Oi's Disneyland Dilemma

1) Consider a demand curve conditioned on $U^0 = U(X,Y) = U(0,M)$, i.e., the consumer buys no X. The amount that the vendor can charge for X is given by

$$T* = \int_P^\infty \psi(P)d(P)$$

where $\psi(P)$ is the utility constant demand at U^0.

Profits are given as:

$$\max_{\{P\}} \pi = PX + T^* - c(x)$$

which is maximized over the choice of P because the choice of P determines T*. The FOC is

$$\frac{d\pi}{dP} = X + P\frac{dX}{dP} + \frac{dT^*}{dP} - c'\frac{dX}{dP} = 0$$

The derivative of T* w.r.t. P is:

$$\frac{dT^*}{dP} = -\psi(P) = -X$$

This means that

$$\frac{d\pi}{dP} = (P - c')\frac{dX}{dP} = 0$$

or in other words, the monopolist sets price equal to marginal cost. This is simply the derivation of the rule for 1st degree price discrimination. The result is that 1st degree price discrimination extracts all consumer surplus.

2) Consider two consumers. Oi shows this problem in his Figure I.

3) Consider N consumers, n of which are served and N-n are priced out of the market. Let profits be expressed as:

$$\pi = \pi_{A+} + \pi_S = nT + n[PX - c(x)]$$

A stands for admissions. Profits are maximized where the marginal profits from entry fees are equated to the marginal profits from unit sales. The admissions profits are a bell shaped function in {$,*n*} space in the event that the distribution of consumer surplus is normal. The unit sales function is everywhere increasing because when *n*=1, price is equal to MC. As *n* increases, price increases toward the price charged by a non-discriminating single price monopolist.

Examination of Oi's Figure III shows that the two-tier pricing monopolist will exclude around 25% of the buyers.

4) IBM pricing discussed by Oi involves a monthly rental fee that entitles the customer to X* units of "free" time, after which the customer must pay *k* for each additional hour.

See Oi's Figure IV.

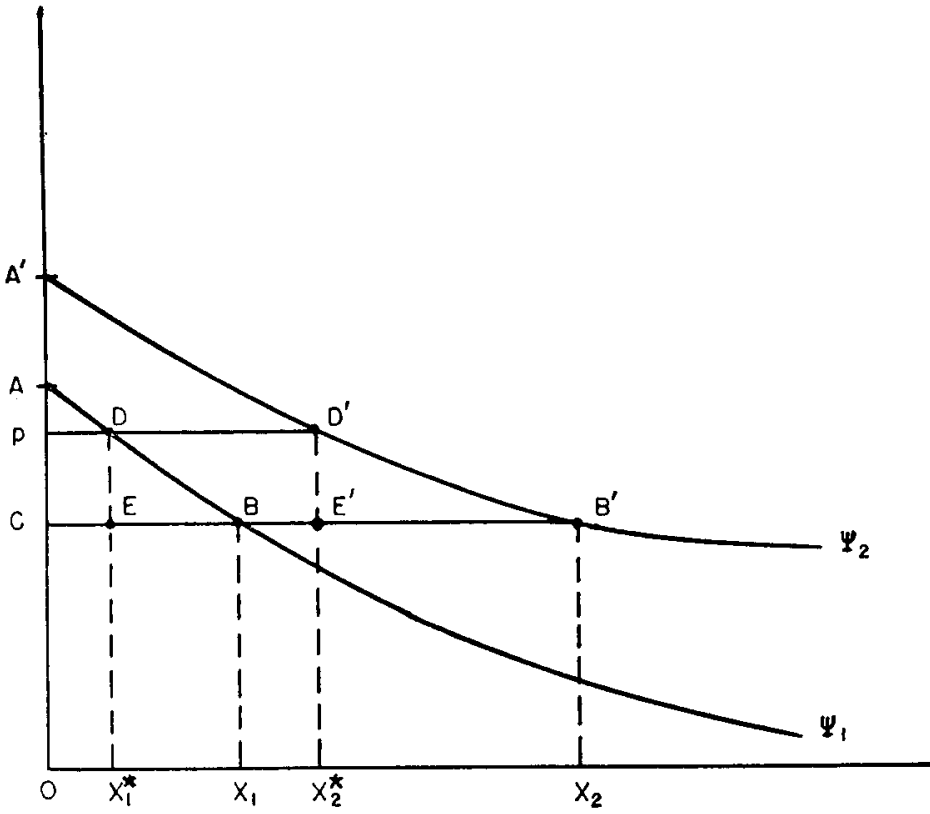5) Apply this model to long distance telecommunication competition today.
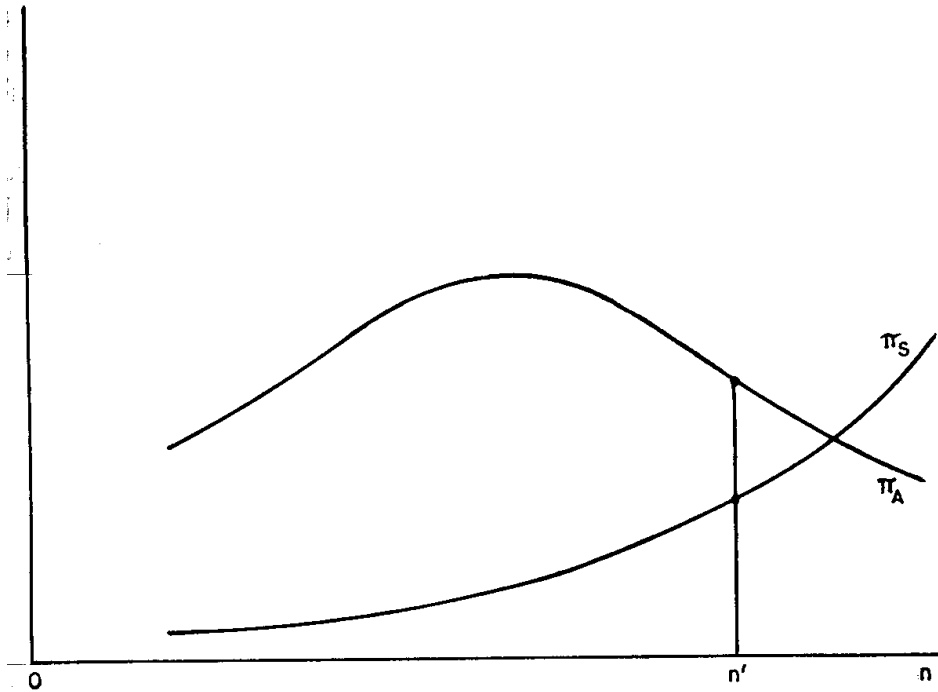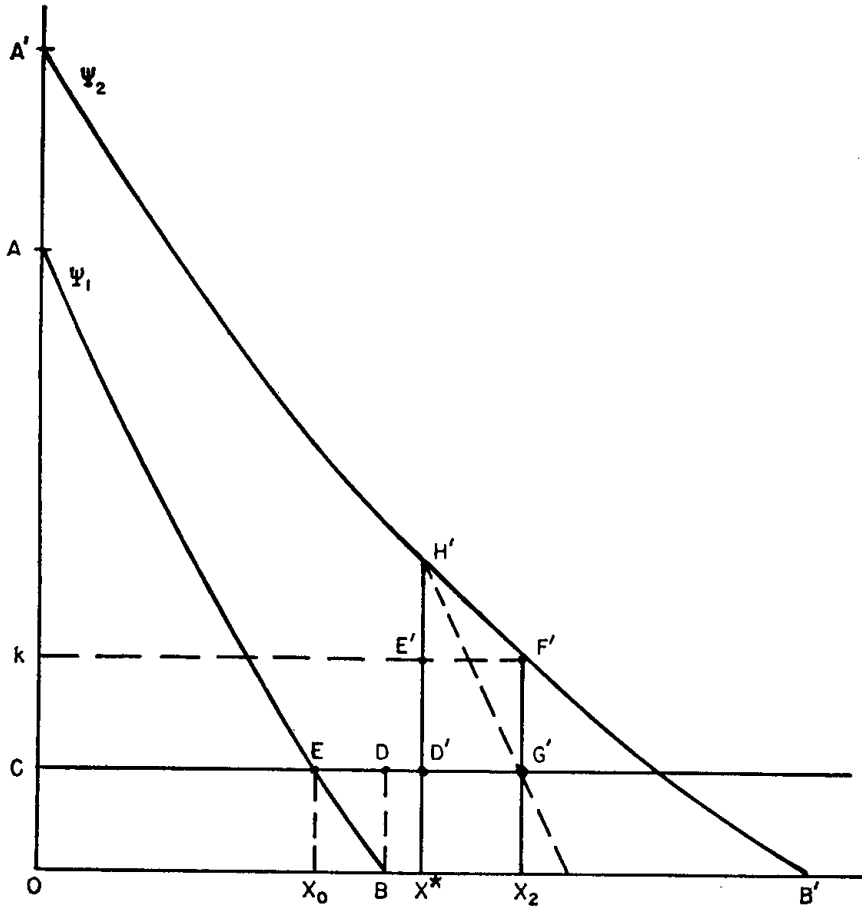
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FIGURE I

FIGURE III

FIGURE IV