, Zhang (regulatory error)
  • Evans, Guthrie (historical and replacement cost)

(Papers can be found at www.iscr.org.nz)
The Regulatory Environment

• Deregulated decision-making
  • Incumbent network provider chooses timing of sunk investment in the absence of competition
  • Applies to maintenance as well as construction

• Profits regulated by either:
  • Maximum-allowed rate of return on defined asset base (historical / replacement cost)
  • Maximum price which declines at a defined rate through time.
Bad and Good News When Profits are Capped

• Replacement cost-based regulation
  • Cost falls _ lower capped profits = bad news

• Historical cost-based regulation
  • Cost falls _ locked in high capped profits = good news
Bad and Good News When Prices are Capped

• Cost falls more than $x_-$ higher rate of return than expected = good news

• Cost falls less then $x_-$ lower profits = bad news
**Investment**

- Key characteristics of investment
  - Irreversible
  - Uncertainty
    - about future profit flows
    - about future replacement costs
  - The firm has investment timing flexibility

- Incentives for investment are the key driver of dynamic efficiency and long-term consumer gains
The bad news principle for investment

• Two things can go wrong
  • Waiting, when you should invest
  • Investing, when you should wait

• Bad news principle
  • It is the second mistake that matters
  • PV of profits must exceed cost of network by just enough to compensate the firm for any future bad news
  • If the potential for bad news becomes greater, the firm is more likely to delay investment
Sources of bad news for a firm which has invested

• Profit falls _ firm cannot cover cost of capital

• Cost falls _ if the firm had waited, network would have been cheaper
Regulation and investment timing with profit caps on historical cost

• Invest now and lock in a high cap
• Important when:
  – Cost is trending downwards
  – Cost and surplus negatively correlated
    • Why wait for higher profits if the cap will fall?
Regulation and investment timing with price caps

• Cost falls more than $x$ investment would have been cheaper if delayed

• Cost falls less than $x$ investment would have been more expensive if delayed
Conclusion

• Optimal industry regulation is a complex combination of
  – static efficiency (price or profit caps) and
  – dynamic efficiency (incentives for investment)

• Price or profit cap
  – Typically must allow returns greater than the risk adjusted discount rate to compensate for loss of the option to delay investment
  – Too low is much worse than too high