The Role of Cost Modelling in Setting Prices –
A Regulator's Perspective

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- Cost modelling is a means to an end. The end is the setting of an efficient cost baseline – a "totex allowance" – for each company and control.
    - Cost modelling not the only means, albeit an important one.
    - Setting efficient allowance not the only end, albeit the primary one.

- We use cost modelling to estimate a benchmark. This benchmark allows us to identify companies that are relatively efficient, and use this information to set efficient expenditure allowances for all companies.

- For the regulator, benchmarking is a powerful tool:
    - Mitigates <u>information asymmetry</u>
    - Allows us to develop <u>independent baselines</u>
    - Consistent with <u>incentive regulation</u>
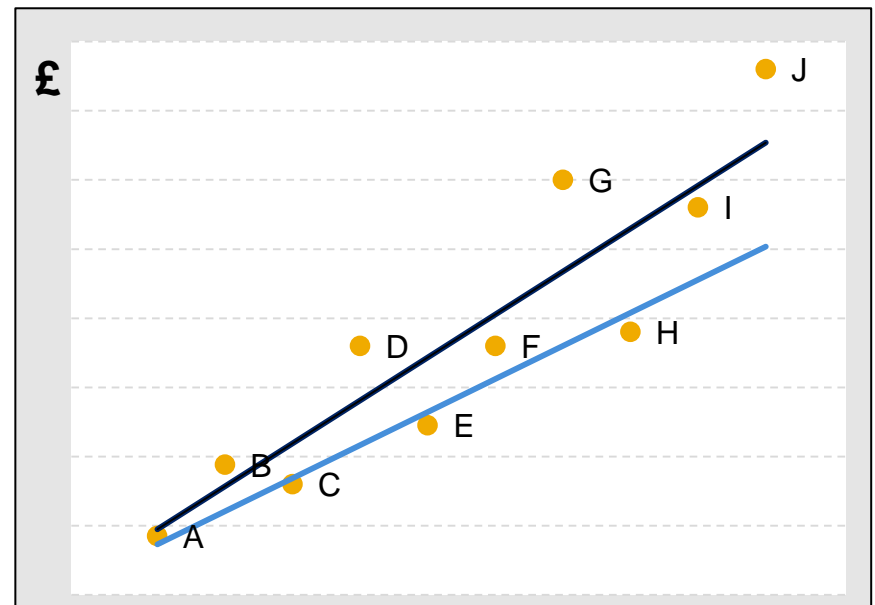
- Cost baselines (aka "totex allowance") – a sensible starting point for the allocation of [cost performance] risk between companies and customers.
    - Triangulation helps achieve a sensible baseline. By not relying on a single (imperfect) model it reduces risk of undue gain or hardship to companies/consumers.

- Cost models to reveal information and incentivise.
    - Granular cost models help reveal information on the cost of different services.
    - Encourage companies to challenge their approach and level of costs.
    - Models based on business plan data of expected costs can be used to identify forward trends and future efficiency gains.

- Cost models to remove potential capex bias – totex modelling as much as practicable.

- Continued need to supplement cost modelling with:
    - Expert scrutiny of plans
    - Strong efficiency incentives

Our approach to modelling:

- Economic/engineering validity first – models that makes sense, with "correct" drivers, sign, magnitude, functional form

- Statistical validity of the estimated coefficients – significance, stability

- Preference to exogenous cost drivers

- Statistical validity of the model more widely – R2, Reset, random effects v OLS

Issues for discussion:

- We put economic/engineering validity before statistical validity.

- Should we drop explanatory variables that are not "statistically significant"?

- Should we retain explanatory variable with negligible impact?

- When evaluating models, should we consider how they align with our prior on relative efficiency?

- But need to be careful of type II error – rejecting a correct alternative model when it doesn't conform with our expectation.

- Small data – does the T dimension counts as much as the N dimension in our panel data?

- Over-fitting counter productive – don't over control. Instead, triangulate.

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