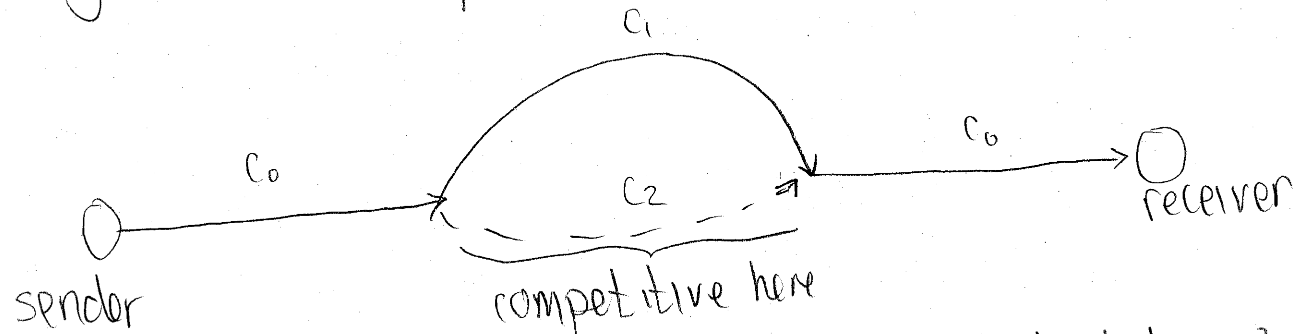
access Pricing

Long-distance telephone market



(*) Why does a single monopolist own both local loops?

		cost	monopolist charge
Long Distance	q_1	$2c_0+c_1$	P_1
Retail	q_0	$2c_0$	P_2
Wholesale	q_2	$2c_0$	$\underbrace{a}_{\text{access price}}$

The competitive segment charges $P_2 = a + c_2$

Incumbent has costs:

$$\underbrace{C}_{\text{total costs}} = \underbrace{K_0}_{\text{fixed costs}} + (2c_0)q_0 + (2c_0+c_1)q_1 + (2c_0)q_2$$

- We know how to recover fixed costs using linear pricing.
- set P_0, P_1, $a = P_2 - c_2$

Will have $\dfrac{P_1 - (2c_0+c_1)}{P_1} \propto \dfrac{1}{\underbrace{S_1}_{\text{adjusted elasticity}}}$

- $\frac{P_2 - (c_2 + 2c_0)}{P_2} \propto \frac{1}{S_2}$ ie $\frac{\lambda}{1+\lambda} \cdot \frac{1}{\varepsilon_2}$

  where λ is the shadow cost of the breakeven constraint

- $\frac{P_0 - 2c_0}{P_0} \propto \frac{1}{S_0}$

Efficient Component Pricing Rule

This a rule where you set $a = \underbrace{P_1}_{\text{this is the price the incumbent chooses}} - c_1$

- This is a partial rule, because it is related to an incumbent choice variable.

Suppose $S_1 = S_2$ and $c_1 = c_2$. Then

$$\frac{P_1 - (2c_0 + c_1)}{P_1} = \frac{1}{S_1} = \frac{1}{S_2} = \frac{P_2 - (2c_0 + c_2)}{P_2} = \frac{P_2 - (2c_0 + c_1)}{P_2}$$

$$\Rightarrow P_1 = P_2$$

Thus, $a = P_2 - c_2 \underset{c_2 = c_1}{=} P_2 - c_1 \underset{P_2 = P_1}{=} P_1 - c_1$

If $c_1 = c_2$,
Will have P_2 too low if $S_2 < S_1$
Will have P_2 too high if $S_2 > S_1$

If $S_1 = S_2$, $c_1 > c_2$
Will have

$$\frac{p_2 - (c_2 + 2c_0)}{p_2} = \frac{a + c_2 - (c_2 + 2c_0)}{a + c_2}$$

$$= \frac{p_1 - c_1 + c_2 - (c_2 + 2c_0)}{p_1 - c_1 + c_2}$$

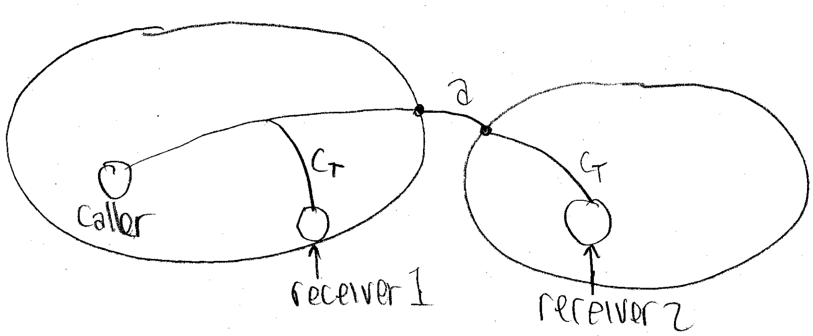
$$= \frac{p_1 - (c_1 + 2c_0)}{p_1 - (c_1 - c_2)} > \frac{p_1 - (c_1 + 2c_0)}{p_1} = \frac{1}{S_1} = \frac{1}{S_2}$$

The mark-up is too high for p_2.

(*) Become more familiar with global price caps and Ramsey pricing

- Pros and cons

Two-way access



- Two networks
- c_T - termination fee
- c - total cost of calling in own network
- $c - c_T$ - own cost of call terminating in other network (other network pays c_T)

- a - compensation paid to other network for terminating the call

Consider non-cooperative choice of a_1, a_2

If each network chooses a_i non-cooperatively, will have a double marginalization problem.

Profit for network j for calls made across networks

$$\pi_j = [P_{ji} - (c - c_T + a_i)] Q_{ji}$$

where Q_{ji} - quantity of calls from network j to network i.

From i's perspective: the analogous component

$$\pi_i = (a_i - c_T) Q_{ji}$$

- classic double marginalization $\Rightarrow P_{ji} > P^m$
- This is why we do not want two-way access charges determined noncooperatively.

Jointly determined access charges can potentially lead to tacit collusion.

If jointly choose a (same across both) and 50-50 Nash Bargaining.

$$mc = c + \frac{a - c_T}{2}$$

$mc = c + (a - c_T)(1 - \text{mkt share})$ if mkt share splitting

mkt share $\uparrow \Rightarrow mc \downarrow$

Need to check the stability of the "equilibrium."

Profits for network 1:

- $\pi_1 = [p_1 - (c + (a - c_1)(1 - \text{mkt share}))]\, q_1(p_1, p_2)$

FOC: $\frac{\partial q_1}{\partial p_1} + [p_1 - (a - c_1)(1 - \text{mkt share})] = 0$

Choose a such that $p_1 = p_{monopoly}$

Because mkt share is endogenous, can undercut.

- $\text{mktshare} = \frac{q_1}{q_1 + q_2}$

Cooperate on a, but compete on p afterwards.

$$\left(1 + \frac{a - c_T}{q_1 + q_2} \frac{\partial q_1}{\partial p_1}\right) \frac{\partial q_1}{\partial p_1} + \left[p - [c + (a - c_T)(1 - \text{mktshare})]\right]$$

FOC when taking into account mkt share effects.