Theory of Price Regulation

Agenda

Introduction 1/3

Price regulation objectives

- Financing objectives: to make operators get sufficient revenue to be viable
- Efficiency objectives: to reflect resource scarcity properly and to maximize the productivity
- Equity objectives: to distribute the welfare benefits between operators and consumers, and also among different consumer groups fairly.
- Other objectives can be to restrict the anti-competitive pricing

Introduction 2/3

Rate balancing

- Price should be closely aligned to its cost
- Unbalanced price structure is not sustainable in the competitive environment but occurs regularly in unregulated monopoly
- Ramsey pricing is widely used to recover the fixed and common costs
- Ramsey pricing: price is raised above marginal cost more for a lower demand elasticity (sensitivity) service and less for a higher demand elasticity service.

Introduction 3/3

Peak/off-peak pricing:

- Prices are set at a higher level in peak time to discourage use of facilities and transfer demand to off-peak periods.
- Advantages
  - Capacity utilization maximized
  - Traffic congestion reduced
  - Quality of service improved,
  - Purchase of additional equipment avoided.

Different approaches 1/3

- Oligopoly era: a partly competitive and partly regulated market with a small number of operators
- Discretionary price
  - government operates the network to promote consumer-to-consumer equity objectives
  - Below-cost local connection price and over-cost long distance or international connection price.
  - Unbalanced and inefficient price structure
  - Because of some political reason, price is raised to meet the require revenue, part of the revenue deprived … all these threaten the viability of operators.

Different approaches 2/3

Rate-of-return regulation

- Aims to limit monopoly profit to a reasonable level
- Adjust the price to cover the calculated revenue requirement.
- This violates the efficiency objectives for there is no incentive for operators to reduce their costs.
- It will lead to over-investment, various "cost-padding"
- What a reasonable price is?

Different Approaches 3/3

Price-cap regulation

- Restrict the price rather than the profit.
- Encourages cost reduction and innovation.
- A price 'floor' is also important to prevent below cost pricing which is used to exclude lower-cost new entrants.

Price-cap regulation 1/5

Basic formula: $Pt = P0 * (1 + I - X)$ ^t

- $Pt = P0 * (1 + I - X)$ ^t
- P0 = baseline price-cap
- Pt = price-cap during year t after the institution of price-level regulation
- I = rate of inflation

Price-cap regulation 2/5

'I' factor

- Price can be indexed to the overall level of input costs.
- Regulators can focus on the whole industry instead of a specific operator in rate-of-return regulation. Thus encourage operator to achieve cost reduction and innovation.
- No industry-specific index, use broader reasonable inflation indices
  - CPI (Consumer Price Index): UK, Australia
  - PPI (Producer Price Index) with its sub indices.
- Any price index has limitations with time fluctuations so adjustment mechanism is needed

Price-cap regulation 3/5

X' factor

- ‘X’ should pose a significant, but not insuperable challenge to the operator.
- Two main approaches to determine the ‘X’ factor
- Historical productivity method:
  - carry out TFP (Total Factor Productivity) as basic offset.
  - X value should be equal to the difference between the productivity of the operator and the economy as a whole to make sure that every industry else being equal to avoid loss of investment in telecommunication.
- Regulatory benchmarking method:
  - In some emerging market or the regulation is changing from discretionary price
  - Adjustments are more important than basic offset

Price-cap regulation 4/5

Time period

- The productivity achieved should not be passed on to the consumer at once to cause possible dilution of incentives.
- A proper period should be between 3 to 5 years
  - FCC adopted a 4-year price-cap period with AT&T
  - Oftel with BT for 4 years also except the initial price-cap for 5 years.

Price-cap regulation 5/5

Miscellaneous issues in price-cap regulation

- Service Baskets
  - The API (Actual Price Index): price increase of individual services times their weight determined by their revenues.
  - API should be equal or less than PCI (Price-cap Index).
  - Sub-cap index for one specific service
- Profit Sharing (PS) Mechanism, a complementary choice
  - Regulator imposes a sharing rule if one operator is making excessively high profits.
  - If the operator does not agree to it, regulator revokes the contract.
  - To operators, the threat of revocation is very costly because of the capital intensive investment during contract period.
- The price-cap regulation should not be applied to the launch of innovative services
  - There is no fierce effective competition in market.
  - There is need for operators to exploit new markets and customers.
  - Profit can be seen as a reward for innovation and introduction of new services.
  - Profit can be seen a signal for new comer and trigger competition.

Price regulation in interconnection 1/ 3

LRIC (Long Run Incremental Cost): the most favored costing method

- Costing method: historical data or forward-looking approach
  - Historical data approach: price their service merely based on historical investment.
  - The forward-looking approach: operators are supposed to respond competition by price adjustment more actively
  - Forward-looking approach is preferred
- LRIC: the most widely accepted forward-looking costing approach
  - Used widely in retail and wholesale market
  - Estimated on the basis of current technology and best available performance standards.
  - The European Commission has adopted LRAIC (Long Run Average Incremental Cost) as its preferred costing methodology.

Price regulation in interconnection 2/3

The use of price-cap regulation in wholesale market

- The operator raises its interconnection charges and lowers the retail prices to squeeze the profit margin to exclude competitors or new comers.
- In CPP regime, the charge is relatively high when a fixed operator pays the corresponding mobile operator for a fixed-to-mobile call.
  - Oftel modified the mobile operators' licenses in April 2003 to require the first 15 per cent reduction by July
  - Further cuts of 15 per cent in each year for the next three years

Price regulation in interconnection 3/3

Other regulation principles

- Unbundled charges: no service provider shall be charged for any interconnection facility it does not seek or require
- Universal service and ADC (Access Deficit Contributions) charges: the interconnection charges should be separated where the cost of a particular component vary significant in different locations

Price regulation in Hong Kong

- In 1975, Scheme of Control (SoC) (Rate-of-return regulation) was established.
- After 1991, the government and HKTC mutually agreed to move to price-cap regulation
- In 1993, the Telephone Regulation set out the initial 3-year-long an overall price-cap and two sub-caps.
- Since 2003, all telecommunication sectors in Hong Kong fully liberalized.
- At present, almost all retail prices are without regulatory influence.
- Only PCCW HKT (former HKTC)'s price for local fixed network service are subject to regulation since it is designated a dominant operator.
- Even in a competitive market, the regulator must maintain vigilance
  - In early 2000, all mobile operators announced an increase in the monthly charge at almost the same time.
  - The price rise was withdrawn after OFTA declared that it would conduct an investigation to see whether any collusion was involved.
- IDD service was not under price control for free competition
  - Some services costs has fallen by more than 98%.
  - The incumbent is no longer dominating so pricing regulation for IDD service is no longer necessary now.

Conclusion

- Price regulation should be set to meet its objectives.
- In principle, price is supposed to be aligned with its cost; in practice, Ramsey pricing can be adopted to recover the costs.
- The most favored costing method is LRIC
- Price-cap regulation is widely adopted both in retail and wholesale market.
- Price-cap regulation restrict the price rather than the profit. Thus, it encourages the operator to reduce cost and to innovate.
- When applying price-cap regulation formula, the inflation, “X” factor, and time period should be picked up carefully.
- Price control should not be use in launch of innovative service.
- Profit sharing mechanism can be used as a complementary option to favor customers.
- In wholesale market, principles have already been set up to address some typical issues e.g. unbundled charges, universal and ADC charges.
- The Hong Kong price regulation evolution is a vivid case to illustrate above discussions.

Thanks !

Time for questions and comments.