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The Problem of Repeat Regulation for Infrastructure Industries

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What is Repeat Regulation and Why is it Common?

- Repeat regulation involves the resetting of price caps (or maximum prices) to realign prices with costs
  - In all industries, prices diverge from costs over time because of (a) changes in input costs and (b) changes in the efficiency of input usage.
  - Unless prices are periodically reset, as costs and prices diverge, regulated monopoly companies will *either* earn growing super-normal profits *or* operate at growing financial loss

- Repeat regulation is therefore inevitable where there is an (unavoidable-use) monopoly physical network [electricity and distribution wires, railway tracks] and/or a vertically integrated monopoly industry [water and sewerage in most countries]

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What is Repeat Regulation and Why is it Common?

- For competitive industries, prices and costs are realigned continuously via the operations of the market so that companies can expect to earn a normal rate of return over the medium to long-term
  - For monopoly utilities (or physical networks) this price-cost realignment can only be assured by periodic, repeat regulation.

- In the US, traditional rate of return regulation reset maximum prices when companies or consumer groups requested a regulatory review
  - Typically there was no fixed period

- In the UK, price caps are usually reviewed at regular pre-announced intervals – typically 5 years, but Ofgem now uses 8 years for energy networks

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Repeat regulation in British Infrastructure Industries

- Littlechild 1983 (on telecoms) did not discuss repeat regulation or the resetting of the price cap but his 1986 report on water and sewage did so explicitly. Littlechild 1986 explicitly mentioned the reset X in an RPI-X framework. Hence, the need to appraise:
  - The scope for cost and price reductions through increased productivity and efficiency
  - The need for investment
  - Rate of return considerations (i.e. the cost of capital)

- By 2003, it was clear that repeat price cap regulation had become essentially a form of forward looking, incentive based price-setting with a major rate of return element
  - With repeat regulation, there was a need for a more explicit and formalised method of handling financial aspects
  - This was met by the development of the Regulatory Asset Base (RAB) and assessment of the expected return on the RAB

The Core Problems around Repeat Regulation

- The fundamental problem for regulators is *information asymmetry*
  - The companies know much more about their costs, prices potential efficiency gains, etc than the regulator ever can
  - The companies know about their mistakes and "where the [dead] bodies are buried". Regulators frequently do not know these things.
  - The consequence of information asymmetry is that regulation becomes a *strategic game* between the regulator and the regulated company/companies

- With repeat regulation the issue is particularly difficult as the strategic game becomes a non-zero sum repeated game between the regulator and the company.
  - Repeated games are complex and have many possible solutions
  - Efficient and stable solutions depend on establishing reputation, trust and effective signalling between the players (viz Coca-Cola v Pepsi-Cola, US and Russia in the Cold War)

UK Solutions for Information Asymmetry in Repeated Regulation 1990-2005

- Because of information asymmetry issues, companies want to turn regulatory reviews as far as possible into general negotiations
  - Conversely regulators want to structure price resetting tightly with common formula information, appraisal and decision-making procedures.

- Starting in the 1990s, the standard UK solution was ‘yardstick’ regulation based (largely) on econometric benchmarking of efficiency
  - This was most attractive with a number of regulated companies that could be compared e.g. electricity (or gas) distribution companies
  - Much more difficult for single national networks like rail or electricity transmission which required (difficult) international statistical comparisons

UK Solutions for Information Asymmetry in Repeated Regulation 1990-2005

- Yardstick regulation heavily based on econometric benchmarking has shown increasing problems since 2000
  - Strong incentives for companies to show that they were ‘special’ led to ‘wars of models’ between companies and regulator, typically with no clear outcome
  - Econometric models much stronger on operating expenditure than capital expenditure
  - Panel data, rather than cross-sectional, needed but only became available post-2005

- By 2000, the regulatory (and legal) basis for price-resetting had become established with considerable reliance on econometric benchmarking, but
  - By 2003-05, it was clear that the yardstick regulation reliant on benchmarking model was becoming increasingly doubtful as a solution to information asymmetry problems in regulation – at least in energy and water

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UK Solutions for Information Asymmetry in Repeated Regulation: Post-2005 Developments

In the UK, there have been two main sets of proposed solution to the problems of repeat regulation outlined above. These are:

1) ***Menu Regulation*** and similar Information Revelation Devices (IRDs); and

2) ***Negotiated settlements*** and similar

- The first is an essentially technocratic solution which works within the framework of the standard regulatory model
- The second attempts to replace the “monopsony regulator” by (assisted) customer negotiation

Both give companies some clear, structured choices within a defined framework and therefore can reduce the expected payoffs from strategic gaming

Menu Regulation and Associated Information Revelation Devices

- Menu regulation provides incentives to companies to reveal their current and expected futures costs by making choices on required future expenditure to meet mandated standards

- Economic basis for menu regulation is the theory of incentive compatible contracts developed by Laffont and Tirole in the context of procurement contracts
  - Consider the regulator as procuring the service on behalf of consumers

- Menu regulation was introduced in UK by Ofgem in 2004 for electricity distribution companies and later extended to gas distribution and electricity transmission.
  - Ofwat has used it since 2009; ORR has mentioned as a possibility for 2018

Menu Regulation and Associated Information Revelation Devices

- Menu regulation requires companies to choose the amount of input expenditure (capex and opex) that they need to meet mandated standards
  - Companies choose required expenditure relative to a baseline proposed by the regulator.
  - Baseline is derived from outside appraisals (including benchmarking), company business plans, etc

- Companies choose between getting:

(a) a lower expenditure allowance, but with a "higher-powered incentive" that allows them to retain significant benefits if they can deliver the required outputs more efficiently (closer to “pure” price cap); or

(b) a higher expenditure allowance, but with a "lower-powered incentive" that gives relatively smaller reward for underspending the higher allowance (closer to cost-plus, rate of return).

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Menu Regulation and Associated Information Revelation Devices

- Menu regulation since supplemented by other information revelation devices
- Since 2010 Ofgem and Ofwat have introduced "fast" and "slow-tracking"
  - Strong performers with strong business plans, a good past record and effective consultation with consumers have "fast-tracking" of the regulatory process
  - Poor performers get "slow-tracked" with tough, extensive scrutiny
  - These IRDs have similar – and possibly more powerful – incentive effects than menu regulation on its own
- Menu regulation often criticised as too complex and "wonkish" but has survived and been extended over last 10 years
  - Appears to tackle asymmetry of information problems directly and practically
  - Reduces incentives for gaming and strategic behaviour while recognising uncertainty

Negotiated Settlements and Similar

- Littlechild has, since 2003, been promoting *“negotiated settlements”* under which customers directly negotiate with regulated energy and other infrastructure companies e.g. on level of X in RPI-X price cap
  - That implies negotiations on prices, efficiency measures, quality of service etc
  - Florida an example of this but negotiated settlements also exist for FERC in US (Interstate natural gas pipelines and their users, Canada and Australia
  - Constructive engagement (a less ‘hands-off’ variant) used by UK airports regulator in 2009

- Littlechild argues that it provides a different philosophy of regulation - to facilitate agreement instead of regulator taking all the decisions
  - Claim is that regulatory processes are more productive, less costly & risky, leading to better understanding, with more acceptable, often innovative outcomes

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Negotiated Settlements and Similar

- Several of Littlechild examples are business-to-business regulation, not involving household consumers

- Process still involves considerable input from regulator e.g. on cost of capital and various other issues
  - Regulator has to ensure that settlement meets legal requirements, allows new entry, etc

- For household and individual consumers, key question is how far Customer Representatives can remain as 'Representative Consumers'?
  - For this reason, UK regulators like Ofgem and Ofwat have opted for 'customer engagement' within regulatory framework rather than anything more radical. But, …
  - WICS (the Scottish water regulator) has gone further with its customer Water Forum agreeing a business plan with Scottish Water - and used as basis for WICS Draft Determination

Comments on UK Repeat Regulation Options

- Both menu regulation (with other IRDs) and negotiated settlements greatly reduce problems arising from information asymmetry and incentives for strategic gaming
  - Menu regulation does so <u>within</u> regulatory framework; negotiated settlements by largely <u>replacing</u> regulation with “a rivalrous discovery process”

- In practice, UK regulators have found menu regulation and IRDs more acceptable than full-blown negotiated settlements – and it seems to have delivered good outcomes on energy network regulation.

- Genuine customer engagement is agreed as necessary by all UK regulators (and not easy to achieve)
  - But, is a separate issue from direct contracting by consumers and may be limited as a solution to repeat regulation gaming by companies

Comments on Repeat Regulation Options for Railway Regulation

1) Key difference between railways and other infrastructure industries is that railways are, in all EU countries, heavily dependent on subsidies – energy and telecoms are clearly not.
   – For railways, this means that Government is an active party in regulatory decisions.
   – Consequence is that strategic games can be more complex
   – Possibilities of government and rail company colluding to marginalise regulator – and/or other alliances (e.g. company and regulator against government/taxpayers)
   – Single national railway network company (particularly with subsidies) is very powerful player in strategic game, even if privately owned

2) No reason why menu regulation and IRDs unsuitable for rail regulation, but negotiated settlements unsuitable because of subsidy and collusion issues

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Comments on Repeat Regulation Options for Railway Regulation

3) Economic regulation of a single national network is particularly difficult – and made much worse if heavy government involvement and significant regular subsidy

4) Major potential regulatory gains if national railway network company can be unbundled into a number of semi-separate business units, including potential for reduced strategic gaming
   - Allows a variety of yardstick performance comparisons, and better comparisons across the network
   - Potentially allows much stronger regulatory econometric modelling – and use of a wider range of IRDs

ORR and Network Rail have been exploring regional unbundling via 'route devolution'