Costs, Tariffs and Interconnection Rates calculation

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Paradigm of the TAF model

- Limitation to the automatic service

- No binding reference value

- Sharing the information on the cost structure of the telephone network

- Sharing the information on the average costs and the cost ranges

- Choice of the FDC for the study period 1997-2000

- The model needs to be transparent enough to be acceptable by the other regions;

- it must be flexible enough to support simulations and negotiations with third parties ;

- in supplement to international costs and tariffs, it must give indications on urban and interurban costs to support tariff re-balancing efforts.

The SG3 Rapporteurs Group on cost models principles

Cost Concepts

- <u>Cost recovery:</u> to do in such a way that the costs incurred to provide service be recovered through tariffs (FDC);

- <u>Competitive costing:</u> to do in such a way that only the extra-costs generated by the volume variation of the offered service be recovered through the tariffs (IC).

Managing the evolutions

- <u>Historical Costs</u>: the considered costs are the prices of the infrastructure and the services;

- <u>Actual costs</u>: although based on the prices, they take into account the environmental changes: the natural reduction of the price of equipments, loss of purchasing power of the local currency

Real versus Optimum Costs

- Incurred costs (even actual) are not necessarily the best costs;

- usage of new technologies could lower the costs;

- the level of efficiency of the service provision can be an important cost factor;

- nevertheless, one must relate any judgement to the real conditions assessed by the local market.

Causality

- In many case, it will be possible to identify the causality link between the costs and the services offered through the technical network;

- more difficult to establish is the causality link between the support costs and the volume of service offered;

- "ABC" is a satisfactory tool but its implementation needs care and method.

Basic principles for cost models

- ## Transparency:

  The open availability of information used in the cost derivation process in order to allow comprehension of the final rate from the vantage point of an external analyst;

- ## Practicability:

  The ability to implement a costing methodology with reasonable demands being placed on data availability and data processing in order to keep the costing exercise economical, yet still useful;

- Causality:

  - *The demonstration of a clear cause-and-effect relationship between service delivery on the one hand and the network elements and other resources used to provide it on the other hand, taking into account the relevant underlying cost determinants (cost drivers);*

- Contribution to the common costs:

    - *Costing methodologies should provide for a reasonable contribution to common costs;*

- Efficiency:

    - *The provision of a forecast of cost reductions that result from a more efficient combination of resources;*

Reponses offered by the TAF Model

From FDC to CCA

- The very low teledensities, the unavailability of Analytic Accounting and the absence of "ABC" in the operators management tradition make it impossible for the majority of TAF members to implement Incremental Costing

Adjusted depreciation (1/3)

- The linear depreciation is applied by the majority of the telecommunication operators;

- nevertheless, it is possible to to consider natural trend of costs of telecommunication equipments, <u>where applicable</u>, and adjust the amortisation to actual costs;

Adjusted depreciation (2/3)

- The purchasing power loss of the local currency is to be considered as well:

$$e = 1 - \sqrt[n]{\dfrac{C_0}{C_n}}$$

- where:

  - *C_0 is the value of 1SDR in the local currency at the provisioning year;*

  - *C_n is the value of 1SDR in the local currency "n" years after;*

- according to statistics, the average age of the equipments of *an ordinary* telecommunication network is equal to the half of their life time (D/2)

Adjusted depreciation (3/3)

- $$CCA = DEP * ((1+t)^{D/2} / (1-e)^{D/2} - 1)$$

  Where :

  - CCA=Current Cost Adjustment

  - DEP=Annual Depreciation

  - τ=Compound Annual Growth Rate of the cost of telecommunication equipments

  - ε=Compound Annual loss of local currency purchasing power

  - D=Amortisation/life time

Efficiency (1/2)

- The efficiency is calculated through a combination of the following factors:
  - *the capacity installed;*
  - *the capacity in use;*
  - *the compound annual growth rate of the capacity in use;*
  - *the time needed to add new capacity*

Efficiency (2/2)

- $K' = \text{Max}(0 ; DK - K_u*[(1+t)^N-1])$

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

Causality

- The cost of the local loop is not volume sensitive;

- the local loop costs are incurred for the benefit of the whole world telephone users;

- no operator can bill a flat subscription to the whole world telephone users ;

- the cost of the local loop must then be <u>recovered on the basis of usage</u> (incoming and outgoing communications).

Costs elements considered

- fixed asset

- network operation and maintenance cost

- Business costs

- common costs

- cost of capital

Specific Costs

- Somme specific costs are easy to isolate event if the operator has no analytic accounting system:
  - *Services studies and development*
  - *Service costing*
  - *Advertisement*
  - *Sales (distribution network)*
  - *Customer care*
  - *International activities*
  - *reserves for uncollectibles*

Moving from Cost to Tariffs

Other Tariff elements

- A country's regulatory authority may impose policy constraints on the telecommunication services prices of an operator. Among those, one can recognise:

  - *Access deficit*

  - *levies on the profits*

  - *Universal Service Obligation*

Access deficit (1/4)

- Access deficit arises when a regulation authority opposes the increase of the components hereunder with a view to guarantee the affordability of domestic prices:

  – *connection fee*

  – *monthly subscription fee*

  – *price of a minute of urban call*

  – *price of a minute of interurban call*

Access deficit (2/4)

- Before reallocating the access deficit, it must be taken care that only the local subscribers are presently paying the connection rate and the monthly subscription fees.

- The anticipated payments of the outgoing communications should be deducted from the cost-based tariff :

$$\left(\Delta Parc * R_{conn} + msf * Nb_{subscr} * 12\right) * \frac{k_{si}}{\sum_{j=1}^{n'} T_j k_{sj}}$$

Access deficit (3/4)

- The following relation gives a measure of the access deficit:

$$D = T_{urb} * \left(k'_{urb} - p_{urb} \right) + T_{\text{int}erub} * \left(k'_{\text{int}erub} - p_{\text{int}erurb} \right) - DomInef_j$$

Levy on the benefit

- The benefit of an operator is shared by:
  - *the shareholders through the return on capital, and*
  - *the Country through the levy on the benefit, where applicable.*

- The shareholders usually require a given return on capital after levy

Levy on the benefits

$$L_{benefits} = \frac{t_{levy}}{1 - t_{levy}} * r_{capital} * Capital$$

Universal Service Obligations

- A country may impose a levy on the revenues of an operator in order to fund the USO costs.

- USO may or may not be combined with Access deficit

- Where applicable,

$$USO = \boldsymbol{r}_{uso} * \left(L_{benefit} + \sum_{i=1}^{n} k_{si} * T_i \right)$$

Other tariff elements allocation

- Once calculated, access deficit, levy on the benefits and universal service obligations must be allocated to the due services;

- the generic relation for that purpose is as follows:

$$Share_{si} = \frac{Tariff_{element}}{\sum_{j=1}^{n} k_{sj} * T_{j}} * k_{si}$$

USO, tariff rebalancing, Interconnection and Competition

- The Access deficit imposed to an operator is part of his network service cost

- In a monopolistic environment the access deficit is funded by full cross-subsidisation

- In a competitive environment, part of those cost are incured by interconnection traffic and must be funded either through the overall interconnection charge or through an additional charge to it.

Conclusions

- The tariffs are rebalanced when the access deficit is nil; but the tariff rebalancing process may require some delay;

- The tariffs resulting from the TAF model are cost orientated;

- If they are not applicable at the moment they can be considered as target tariffs;

- The target dates of their application should be negotiated between the national regulatory authority and the operators, national and international.   Run TAF