TWO-SIDED MARKETS WITH SUBSTITUTION: MOBILE TERMINATION

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Discussion

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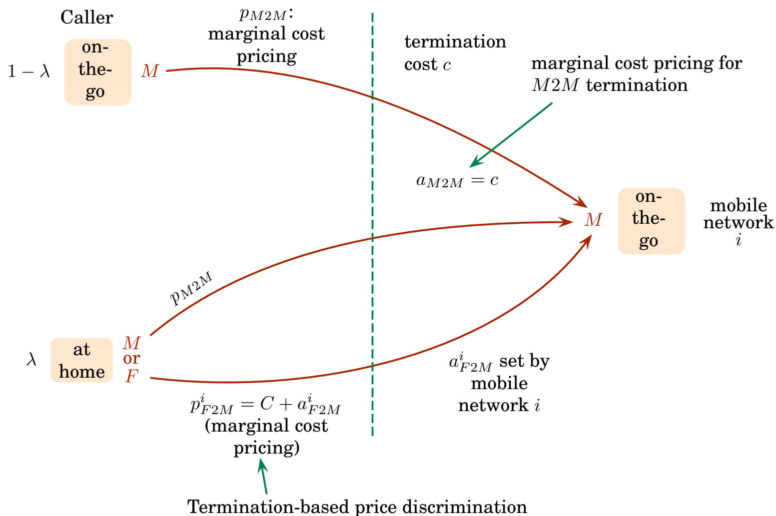
- ✓ Two key contributions
  - *Endogenous multi-homing in telephony market*
    [multi-homing has been studied extensively in markets with *non-interconnected* networks.]
    Introduction of fixed/mobile substitution in formal analysis.
  - *Calibration.*

- ✓ Digression (Paul's question): *endogenizing extent of multi-homing*
  - certainty (Internet, cards, Hong Kong telecoms) and safety,
  - differentiation (media vs real player),
  - linear pricing by small player,
  - [here] mobile has dual purpose (primarily on the go, but benefits at home).


Caller
p_{M2M}:
marginal cost
pricing
termination
cost c
marginal cost pricing for
$M2M$ termination
$1-\lambda$
on-
the-
go
M
$a_{M2M} = c$
M
on-
the-
go
mobile
network
i
p_{M2M}
λ
at
home
M
or
F
a^i_{F2M} set by
mobile
network i
$p^i_{F2M} = C + a^i_{F2M}$
(marginal cost
pricing)
Termination-based price discrimination

Assumptions

- ✓ Mature fixed-line market.

  Endogenous penetration (N) in mobile.

- ✓ Analysis ignores $F2F$, $M2F$.

  Subsumed in benefits b:

  - being able to make emergency calls,
  - value of receiving calls
    [depend on prices],
  - benefits of being able to call people at home when on the go
    [depends on a_{M2F}].

- ✓ Mobile to Mobile termination: at cost

  [helps with existence. Possible inexistence when not at cost and high substitutability in *LRT* 1998 I and II. What happens here?]

- ✓ a^i_{F2M}: non cooperatively determined.
  a_{M2M}: industry-wide agreement (marginal cost).

Insights (1)

Moderation of $F2M$ termination charge (despite non-cooperative determination).

- (standard) increase volume of $F2M$ calls
- (new) substitution toward $M2M$ (since a_{M2M} = marginal cost)
- (new) reduction in # of $M2M$ subscribers $\implies$ more $F2M$ termination profits.

Insights (2)

Socially optimal termination charge (a^W)

✓ *Above cost:* $a^W > c$

- (standard) when mobile market not mature, encourages mobile penetration (externalities of mobile subscribers on fixed line callers and other mobile subscribers): waterbed effect;
- (new) fixed calls more expensive, raises N: substitution effect.

✓ *May exceed or be smaller than the privately chosen charge:* $a^W \lesseqgtr a^*$

- (standard) too few $F2M$ calls if a high (not fully internalized by mobile operators),
- (new) an increase in a encourages subscriptions to mobile operators due to fixed-mobile substitution.

WORTHWHILE EXTENSIONS (FOLLOW-UP PAPERS!)

✓ *Receiver surplus and receiver-pays principle*

- does not necessarily complicate the analysis: off-net cost pricing principle

  [Laffont-Marcus-Rey-Tirole *RJE* 2003, Jeon-Laffont-Tirole *RJE* 2004]
- suggests lower termination charges to balance incentives between caller and receiver.

✓ *Vertical integration*

- often fixed-line operator owns a large mobile network.

✓ *Substitution operated by operator rather than by consumer.*

✓ *Introduce asymmetries among mobile networks?*

[should charge different termination charges. What about Australia?]

Calibration to Australian data

$$
\begin{aligned}
a_{F2M} &= AUD\,0.21\,(Euro\ 0.122) \\
a^{W} &= AUD\,0.18\,(Euro\ 0.104) \\
&= AUD\,0.15\,(Euro\ 0.087)\ \text{if accounts for}\ AUD\,\$0.09 \\
&\qquad\qquad\qquad \text{fixed-operator margin on}\ F2M. \\
c &= AUD\,0.05\,(Euro\ 0.029)
\end{aligned}
$$

✓ Would want a bit more description of

- industry structure
- regulatory details.