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NOTE:

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The long-run level of X in RPI-X regulation

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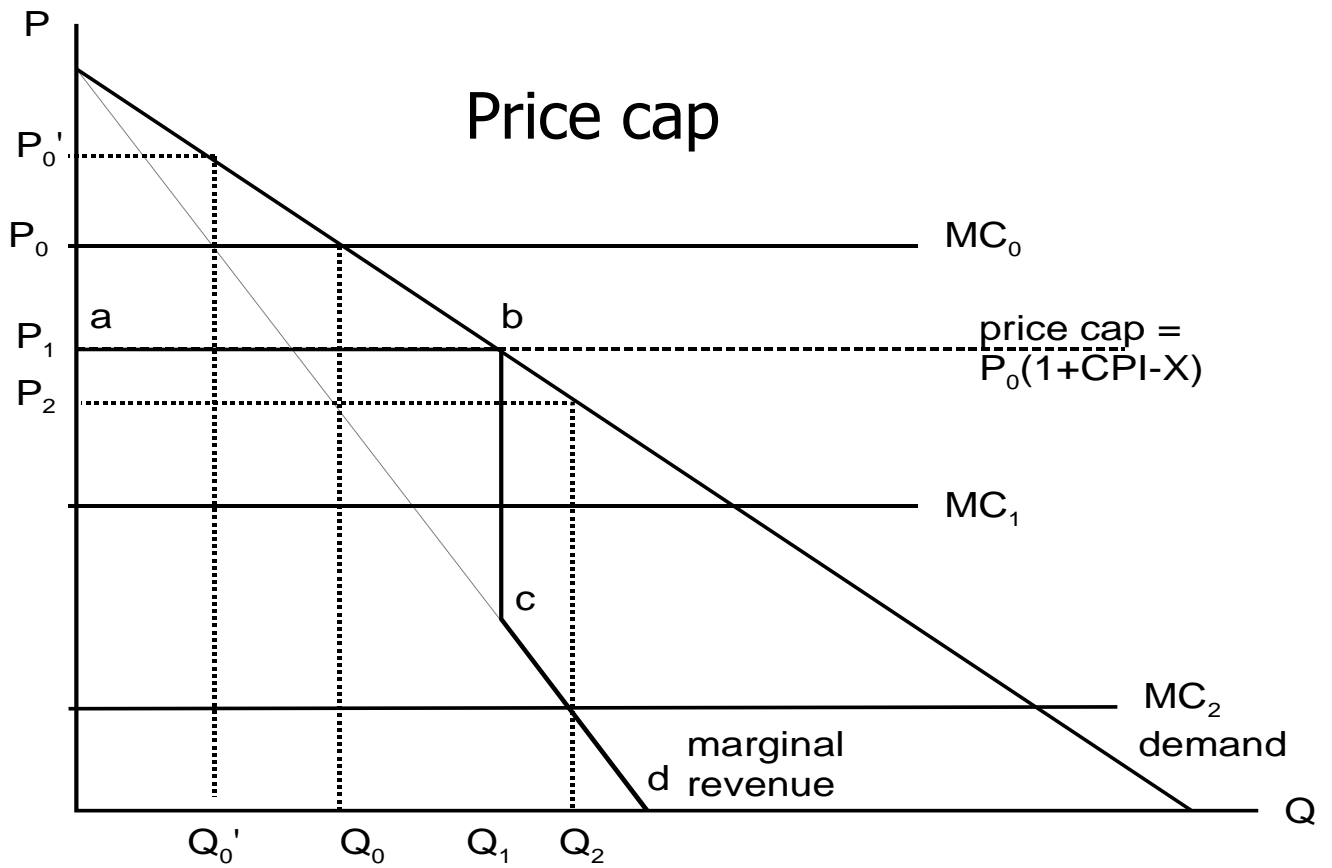
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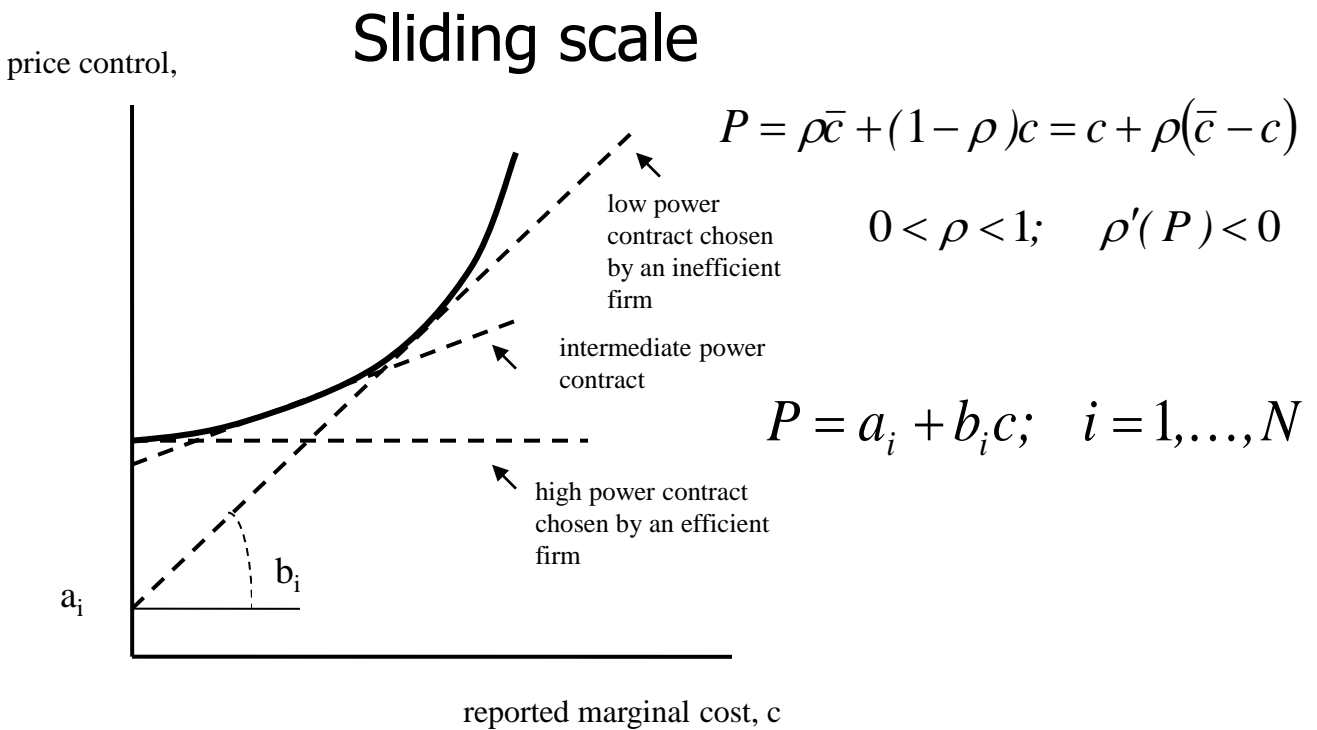
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Optimal regulation: Pure price caps were not theoretically ideal even in 1989

- Beesley & Littlechild (1989)
 - *RPI-X offers: Low regulatory cost + Highest incentive power*
- Schmalensee (1989)
 - *Under uncertainty, regimes in which price depends in part on actual cost generally substantially outperform pure price caps, particularly in terms of consumers' surplus*
- Gasmi, Ivaldi & Laffont (1994)
 - *Pure price cap regulation leaves substantial rent to the firm; profit-sharing yields welfare comparable to optimal regulation*
- Burns Turvey & Weyman-Jones (1998)
 - *allow higher cost firms to share more of this cost with consumers through a higher regulated price: they provide an intermediate point between the high-power incentives under price cap regulation and the low-power incentives of cost-plus regulation.*
- Joskow (2006)
 - *Optimal regulation will have the form of a profit sharing contract or sliding scale mechanism – pure price cap is potentially poor at rent extraction for consumers*
- Hawdon Hunt Levine & Rickman (2007)
 - *significant welfare gains from a sliding scale relative to the stylized price₂ cap regime*



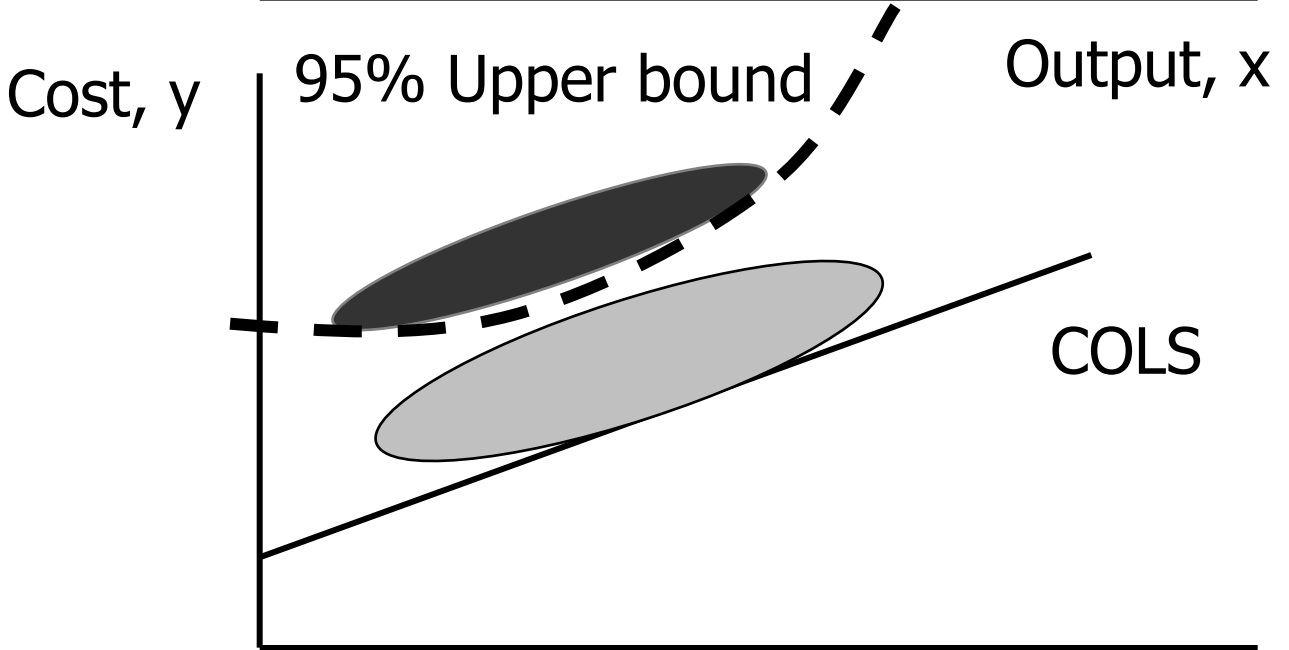
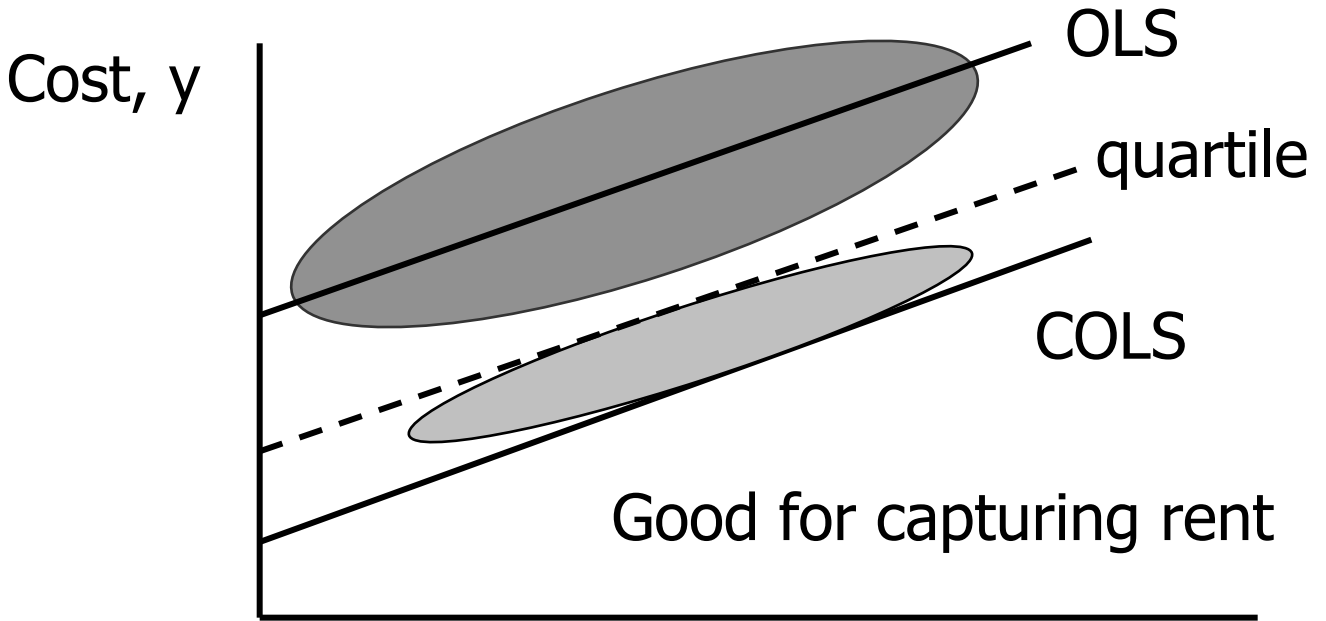
With price cap at [ab], profit maximising output depends on new MC



How does it work in practice in the UK?

- stage: # 1 Price cap until reviewed
- stage: # 2 capture rent through benchmarking with efficiency and productivity analysis
- Intermediate power often optimal: but regulators seem to prefer high power:
 - In the real world, regulator needs a numerical algorithm to minimise economic rent of regulated firm subject to its financial viability
 - Efficiency and productivity analysis can determine a numerical approximation to the feasible level of economic rent
 - Efficiency and productivity analysis is used as a numerical algorithm for capturing economic rent.
 - Regulator's methodology sets target for judicial appeal – simple, small sample, even crude methods such as COLS, can be used.
 - Regulator only captures rent from current cross-section of firms - prefer small national cross-section samples – sample within the firm: Electricity in Portugal, Postal service in UK
 - Temptation for regulator to incentivise managers directly – especially in municipal-owned firms
 - Rent capture in X , P_0 tailored to capital market response
 - Interval estimation would be more efficient than point estimation

Point versus interval benchmarking



● inefficient

● efficient

How could we empirically test regulatory behaviour in this context?

Data on X factor decisions in regulated industries
1986-2009

- Is catch-up or frontier shift important?
- Industry type
- No. of comparators
- International comparison
- RPI value
- Network industry
- Nature of ownership
- Internal benchmarking
- Regulator variable
- Cost of capital
- P0 change
- Benchmarked – if so, how
- UK wide or national
- Populist response
- Sliding scale possibility
- Allowance for stochastic factors
- OPEX or TOTEX benchmarked?