Feb 6, 2024. R

Auctions — Vickrey (VCG); 2nd Price Auction

My payments depend on other people's values

[Facebook is using VCG auction for selling advts.]

* English, Ascending bid: Bid your own value.

* CONGESTION

Rush hours: Tariff time specific. Higher tariff at rush hours.

Tariff for externality cost

What time of the day should I go?

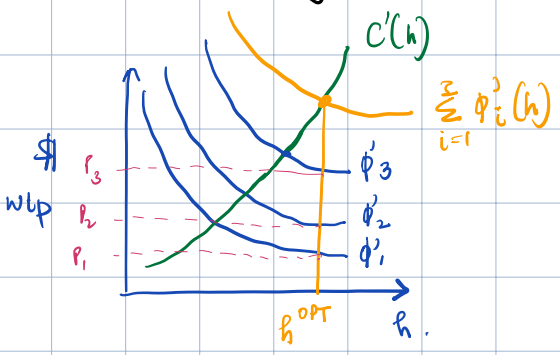
PUBLIC GOOD.

* let's assume an activity is beneficial to multiple people & utility $\propto$ its level.

Pure PG: { Non rivalrous; Non excludable }

eg. Radio waves, Defence

Willingness to pay:



Social Optimum

↓

Decided by the social planner.

How is this even PO?

$$\max_h \sum \phi_i(h) - C(h)$$

$$\sum MRS = MRT \quad : \text{'Samuelson rule'}$$

Lindahl prices : p_1, p_2, p_3 : WTP at samuelson optimum.

$$u_i = \phi_i\left(\sum_{j}^{I} x_j\right) - x_i \qquad x_i \geq 0$$

(x_i → numeraire used up)

$$\mathcal{L} = \phi(\cdot) - x_i + \lambda_i x_i$$

$$\phi'(\cdot) - 1 + \lambda_i = 0$$

* $x_i > 0 \quad \lambda_i = 0 \Rightarrow \phi_i'(\cdot) = 1$

x $x_i = 0 \quad \lambda_i > 0 \Rightarrow \phi_i'(\cdot) < 1$

eg : $\phi = \sqrt{x}$

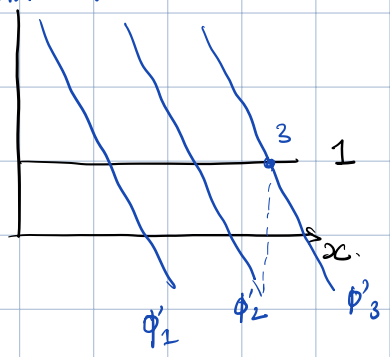
$$\phi'(\cdot) = 1 \Rightarrow \frac{1}{2\sqrt{x^e}} = 1 \Rightarrow x^e = 1/4$$

Optimum: $I\phi' = 1$

$\frac{I^2}{4} = x$

What is I?
↓
no. of people with identical ϕs.

* Equilibrium:



3 contributes everything.
(in part comes with quasi-linear preference)

At 3, ϕ'_2 & $\phi'_1 \leq 0$,
so they are willing to contribute 0.

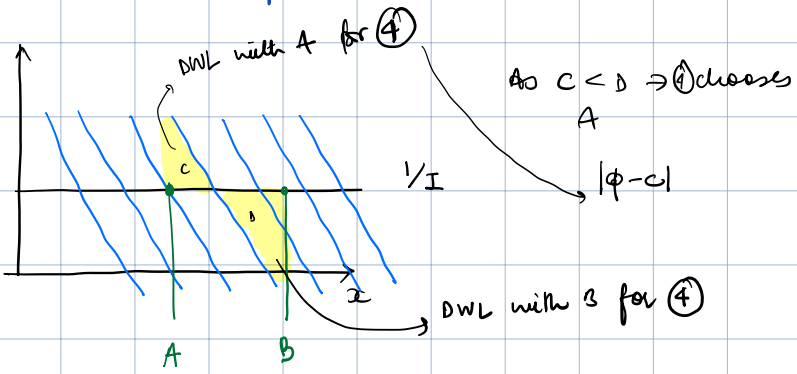
Lecture II

Total.

$\phi_i(x) - \frac{x}{I}$

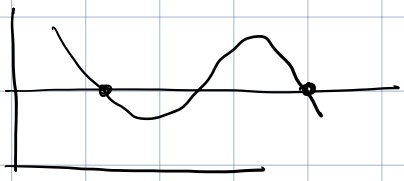
Voting → 2 political candidates | Majority votes win

Median Voter Theorem



But this is not equilibrium. Political parties will move to the median voter pref to get most vote.

* Condorcet Paradox



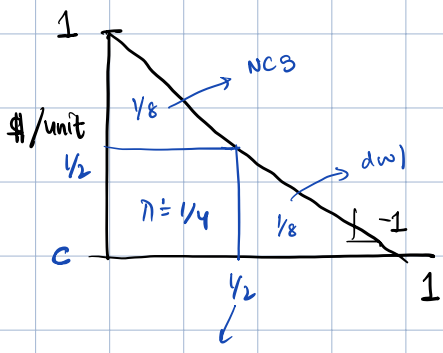
	A	B	C
L	1	3	2
M	2	1	3
H	3	2	1

$L \succ M \succ H \succ L$

* local Public Goods

* Tiebout hypothesis: Individuals can vote with their feat for taxation. Can move to high taxes, high service area or low taxes, low service area.

* MONOPOLY.



$\pi = (p-c)q$

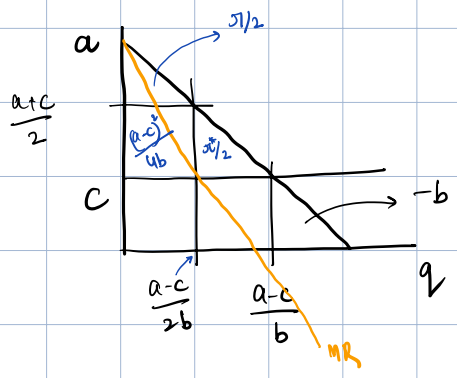
$q = 1-p$

$p = 1-q$

$c = 0$

↑ maximizing for this problem

$p = a - bq$



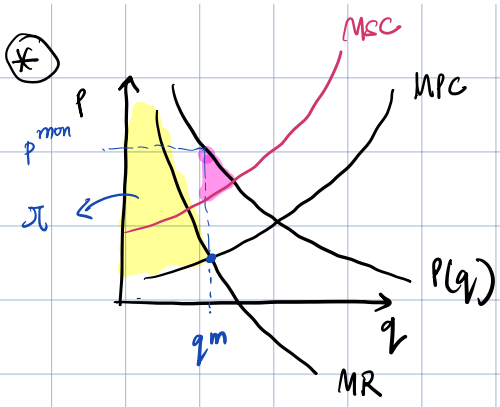
$\max_q (a-bq-c)q$

$a - 2bq = c$

Harberger (triangle) : DWL in context of monopolies

To what ~~extent~~ is the monopoly profit a part of DWL if it is used in competing for the monopoly status.

(Ref. Posner → 30% GDP DWL estimation for India. Quotas made profits DWL.)



$$\pi = \overset{TR}{p(q)\cdot q} - \overset{TC}{C(q)}$$

$$M\pi = MR - MC$$

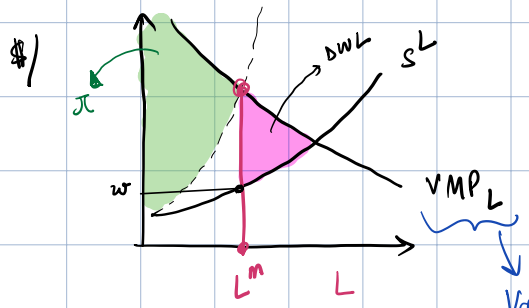
When an externality is bad; monopoly is better because it reduces the qty. produced.

⊛ Monopsony

$$\max_L \pi = \bar{p} f(L) - L w(L)$$

$$= \bar{p} f'(L) - (w + Lw')$$

marginal outlay on labor



Monopsony is monopoly turned on its head.

Value of Marginal Product of labor / labor demand