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Cost Models and Price Regulation

Seminar on Costs & Tariffs for the TAF Group Member Countries

Niamey (Niger), 23-25 April 2001

Cost Models and Price Regulation

Use of Cost Models in Price Regulation

Case of Price Cap regulation

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Price Regulation

– *Controls prices directly via "price cap"*

– *Stimulates efficiency, promotes transition to competition*

– *Consumers' gain benefits of efficiency*

– *Promotes investment, universal service goals*

– *Incentive opportunity for improved earnings*

Price Regulation Experience

- Residence line charges have remained level as telco efficiency gains have largely offset business cost rises

- Per minute calling charges have fallen steadily, steady progress made in rate rebalancing, restructuring

- Generally, telco PR earnings are higher as efficiency improves

- Investment has risen and service quality remains high

Price Regulation Concept

- The PR annual pricing rules set the "Price Cap" limits for overall rates. This rule preserves the first share of telco productivity benefit to ratepayers.

- Telco can improve earnings if it can be more efficient than previously under "cost plus" ROR regulation

Price Regulation Plan

- *Annual Pricing Formula*
- *Annual Productivity Improvement Hurdle*
- *Service Basket Structure (service groups)*
- *Rate Change Flexibility (rebalancing subsidies)*
- *Adaptability to Competition (e.g. new services)*
- *Administrative Streamlining*
- *Recovery of Exogenous (extraordinary) Cost*
- *Universal Service and Service Quality safeguards*
- *New Investment Incentives*

Price Regulation Concept

- Productivity refers to how economically the firm manages its productive resources, capital, labor, materials etc..

- A total productivity measure, i.e. % efficiency improvement target for the telco, is used to limit overall price changes in most PR plans.

- Productivity is an economic concept that can be gauged from past financial and operating reports.

Price Regulation Concept

- 'Economies of Scale' (EOS) lead to productivity gains.

- Demand growth raises revenue but EOS causes costs per unit to fall so total cost rises more slowly.

- But cost inflation raises unit and total costs

- The price change limits in the plan recognize the past rate of telco price changes relative to past inflation in economy.

% Productivity Hurdle ('% X')

- Historical Telco productivity is volatile

- The state of the economy directly affects productivity

- Historical productivity studies can be contentious 'black box' exercises

- Historical study results are only a starting point for an equitable productivity (% efficiency improvement) target.

- "Unreasonable" productivity targets destroy incentives and deter new investment

Price Regulation Rules Affect the Cost of Capital

- McKinsey Consulting study indicates unduly burdensome or inflexible rules can reduce the "market value" of the telco from investors' viewpoint.

- "Unattractive" plan can raise cost of equity capital by 20% or more

- Potential plan negatives:
  - ❖ *Unreasonable efficiency improvement target (%X)*
  - ❖ *Unreasonable constraints on rate flexibility for incumbent vis a vis new competitors*
  - ❖ *Unreasonable burdens re subsidies, other service obligations*

PRICE REGULATION

- COMMON EFFICIENCY IMPROVEMENTS
  - *US: Annual 5% employment reductions for several years via:*
    - ❖ attrition, early retirement incentives, job restructuring, department consolidations
    - ❖ work outsourcing, e.g. cable installation
    - ❖ automation, e.g. billing systems, self-service T-tone menus
    - ❖ from 45 employees per 10K access lines in 1990 to 26 now

  - *UK: Employee levels declined steadily from 230K in 1984, only rising again to be at 217K recently*

Price Regulation

- OTHER EFFICIENCY INITIATIVES

  – *Performance bonuses, sales commissions, variable salary component based on achieving telco performance goals*

  – *broader merit-based salary bands*

  – *assessment, training, retraining programs*

  – *amnesty/recapture for prior disconnects but with restrictions such as toll blocking*

  – *spread out payments for initial non-recurring charges*

  – *dial-up 24 hour 'self serve' customer account and order acceptance*

  – *external performance benchmarking*

Cost Models and PR

- A cost model can support price regulation in the following areas:

  - *identify inefficient costs*
  - *simulate costs reductions effects*
  - *simulate the effect of future traffic growth*

- the combination of those allow easy calculation of a reasonable efficiency improvement target %X as defined below

$$\sum_i P_i^n T_i^{n-1} = (1 + RPI_{n-1} - X) * \sum_i P_i^{n-1} T_i^{n-1}$$

where: P_i^n = price of service n° i in year n

T_i^n = traffic of service n° i in year n

RPI = Price Reduction Index

Cost Model and USO

- Where a regulator opposes immediate tariff rebalancing, cost model will provide a measure of transferred charges (access deficit) and how it affects the efficiency improvement target:

  - *additional constraints on the most important services basket (urban and interurban)*

  - *charges transferred to highly competitive (international), and sensitive (interconnection) services baskets*

TAF Model and efficiency

- The TAF cost Model deals with inefficient costs as defined below:

$$K' = \max(0; \Delta K - K_u[(1+t)^N - 1])$$

where:

K' = the inefficient capacity;

DK = the unused capacity;

K_u = the capacity in use;

t = the compound annual growth rate of the capacity in use

N = the time needed to add new capacity

- The inefficient cost in the TAF model are not allocated to the services provided to other operators (national and international);

- in addition, the TAF model allows any simulation on the following operator expenses (OPEX):
  - *intermediate consumption;*
  - *taxes & levies;*
  - *salaries & welfare*
  - *amortisation/depreciation ;*
  - *provisions*

- the model also allows simulations on capital expenses (CAPEX) through:
  - *expected return on invested capital;*
  - *weighted average loans interest rate.*

- Any of cost those elements can be optimised in order to strengthen efficiency.

Elasticity

- When elaborating a long term business plan with efficiency constraints, using the TAF model tariffs, one must take into consideration the Price/Demand elasticity of the various services directly available to the public.

- Elasticity has an effect on traffic volume and thus in unit cost of traffic, thus on %X determination.

- Elasticity effect should be added to the natural growth trend of traffic and not substitute it;

- its determination depends on the overall environment of a given market .

Growth rate, elasticity and efficiency

- The combination of the natural growth of users number (especially in low teledensity countries) and elasticity should lead to a growing traffic volume, thus an improved economy of scale.

- Improvement of economy of scale are taken into consideration in the TAF model through:

    - *geographical correction coefficient;*

    - *per service traffic volume identification*

The efficiency improvement target is calculated as follows:

$$X = 1 - \frac{\displaystyle\sum_{j=1}^{m}\sum_{i} P_i^{\,j} T_i^{\,j-1} - \sum_{j=1}^{m}\left(RPI_{j-1}\sum_{i} P_i^{\,j-1} T_i^{\,j-1}\right)}{\displaystyle\sum_{j=1}^{m}\sum_{i} P_i^{\,j-1} T_i^{\,j-1}}$$

Where:

RPI_{j-1} = Average Reduction Price Index

m = Price Cap validity delay in years

$P_i^{\,n}$ = price of service n° i in year n

$T_i^{\,n}$ = traffic of service n° i in year n

• Where price caps have to be set for different service baskets, only the services in a given basket will be considered.

• Subsidised services should not be subject to price cap regulation as they are not cost based.

Cost Models and Price Regulation

RPI and exogenous costs

- The RPI is different from and does not conflict with the currency loss of purchasing power defined in the TAF model;

- its yearly future values estimation should derive from the official national economy projections.

- Some cost are exogenous to an operator they must be recovered in total and are not included in the price regulation process; (ex.: outpayments of interconnection fees).

END