



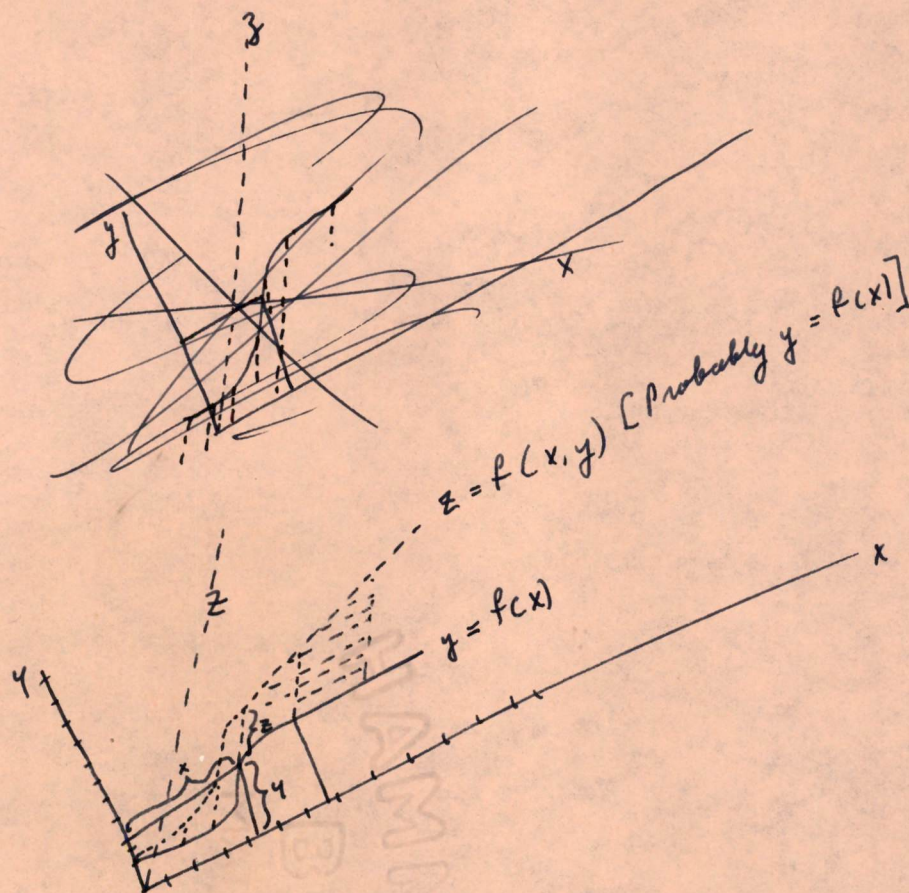
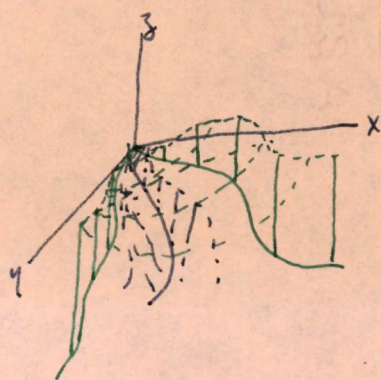
ANGLE TAB VISIBLE-NAME FOLDERS

CAT. No. 50939

How to draw legible 3-d graphs. Solid lines are in the 2-d plane, $z=0$.
 Draw there $y = f(x)$, or at least draw the corresponding values of x & y .

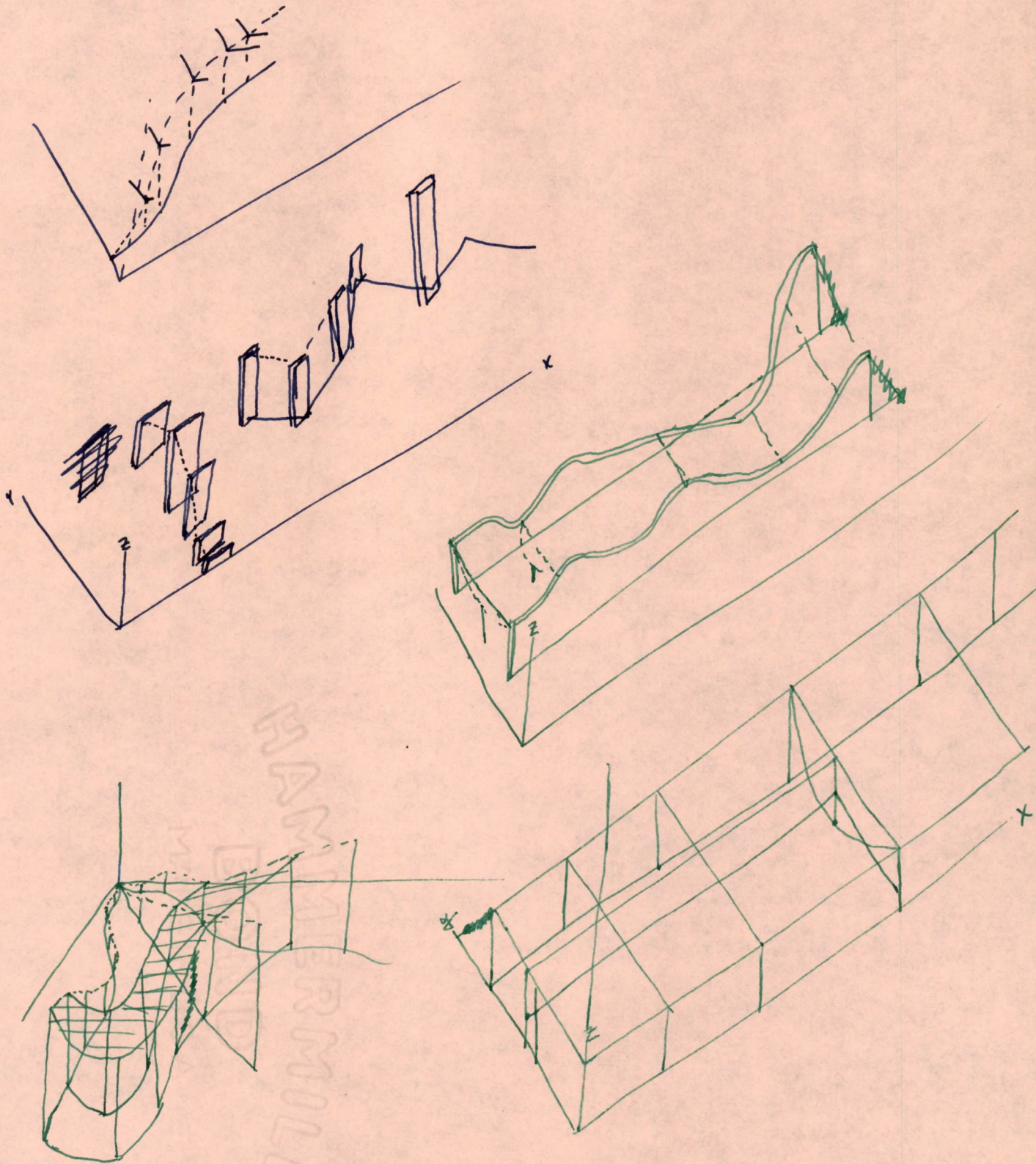
The solid curve is the projection of the dash curve in the xy plane.

By assuming x & y combined optimally, we get a line instead of a plane.



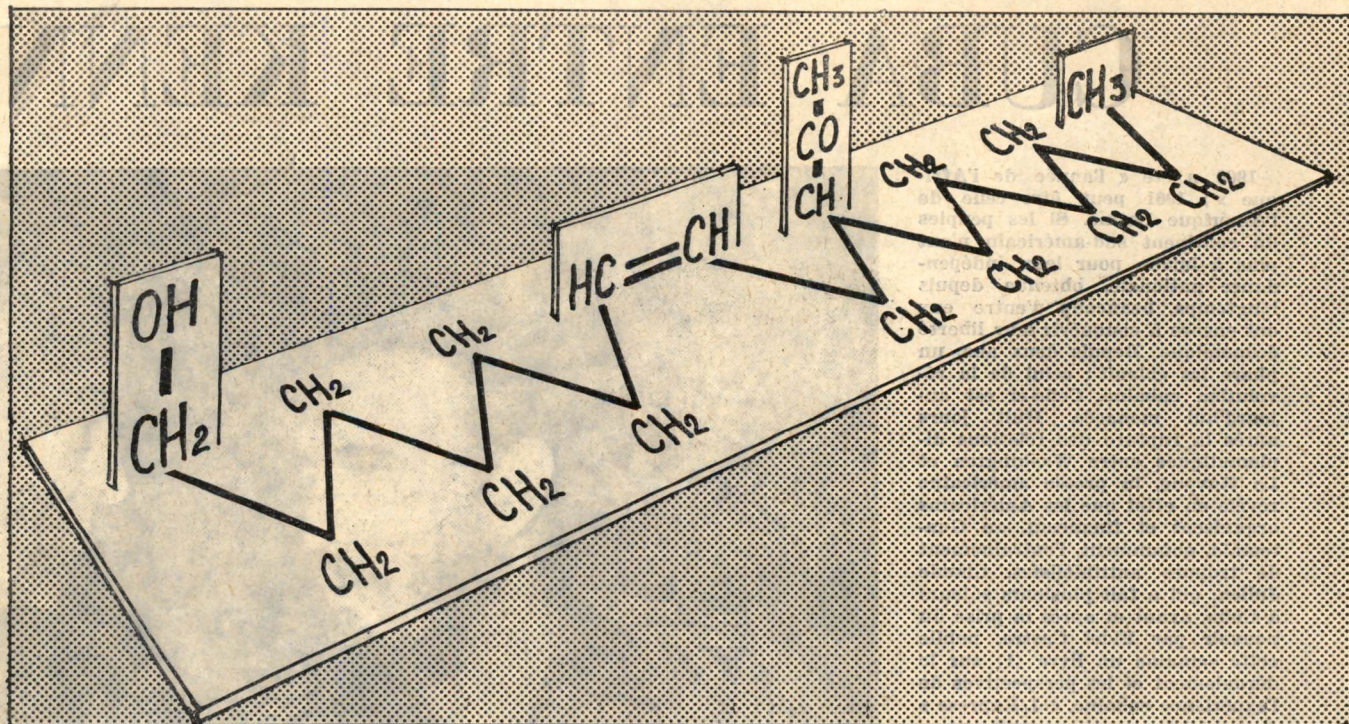
This way doesn't come thru so well? No, seems ok.
 Depends on function. Select view point so that
 fn. isn't coming straight at you, or away from
 you.

You cd. also graph other relations by lines running out at diff. angles to imaginary projection.



**SCANNED
AS
FOUND**

La marche du temps



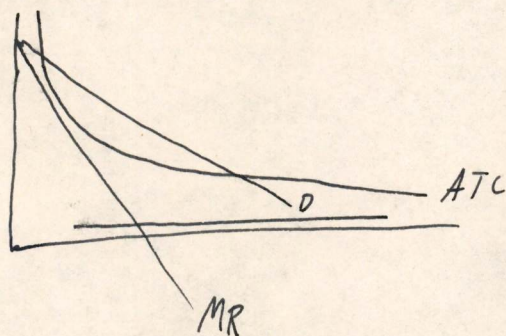
LA MOLÉCULE DU PARFUM DES PAPILLONS ZIGZAG FEMELLES.
Un dix-millième de milliardième de gramme.

CUBA ENTRE KENNEDY

1960 a été « l'année de l'Afrique » ; 1961 peut être celle de l'Amérique Latine. Si les peuples du continent sud-américain n'ont plus à lutter pour leur indépendance nationale, obtenue depuis longtemps, beaucoup d'entre eux ont encore à conquérir leur liberté économique. Depuis deux ans, un phare les éblouit : celui de la révolution cubaine. Celle-ci est aujourd'hui menacée. Huit jours après la rupture des relations diplomatiques entre Washington et La Havane, la presse américaine révèle en effet que les Américains organisent et financent, au Guatemala, notamment, l'entraînement de troupes antifidélites. Claude Julien, qui a fait plusieurs séjours à Cuba, avant et après la prise du pouvoir par Fidel Castro, publie cette semaine un livre (1) sur le déroulement et les perspectives de l'expérience cubaine. « L'Express » donne ici les passages qu'il consacre au problème dont dépend en grande partie l'avenir du régime cubain : celui de ses relations avec les Etats-Unis et avec l'U.R.S.S.



1. Unregulated p.u. $MR = MC$



Probably restrict output more than K&H, even.
And on top of that, characteristically underestimate el. of demand ... TVA-land.

also - over long pd., demand very elastic. Shrt pd, inelast.
Often pvt utilities can't wait for long run - can't build a head of demand - hence restrict unduly

~~2. How hi build down?~~

2. Problem of valuation of fixed assets. Insoluble, circular

also, must take ATC at pt mngt chooses -- regulator can't regulate output

3. Scattered settlement, main problem.

4. Hell's Canyon

Decreasing Cost Inds. - rate reg.

K. & H. discuss under "Reg. Prices".

What are they? Not "chronic surplus ind." - is p. reg. that creates surplus.
Not "affected w public int." - all are.

Most typically, distrib. or commun. (P.O.; & publishing) (publishing is decr. cost per item - doesn't nec. mean decr. cost on genl firm expansion)

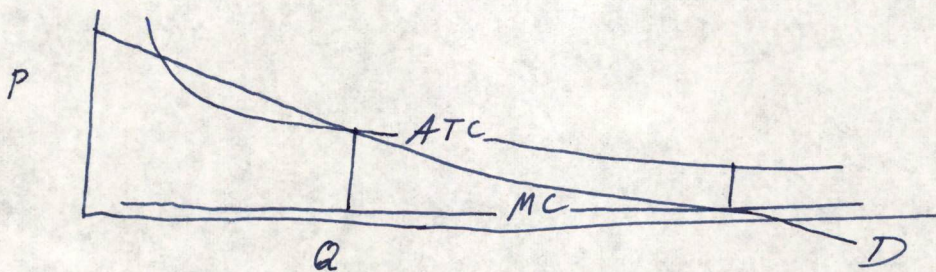
Are nat'l mps

Hi fixed costs - then add vble factors, but don't reach dim. returns before satisfy demand

((Often requires central mgmt, integrated op'n: phones. - nat'l mps do))

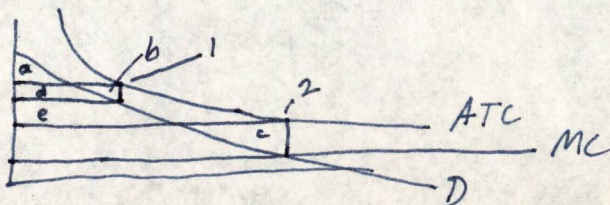
Very imp't: $\frac{1}{3}$ - $\frac{1}{2}$ all securities on Wall St? Course in govt reg.

Enl principles: K & H wrong, p 567, "adequate service" is all that pays ATC.



Bring in tremendous new custom, at very small additional cost.

May make utility possible, otherwise not. Esp. when build'g a head of settlement, permits settlemt, thus soon builds larger demand for self. skip the extra lines at pt. 1?



Will not pay for self at pt 1, by fares. Maybe not even if subsidize, figure c.s. of "a" vs loss of "b". But expand to 2, ~~balance~~ Δ benefits much, Δ costs little. Balance c vs a+d+e. Also consider demand will grow if you open new area.

Benefits of P.U.D.: (or R.E.D.)

1. Charge MC, Not AC, thus ~~expand~~ expand mkt; & often, make service possible where wd not have been. any at all.
2. A 2d ~~disadv.~~ adv. I didn't mention before. What is often called a great disadv. You pay whether you use it or not. So the land spec., or gentleman farmer, big landholders who underuse, pay a lot. Encourages development. Fills up the holes. — consolidates pop. Which lowers cost. of power transm. Thus incidentally bringing many further advantages. — e.g. cheaper phone service.
3. As vs coop: bonding power, good finances.

Some outstanding current issues in ~~public~~ electric power.

I. Who shall distribute power from govt dams. -- distrib. is decreasing cost.

1. Preference Clause for electric distrib. coops & P.U.D.s & ^{other} munic.
since 1944.

Recently challenged, Ga. case

I say distrib. is ideal field for P.U.D. Over

Why don't local prop. owners favor? Sometimes, often do. Elsewhere, land spec.s dominate.

2. Resale & control? D.? now abandoning.

3. Primary distrib. lines, govt will continue to op.

4. "Ptnsp"

Subsidize fixed costs, change vble costs.

Good idea, except don't tax beneficiaries, as PUD does.

Fn. of price ... ration scarce resource. Only excuse.

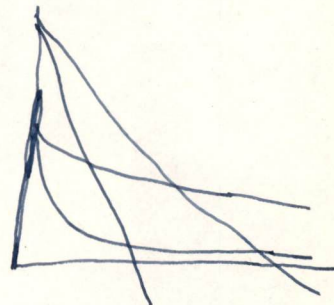
Put a hi price on something not scarce, get underuse. - like butter.

Most dist. services not scarce. - costs little more to build for 200 than for 10.

Many, public provides free. Streets, walks, lights, sometimes others.

Reasons:

- Deer. cost
- Is mnpy. Pvt. seller wd restrict, if $m.n. = m.c$ at less than $P = AC$
- Obviate collection costs
- Pay by non-contingent tax, consolidate settlement.
Is it "fair" to tax those who don't use? Certainly. Landholders are main beneficiaries, even if live in another country.



What of those who ~~don't~~ live there, but don't want to use public streets? Old-fashioned type, walk, own well & cess-pool etc. ... Is limit to how far one can go in inconveniencing others & call it his natural right. If feels too badly imposed on, can buy elsewhere. - not disrupt compact plan of settlement, ~~A neighbor's~~ lower neighbor's standard of living.

- Must build ahead of settlement, long wait. ^{build up demand.} Public can use as device to aggressively expend. Mnpy co.s often drag feet. "interesting to watch it develop..."

- Might not even exist if prt.

Problem of short vs. long run. If underbuilt sites, etc., get incr. short run MC. Deer. cost is long run (cd. be short, too). Must plunge ahead of mkt, need to i.n. & non-mnpy.

8, W.

Deer. Cost products.

Hi fixed cost, low vble cost, limited mkt

Is natl. mpy. - unlike incr. cost.

E.g. (Grand Coulee) tunnel vs pumping

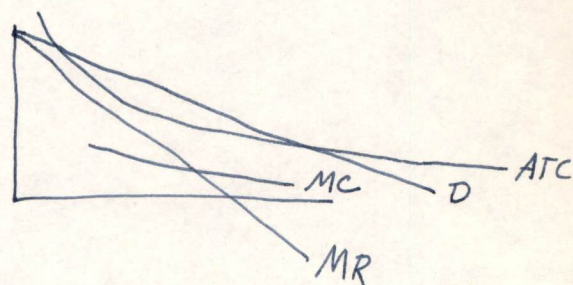


Fixed vs vble

What keeps from reaching ideal output?

1. Need to cover costs
2. Used to collect taxes (even if munic. So not argument for public power, but for cheap power)
3. Mpy motive
4. Vacant land

So we're vastly underserved & overcharged, p.u.



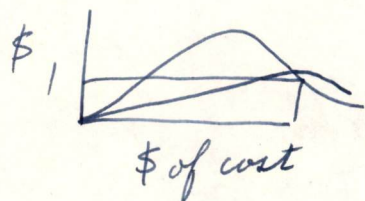
Ec. of Scale. Thurs., 8.

1. Spec. n of labor
2. access to greater variety of inputs
3. Larger pieces of equipment, lower unit costs
4. Large scale purchase

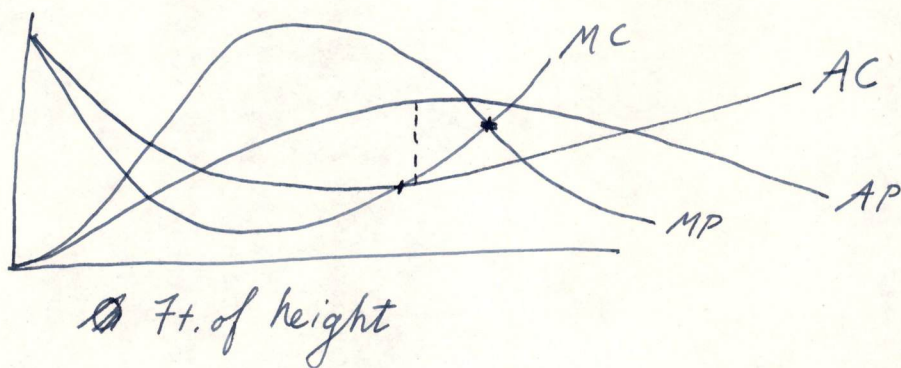
Student tends to identify self
w. employer, wants to know what
is his 'profit' --- in dim. returns
graph.

So why not start w.
individ, add bond, illustrate dim
rets so.

Take individual enterpriser as fixed, figure his residual.



Can get various residuals, dependg on how hard he works. Add him
until mgnd product (Δ residual) = MC , subjective.



Where is max. output per unit of cost? i.e., $\frac{\text{output}}{\text{cost}} = \frac{TP}{TC} = \frac{AP}{AC}$

$\frac{AP}{AC}$ reaches max. when increases as long as ~~%ΔAP~~ %Δ(AP) is greater than %Δ(AC): i.e., $\frac{\Delta AP}{AP} > \frac{\Delta AC}{AC}$. Now, where 2 curves are ||, ΔAP = ΔAC, but $AP > AC$, so $\frac{\Delta AP}{AP} < \frac{\Delta AC}{AC}$, so must move back to left to get max. ratio of $\frac{AP}{AC}$. In above graph, move back very, very little.

Where MC flat, $\frac{\Delta AC}{AC} = 1$, always. So ~~AP~~ $\frac{AP}{AC}$ grows as long as $\frac{\Delta AP}{AP} > 1$, i.e. until AP is max. Bes AC is const., natch., max ratio at max AP, ~~But~~ where AP - AC is max. But that is just coincidence, for special case.

What's a hatch. mmpy?

One-store towns. As town grows, mkt grows, various things become mmpies. — advantage of widening mkt.

✓ Dense pop, lowers costs per unit of output, hatch mmpies become more & more efficient. Finally, is room for 2 or several, of some things. ^{land settlement problem.} they are less mmpy — call temporary hatch mmps. ~~Never clear.~~ Many mmpy cases — I say when in doubt, treat as competitive.

Trucks?

Busses

River developmt? — only 1 river.

Xp'tn of any kind — maintaining roadbeds makes hatch mmpy. Timber access roads

R.R.s. can't divorce route from op'g cars.

Power lines. NW power pool. BPA planing. War impetus.

— If many possible routes, can have hatch mmpy that is not a mmpy of hatch resource. But not so strong.

But hatch resources do tend to become mmpzed — but limited.

But not hatch.

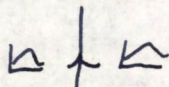
Rivers.

Limited, non-duplicable natch resource.

Weakness of doctrine of approp:

Use more, & sooner than need. Claim more than use. Inflex.

Priority of claims, no relation to current needs.



+ C-3, at Ore City. Divine right to block upstream dev-m't? Only if they'll pay for it.

Shd make p.u., like city. What a mess city wd be if every lot ~~house~~ had own water rights, priority of claim, etc. Murrs all water - dry yrs, outskirts get none.

Power, too.

Illustrates need for unified control, ~~of natch~~ which makes it natch mnp

Bowles. Overapprop. But don't all use at same time.

Engineer, State, issues water permits.

1909, Water Law setup

Since 1945, more water rights issued than 1909-45

E. Ore, are water masters, not in W. Ore.

E. Ore.

Groundwater law

But W. Ore, can sink well next to stream.

Conflicting uses - how reconcile.

Unused irrig. permits block industries from claiming

1. Review, organize.
If you ever start playing mkt, need this stuff.
2. Ask questions on reading

Weaknesses of local & state control.

- a. No control of interstate op'ns, or financing. (& must control financing to make rates)
 - b. K. & H. don't give much. In class, mentioned Balkanizing.
- No man's land preceding P.U. Act of '35. (interstate sales) (& finance)
(State had no authority over P.U. H.C., but not op)

3. Bring out ideas. YOU will encounter natch mnpies, even if never deal with big ones.

Common carrier principle - same rates for all, no exclusion, rates regulated. - e.g. S.O. nat. gas pipeline (own)
1. Coops as solution - grain elevators. (Trouble is, coop may become mkt & mnpie itself) Sun Maid, Sunbelt
2. District organization - e.g. road district in timber area. School district, mosquito abatement, REA districts. P.U.D. in N.Y.

Failing those, can have:

3. Govt regulation
4. Govt ownership & op'n - roads, p.o., airports.

As mkt grows, many things create to be nat. mnpies. - grain stores, even specialty stores. But strategic routes; things that require integration; remain natch. mnpies. Can always build another store - always that threat. But can't duplicate sole right to use city streets, or distribute gas & electric. The permanent natch mnpies the imp. ones

"Franchise" - state grants a mnpie. Traction co., sole use of city streets. Equipment obsolesces - e.g. electric trolleys on tracks. But franchise goes on forever.

Reasons why comp won't work

these problems don't solve themselves - regulation not automatic. The
minute the public becomes apathetic, bingo - up go prices.

1. Review

- a. Established Nat. mnpy is product or service where comp. won't work.
 Bes just one non-duplicable nat. res.; or decreasing cost.
 Also is something important. - not Rita Hayworth - no need to socialize her

Some confusion - ~~the~~ one man said mnpy of a nat. resource.

Often true - anthracite; n.r.; bus lines
 - but not essence... e.g. power lines might be anywhere, but only demand for one set. Decreasing cost.

- ✓ b. Hence regulate - prices. But when regulate, must go long way. No reg. services. & financing - ask why (rate making)
 c. Local & state regulation main thing - mostly state now.

But disadvantages, weaknesses. What? (Utilities interstate; Balkanize)
 P.U. H.C. - no one could regulate them, bes not op. utilities.)
 No control of interstate comm.

- d. Fed. reg. What led to it?
 Will give some examples of trend to Fed. reg.
 P.U. Act, '35

- i. P.U. H.C. Act
- ii. Fed. Power Act

i a. Death Sentence. No pyramiding. review what is. So if you buy stock, now, notice no more El. Bond & Share, etc. & notice get higher earnings.

b. Sec. & Exch. Comm. regulates.

NOW '29 ATTITUDES RETURNING - Big test for SEC coming.

- ii. Fed. Power Act.

Gave FPC power to regulate all interstate power sales.
 (No man's land)

Great war powers. - order comstr.

NOT STATIC. Lobbies, both by power cos & cities served

1½. Reasons why comp. won't work

1 New Ground.

a. Telephone AT&T.

'10-'34, by FCC - interstate only

'34, FCC took over. Controls rates & service, but not financing. Result: Western Electric, AT&T sells equipment to self at high prices. Old trick, as old as reg. Public hasn't caught up yet.

b. Radio & TV

FCC, '34.

A nat. mnp? No. Just need to assign channels.

Channels a nat. resource, vbl. ^{public domain} Govt giving away on basis of pol. influence. ^{McCarthy, Facts Forum} I suppose as long as people are bored by ec., & gaze out window, you will be fleeced - & some of us who have learned something of these things will join the predators.

3. Public Development.

a. Problems of regulation so severe. Some say if govt must regulate so, why not own & operate outright? ^{Clan?}

b. One argument for public development is multiple purpose project.

CVP: irrig; power; flood control; navigation; salinity control, urban water.

Non-salable benefits.

So worst opponents of CVP don't want P&E take over. Just state. Or army engineers.

c. Yardstick theory

Taxes & interest. - crazy K-iam theories of O int. rate, '30s.

Other hand, prt utilities often do inflate their costs. TVA has made profit, even if paid taxes & interest.

c. (cont.)

How inflate?

- i. Commission guarantees "690" as "fair return". 690 of what?

What is base?

Assets of co. What is biggest asset? Franchise, location.

What determines its value? Rates. Circle.

So develop fictions. Appreciate base.

- ii. High costs, buying from selves.

AC idea, based on idea value of xprt. to society is PA. Is more.

If we set rates = MC, no valuation problem. Give co. enough tax revenue to

keep it going.

Form of subsidy: a) land grant, often: ^{i.e. govt pays rent for them} Present problem is, grantees now try to obscure that original & continuing subsidy, pretend they must make return on it.

Using AC, must figure out what it is.

b) From taxes. Not subsidy, form of pay'g for services rendered. E.g. Hell's Canyon

If all costs explicit, easy.

What's "o.c."?

But biggest cost is inc. must impute for fixed assets. If rented them

w'd have to pay. Owning them, still must get something to justify keep'g

them in the business. — but no more — no need to give hi unearned inc.

So put value on them

K & H ^{reflect inc., capitaliz'g.} ~~reflect value by inc.~~ What's "capitalize"? Why reject? it yields; or cost of production.

Neither good. ^{franchise, no cost of production.} Best: alternative use -- of city streets, or right of way.

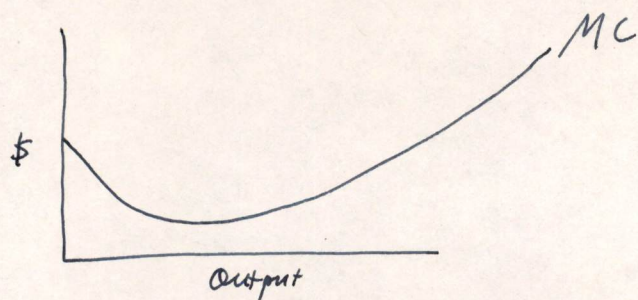
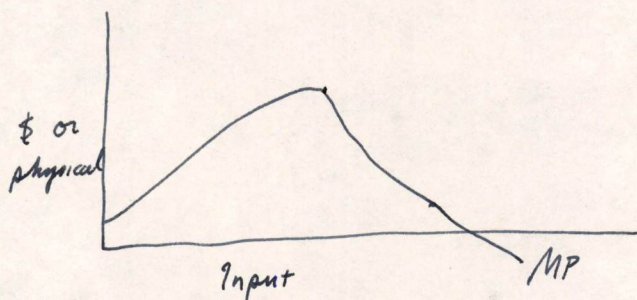
ICC has tended to use past costs, not present, ^{replacement costs,} as basis for valuing, & set't'g rates. (Advantage of keep'g them down) Recent trend to Δ city fares. Traffic.

Adequate ^{output} ~~service~~ --- says must have rates hi enough to attract cap.

I stress, must be low enough to attract adequate customers.

Remember, natch. mnp'y is mnp'y, even if reg. — never ceases to think & act so. Use MR.

Rn. rates: crime of 1931. Now try'g to push up again.



$$MP \equiv \frac{\Delta P}{\Delta C}$$

$$MC \equiv \frac{\Delta C}{\Delta P}$$

$$1. \quad MP = \frac{3 \text{ bushels}}{1 \text{ man-hr}}$$

Put M value:

$$MP = \frac{\$6}{1 \text{ man-hr}} = ? \frac{\$6}{\$3} \text{ No.}$$

Just = \$6 per man-hr

$$MC = \frac{\frac{1}{3} \text{ man-hr}}{1 \text{ bushel}}$$

$$MC = \frac{334}{1 \text{ bushel}}$$

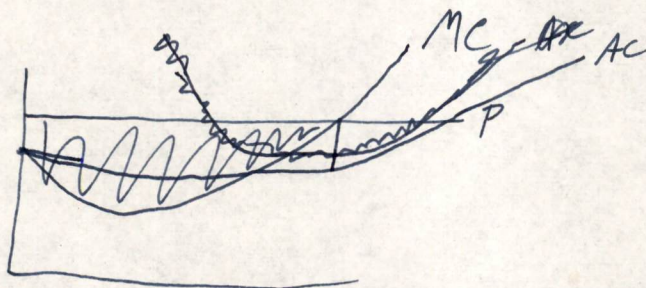
Now, if we put a value on denominators, $MP = \frac{1}{MC}$

$$\frac{6}{1} = \frac{1}{\frac{1}{3}} \text{ ok}$$

i.e., the MC per \$ of output = $\frac{1}{\text{the MP per $ of inputs}}$.

That is not the same as their being simple reciprocals. You must put values on the denominators, & explain, as I have above

But analysis not useless on that account.

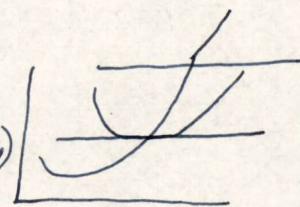


Cd. include rent with entrepreneur. Lowers AC

Useful for analyzing individual firm. Tells us how far he will expand output; when more ec. to have a new firm instead of expanding old; what happens to output when ΔP , & why.

Where is weak is on distribution of income, rents. To understand that, go back to S & D

Have given costs, eq., then ΔP . (by Δ demand)



Not just rationalizing. Certain adjustments take place, various possibilities.

a. Supply of all resources elastic, ∞ , incl. entrep. Then new enterprises & resources come in. E.P. competed away.

b. All resources elastic ∞ except 1, bottleneck. Δ production a little, not much. E.P. - who gets. Not entrep as such, but owner of bottleneck. -- patent e.g., & he limits it. Then e.p. imputes to patentee.

c. All resources inelastic. Then MC goes straight up.

d. Any combo. In practice, ~~one resource will be~~ those resources whose supply is inelastic take gains & losses. Others move in & out.

First, draw on bd.

Tools, cap.

ask — ?

Practical use.

Effect of taxes, various kinds. Are they passed on?

unions — are wage Δ s passed on

min wage law

Δ i. r.

Δ elect. cost

- ✓ — P controls. Escape ind.; or revalue assets; or revalue vble costs.
- ✓ Does ec. work eff.. P shows gain. Cost is loss. Not are cost per unit of output, but
- ✓ MC. Adjust resources to $MC = P$ everywhere, more eff. — ~~sacrifice gain~~.
- ✓ What's opt. size. Big more eff. than small? (Anti-trust)

What is most efficient output for firm: ^{e.g. your own.} is min. AC a goal. (not to individual)

(Not all acct-ts figure this way, only smart ones, who make M)

(Hence can study acct's & learn O)

Effect of mpy

Mon, 2.

Relation of firm cost curves to ind. supply curves.

1. Sht. run: expand on MC curve. Short run industry S curve is sum of MC curves.

~~as P rises, new firms enter, when min ATC permits.~~

~~... old ... expand, on MC curve.~~

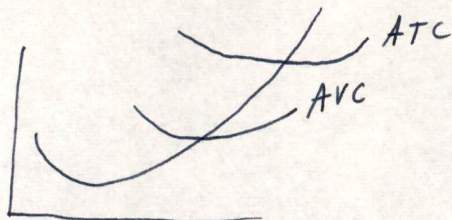
2. Long run

a. ~~Expand~~ New firms enter

b. Old fms expand. LRMC

How do long & sht run differ?

add FC & VC, is all.



✓ If $P > ATC, \min$, shd build bigger plant.

✓ And/or, others should move in, bring down P .

✓ What decides which? If bigger plant has lower min ATC + than

✓ present one, expand. If higher, more plants enter

✓ Long run, no fixed costs. At least to firm (land, to society? or ind.)

✓ AVC , if P drops below it, better to produce nothing. Ask - why not go

down to min. MC ?

Taxes: prop. vs inc.

Prop. Δ s fixed costs, $\therefore \Delta ATC$, ~~leaves profits same. Until long run.~~
~~depreciate~~ Part falls on inventory, Δ s shrt run costs; pt on bldgs, Δ s long run costs. Pt on
 land --?
 Inc., adds to vble

Burden on horse's legs, vs on back.

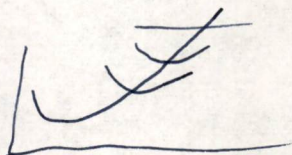
✓ Fixed cost - historical, or current? What i.e.? Many say big corps
 hold much w/o acct'g enough fixed cost, wd. produce more if they figured better.

Indiv. firm, elastic demand, why not Δ output w/o limit?

Costs Δ

also, elastic supply - then why do MC Δ ?

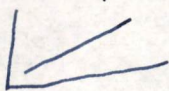
Suppose demand Δ s



New firms.

Suppose decreases. - may write down fixed costs & stay in bus.; or resources may leave field. What determines which?

Pure comp, long run, industry supply is min. of long run AC of various firms. (Not counting rent as a cost)



On end of supply curve, have those who cannot or must move out, when p full. They move out. Inner part of curve, fixed. Must revalue fixed assets.

Do you produce where min. AVC? ATC?

Cost curves & supply curves:



Short run, move up MC curve.

Long run, build bigger plant; & new plants enter.

Short run industry supply curve is sum of MC curves
min. on ATC curves.

Long run

The meaning of cost. Distinguish it from rent, or producer surplus.

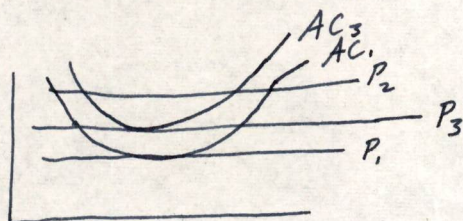
And yet to individual ~~firm~~ tenant, rent is a cost.

Distinguish individ. & social costs.

Firm analysis goes by cost to individual tenant, thus includes rent as cost. Thus dispense with revaluating assets. "Firm" has no assets.

Costs rise.

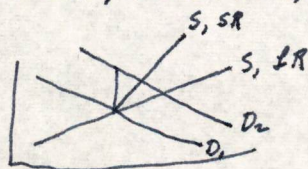
Boils down to this:



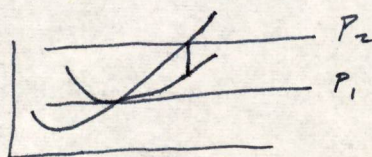
Demand rises, to P_2 . ~~Short run~~ Long run, that increases cost of hired resources, raising costs. ~~to~~ & of course brings in more resources, lowering price. ~~to~~ Until P meets min AC , P_3 .

→ To expound:

1. Show S & D, when ΔD , shrt run & long



2. Show firm adjustment, ~~shrt run~~ immediate.



Excess profits go to ~~fixed~~ ~~resources~~ entrepreneurs — tenants.

3. Short run. Extra income goes to fixed factors. Fixed costs rise,



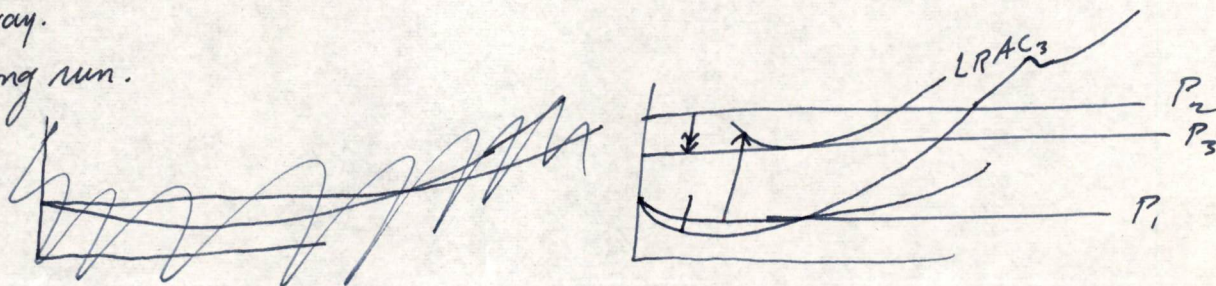
necessarily - whatever their long run supply elasticity.

(Am also skipping over slight fall of p ; again, for simplicity, etc)

Vble costs also rise some, but what is available to industry is not unlimited. But not so much. & for simplicity we'll say not at all. So just keep vble costs const, ATC rise - rent of tot's farm.

Not just rationalization. Rent actually rises, explicit payment. (& so, if farmer holds own place, must credit more to the land)
What is a rationalization wd. be to say p is high because rent is high. Is other way.

4. Long run.



Costs to firm rise, as some resources prove inelastic. They get grumpy.

What fn. producer surplus? Doesn't call forth supply. But nations supply.

Long run, land gets it more than any other, less mobile. Or, if talk'g of total supply & demand, all land inc. is producer surplus - ee. rent.

Blitz a machine - intellectual. When thru, throw in problems, turn cranks, out comes answer. Note how now, explain'g something, often allude to other concepts not covered yet, disrupts analysis. When thru, needn't do so.

Use of concepts.

1. Cons. & producer surplus.

Plan to Δ supply.



e.g. lower tariff.

Build new factory

Farm prices. supports.

Competitors moan. But observe are not destroy'g incomes, just xfer, one group to another. - from producer to consumer surplus. & is net gain besides.

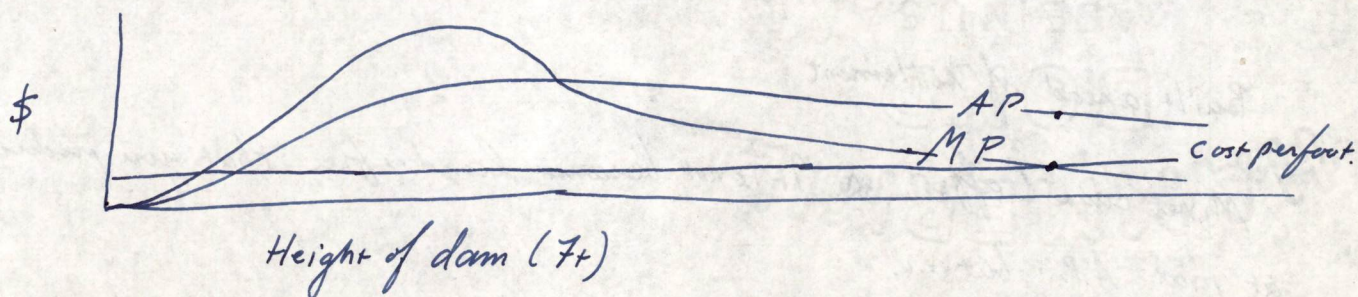
Observe, analysis is from social view. Hence seems strange to many of us, used to think'g in terms, what's in it for me. But social view only

Hell's Canyon.

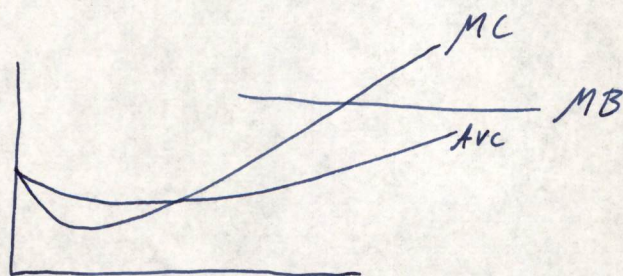
$MC = MB$, either side can use

How high to build dam?

Until $MC = MB$.



Ec. analysis is some good. Tells us max AP, or ~~A~~ min AC, wrong way to go about it. Expand until $MC = MB$ --- always correct --- no matter how complex curves seem, always go back to that, always right. Once get concepts straight, just matter of msg. Tough, at that. But if don't get 'em straight, don't know what to measure. Issue between hi & low dam is one of MB & MC: is the extra height worth it? Apply to costs



Again, expand until $MC = MB$. AVC not at min. But ATC is. Excess profits imputed anyway, are value of site. Also arrive at it as Excess of MP over MC, wd. be same.

Now consider cost of power, not at bus bar, but delivered. There is decreasing cost. "wheeling", distrib. power. Add another πC , moves opt. farther to right. (also, move MC over a little) (to left) Another πC : ruin fish run. obvious mnp interest. Why Idaho power want low dam?

Big dam costs 3 times as much.

(Put M values on MC & MB)

Additional benefits:

Storage

Flood Control

Navig.

Recreation

386 vs 133 m ?

133
\$253

Built ahead of settlement

Mixes cause & effect, ~~the~~ It is not because land is free that you produce at max A.P.; but v.v.

Snake flows out of phase with rest of Columbia - Snake flows in winter, Columbia in summer.

Growth of atomic energy.

5. Where S curve come from?

Σ indiv. firms, S curves.

Where do they come from?

Depends on costs; & how individ. firm reacts to p stimuli:

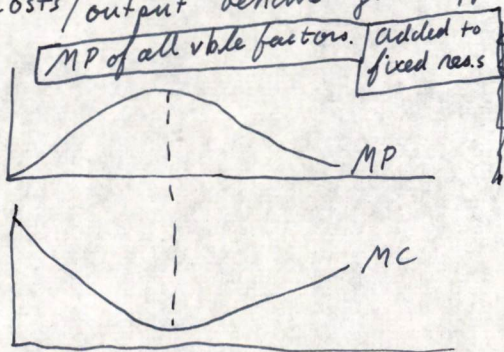
So: Now will analyze costs of individ firm.

- (Later: demand for individ. firm's output)
5. $\frac{1}{2}$. "Cost" includes everything - all income must be imputed away. ~~Impli~~ Just as on balance sheet, always balances, extra assets balanced by extra owner's equity. Implicit vs explicit. Tnt firm - disembodied spirit.
6. We already know something of individ. firm's costs: dim. ret.

But the way we have had that info in past, is not in the form we now want it. MP curves showed output per unit of cost: $\frac{P}{C}$. We want now cost per unit of output - $\frac{C}{P}$.

on S & D curves, output is our unit, not cost.

7. Costs/output behave just opposite of their reciprocal.

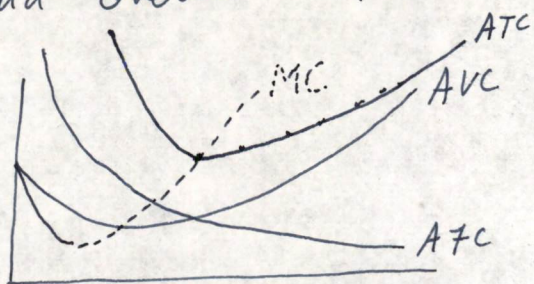


Where $\frac{MP}{C}$ is, $\frac{MC}{P}$ is
 " " max, " min

8 Add AVC



9. add overhead - ATC . Set ATC



(Should add a new time pt - the very long run, can change cap, not land)

(Note succession of minima: MC , AVC , ATC)

Show totals.

10. How does firm react to ΔP stimuli?

Dist. long & shrt runs.

Shrt run, no $\pm \Delta FC$; & no new firms. So there may be shrt run 'profits' -- e.g. to tnt firm.

Suppose perf. el. demand. - at min ATC .

If ΔP , expand until $MC = P (=MR)$, always best

Show temp. profits.

— Rock bottom.

11. What happens in long run?

a. New firms. If long run S curve flat, push p back down

b. No new firms. S inelast. Rent rises --- imputed to inelastic factor. (S cannot be perfectly inelastic, unless shrt run MC vertical)

c. Actually, both p falls, & costs rise. Imputed, & competed.

12. Another thing can happen l.r.: change fixed assets. Look for l.r. opt. size No FC .

Individ. firm will do it, if fixed factors aren't fixed (if they are fixed in long run, then l.r. same as s.r.) (except for acctg formality, in long run you write up value of fixed, impute to them)

Mon. (last word) (as of 4-25-54)

Sum up, how firm adjusts to ΔP

1. For practise, & as 1st approx, ~~said~~ kept shrt run cost curves as prose. Imputed & competed away.

But this takes place in l.r. So,

2. Now, introduce l.r. cost curves.

a. Explain l.r. mc. Not of one unit, but per unit - add 1 unit per hr., etc, to output.

add a plant addition. Just bcs AC still low, doesn't mean that addition is ec. - maybe $MC > P$, in that addition, considered separately.

b. 3 situations

i. all factors available at no ΔP .

all competed away, LR. - in shrt run, ea. firm expands a little, like glacier in winter, falls back. Only expands along shrt run curve, unless by error (such errors common)

ii. all factors completely fixed. Perf. inelastic supply.

all imputed away - LR MC & AC move straight up
(N.B. Before, I said firm expands along LR MC. But that was just practise. In fact, it's impossible, for the hi p makes MC curve rise, as factors cost more.)

iii. Most common situation. But it's a common error for firms to expand along LR MC, assuming lower p for land which they already own. Thus get too big.

1 factor - land - imperfectly elastic. Others nearly perf. elastic. (E.g. Ptd milkshed)

Land p Δ . Brings in some lands formerly submrgnl - not enough to bring p back down to where started.

LRAC curves rise vertically, p falls, until $P = \min LRAC$.
LRMC also rises.

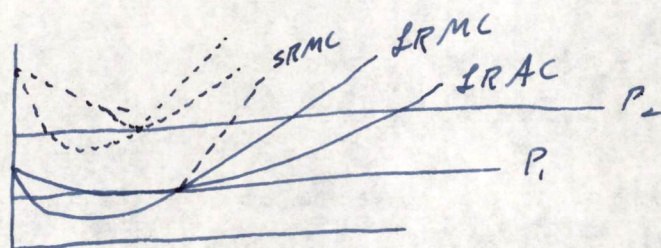
as they rise, cost curves may change shape - now using higher ratio of labor & equipmt to land. ^{subdivide} less physical output; more value.

Viner wrong to say, bcs some factor fixed to ind., is fixed to firm. LR, are no FC to firm, even if some res. fixed to ind.

So can't say LR is same as SR.

What happens? Suppose $P \Delta$ to P_2 , permanently.

Thesis
or
epilogue



(NB. When get permanent ΔP , many firms start to expand along LRMC. When they really should sell a little land, use it more intensively.)

1. ~~But~~ E.g. firm expands to $SRMC = P_2$

2. Bid up land

3. LRMC & LRAC rise — straight up, probly. — perhaps shifting some to rt, perhaps to left. But I know no reason to assume they will rec. shift to rt, as Viner, perhaps unconsciously, assumes.

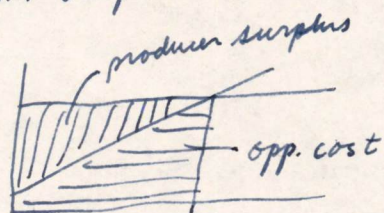
I think it more likely they shift left. For it is land whose p rises. So higher curve drawn presuming more labor & cap per acre (tho not nec. more per unit of l.v.), which means more mgmt problems. For the same physical output you wd now use less land area, more labor & cap.

4. So you get more firms — subdivide the fixed factor more
E.g. firm producing about same output — probly less, physically,
& more by value.

Now note some 'costs' cause p — but others result from it.

Note various mngs of 'cost of production'.

Don't despair. All very simple. Look at S curve.



Mgnl & inframgnl firms.

ATC always the same.
OC different.

If specify OC, can speak of low cost firms (inframgnl) vs
hi-cost firms. But watch it. Watch rationalizers —
farm p supports; utility rates.

Producer surplus bcs some factor cannot be Ad. — & that factor
gets it. Ptd. milkshed
a. Land. Then, as if nature's restrictions didn't make enough unearned
income,
b. Licenses — goes to license holder

Concept of opt. size.

Min LRAC

Will differ for ea. firm. a) Different mgr.

b) Diff. nat. res.

On better lands, ores, timber, much larger op-n, much more output, ^{per firm} may be ec., than on mgmt lands.

c) Diff. equipmt, techniques etc.

Then why do all have same costs per unit of output? Bes all charge same $p - \&$ income must be accounted for.

(If use "costs" to mean "o.c.", all have diff. "costs" — as shown by S curve. On this basis, distinguish "hi-cost" & "lo-cost" firms. But in cost curves, LR, we include prod. surplus as 'cost')

P affects LR opt size. But not much.

Relation of S curve to cost curves.

1. Short run. Add up short run MC

2. L.R.

Wish I could tell you neatly. Used to know; now, not so sure.

a. We know ~~some~~ some existing firms will ~~not~~ get delusions of grandeur, & expand along LRMC — encouraged sometimes by lag of land p. & spec. motive — even if op-n not efficient, they'll make out well, like USSR

Others will just demandably float up to higher p, some output, maybe less — LRMC curve goes up along w price, they sell land.

b. New firms enter, probably. Some will antic. hi p won't last, stay out long time.

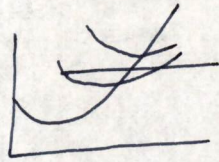
So can't say. Depends on psychology. Usually comes in boom & bust

So get back to horse sense. If wheat p rises to \$2.50, how much land does it pay to shift over? How much more per acre will it pay to plant?

Good, but imperfect - 4-25-54. Skip

3. Comp. long run. - renew old contracts.

P comes to = min ATC



Suppose P below Min shrt run ATC

In long run, 3 possible adjustments

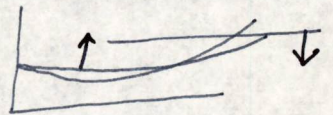
1. Leave business (that tends to raise P , & lower input P , for others remaining)

2. Lower costs by more efficient mgmt.

That includes changing scale. - get smaller, or bigger, find new, lower min. ATC

3. Lower what you pay for hired factors. - money prices of inputs.
(old firms leaving business does that)

Suppose P above min LR ATC



1. New firms enter, push down P

2. Mgr, under less pressure, lets costs rise, technically

3. Money prices of inputs rise

As long as there are any temporary profits, these things happen, until none left.

Temp. profits either competed away or imputed away.

If imputed, who gets? Whatever resource has inelastic supply, usually land

So in long run, p = cost of production, at min. ATC - in perfect comp.

(Tells us that can't get away with any thing. How about landlord? Rent as demand as, becomes a 'cost of production' How about owner-op.

Meaning present alternative use as cost - not historical cost.

Tells us ^{producer surplus} rent is result of p - not cause. For p support false reasoning. Inelastic supply. Tariff reasoning.

Fri

1. Nagasaka over

2. Review: who gets quarry when ΔP .
Factor whose supply is inelastic



Producer surplus.

Other factors move in & out.

3. What do people mean by hi-cost & low-cost producers?

Usually a bit vague.

Firstly, low cost producer is one holding viable resources. - so if p drops, he stays in. He is not nec. more efficient. Usually less, but under less pressure. Mgmt firm must scramble.

4. Is there any guarantee, in comp, ~~we will~~ firms will become opt. size?

Yes, if ~~there~~ not at it, other firms will undercut your price; or bid resources away from you.

(In fact, not so, due to diff. costs of holding long term assets; diff. access to credit. - will return to that, when more familiar with curves.

5. Any relation between price & cost of production?

Immediate mkt, no. Proximate S & D only count.

Short run, $p = MC$. But not $= AC$. & even for MC , they don't determine p . Mutual det.

Long run, $p = \text{Min } AC$. But ~~that's not~~ Min AC don't det. p . Mutual. In extreme, Land: no cost of production, entirely det. by price. But no p entirely det. by cost of production.

1882. First anti-immigr. law.

1890 Chinese exclusion Act

1907 ~~1899~~ Gentlemen's Agreement w. Japan.

War. Literary test.

1924

'31-'36, we lost pop.

D.P.s - from e. Eur., came in on quotas, mortgaged from future. -- Latvia to 2023

Nonquota immigrants: spouses & children
&
alien employees

Parents of US citizens.

Political test.

Former totalitarians can be purified by 5 yrs.

National origins system bad.

Anglo-Saxon quota never filled.

Can't help refugees from behind iron curtain

Insults Italy, Turkey, Greece, members of NATO

Suggested letting unused quotas go to others.

Att'y. Gen'l. has too much power - bar, no hearing. Arbitrary power.

Many special acts, exemptions -- e.g. McCarran's sheepherders.

Makes it hard for scientists to come, share info.

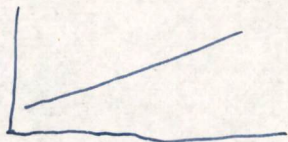
Creates bad feeling.

Can banish aliens ex post facto.

2d class citizens

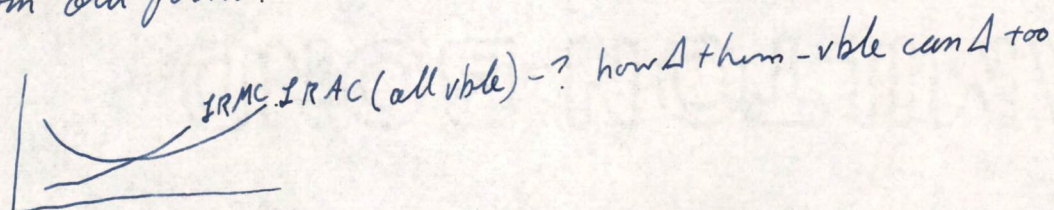
Pro: Codifies many old laws
Hurts Communists - 90%

Cost & supply



Industry supply curve

As ΔP , Δ supply from 2 sources, long run. New firms, & Δ from old firms.



S curve is sum of LRMC of all firms, + output of new firms that enter.

(Remember, MC means Δ cost per unit of output. Think of rates of output - both long & short run)

So remember LRMC & SRMC.

(Now incidentally, as ΔP , revalue assets of inframgnts up. But won't spring that on test. If confuses you, forget it. It may help - if you get to point where begin to wonder about deeper meaning of all this.

How do hi fixed costs make you produce more?

K & H's purpose: to show how cost relates to output.

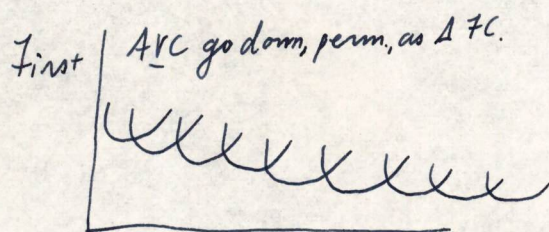
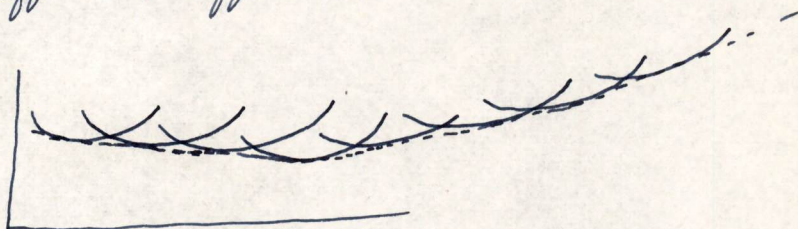
Short run, to Δ supply, change ratios - more vble, same fixed. Hence dim. returns.

Long run, ~~run into~~ Δ all factors. Run into dim. returns then? Yes, bcs 1 factor cannot be Δ : central responsibility. Can Δ no.s of owners, but still must come to one focus.

What is opt. size?

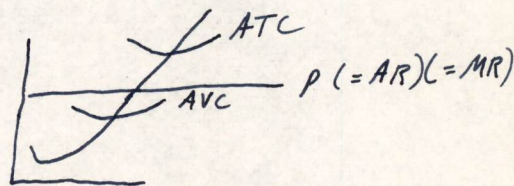
Assuming perf el. demand - $MR = AR$

FC affect ATC. For diff. FC, diff. ATC



Opt. size, shrt. run & long run.

Shrt. run, given plant, given MC & AVC,



How do hi fixed costs make you produce more? Only by moving MC out to right.
(Sometimes hear "must meet fixed costs", $\therefore$ produce. But not if $MC > MR$ - just lose more)

Sum up diff. graphs we've had.

MP

Keep them straight. See how they relate to ea. other.

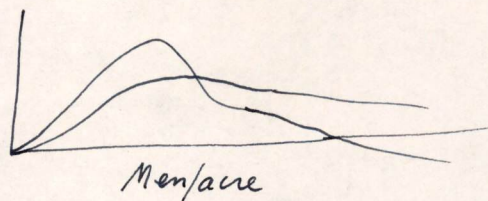
S&D

MC

LR ~~AC~~

2. ways to see why max AP of land coincides w $MP \text{ Labor} = 0$.

~~2~~ W. Land fixed



1. W. land fixed, as add more & more men, that increases TP , hence AP per acre, as long as $MP \text{ Labor} > 0$. So, obviously, AP of land a max when $MP \text{ Labor} = 0$.

&

v.v., add'g land to labor. When $MP \text{ land}$ becomes 0, $AP \text{ labor}$ a max.

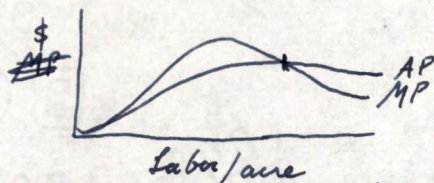
2. Suppose $AP \text{ labor}$ to left of max. Can move to max. by using less land. Thus by using less land, ΔTP .

Dim. ret. lecture.

Object: a) to show relation of mgnd & ave. to get terms straight, to sharpen our thinking.

b) Show how much labor/acre to use - not max AP

c) Show are always in dim. ave returns, to labor & land.



1. Never add labor beyond $MP=0$. Nor, if graph reversed, add land beyond that pt.
2. Start to right of max AP. Then move left, not by reducing men, but hold men const., & Δ land - spread thinner. $AP \times \text{labor} = TP$.
At max AP, is max TP - more land means less TP. So land must be abs. dim. ret. If were to left, are better off to get rid of land, pull men together. etc.

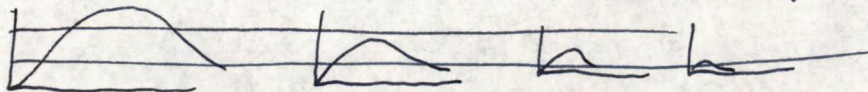
E.g. - big room.

So at max AP labor, wd. be paying more for land than it's worth. - unless free.

d) Effect on distrib. of income of cheap land. Frontiers.

Proclamation line, etc. New farms, hire men away.

e) Intensive & extensive mgn. as pop Δ s, resort to submgnd land. as wage falls to max AP, becomes mgnl.



✓ But much land, only reason was submgnd, bcs pop remote, no basic p.w., etc. When people moved there & developed it, MP rose, not wages fell. "Gt Am. desert" - blossoms like rose.

But by Δ g MP curve, Δ s rent, creates unearned income, class that lives off rent, splits society. There, perhaps, is great disadv., & source of labor's opposition.

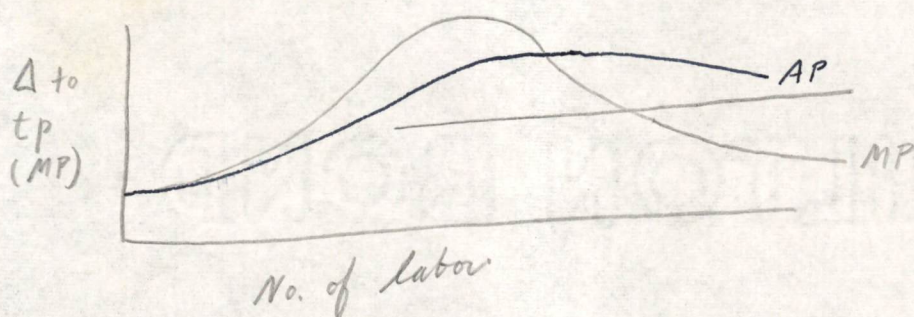
Mgmt & ore. - 4 quizzes the final doesn't count for much.

81 - Talk
95 - Midterms
82 - Quizzes
83 - "

$$\frac{347}{4} = 86.75 \approx 87$$

Final $\frac{93}{440} \div 5 = 88.$

You still get a B.



Wed.

Above is for 1 acre. - wd. be different if added all factors

Not same for whole ec. Get advantages to scale as ec. grows.

More comp, specialization, exchange, ^{invention, stimulation} projects of large optsize -

e.g. CVP, Grand Coulee. Mental stimulation - took the cream of world pop,

working together, reflecting stimuli back & forth, to develop atomic energy. No limit now.

Marshall aid went to Europe.

Except social org.

'20s, biggest inv. opp - Gy. Cap. flowed from U.S., with abundant resources.

Other objections to Malthus

~~Wed.~~

Depends on how much labor costs.

Wed.

?/ Land free, ea. firm expands to more land; & new firms come in

Any questions? Everyone understand? Ok, take out paper, explain.

3 kinds of Δg & Δg returns:

Ratio

Scale of firm

Scale of ec. — last has no diseas.,
only ec.s, if use mkt system.

MONDAY

SEPTEMBER						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

28

SEPT. 1953

Mgnl vs ave.

*Δpop won't lower ave much,
but mgnl.*

*So is question of distribution
more than "lower standard of
living."*

TUESDAY

AUGUST						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

29

SEPT. 1953

OCTOBER						
S	M	T	W	T	F	S
						1 2 3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

APPOINTMENTS

9 A.M.

9:30 A.M.

10 A.M.

10:30 A.M.

11 A.M.

11:30 A.M.

12 noon

1 P.M.

1:30 P.M.

2 P.M.

2:30 P.M.

3 P.M.

3:30 P.M.

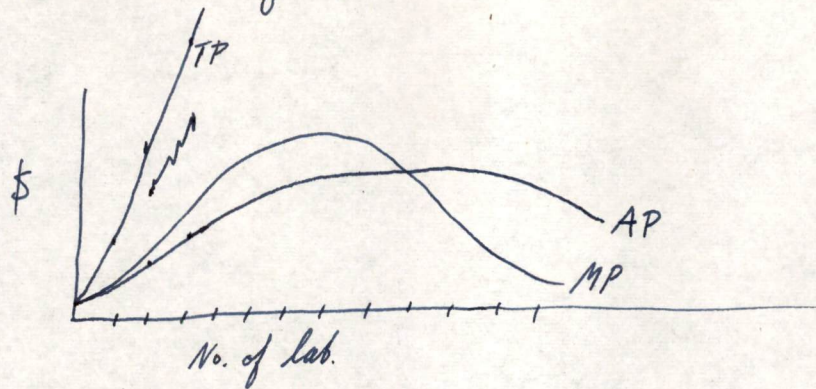
4 P.M.

4:30 P.M.

5 P.M.

Evening

202. Loose end - mgnt & ave.



Stages & points.

Stage of Δ mgnt returns
" " dim's " "

Same for ave.

Point " " "

Stage " absolutely dim. ret.

Most imp: dim. ave. returns, stage of. Why?

Proportions, now interested in — not scale.

p. 347 Patrooms, idle estates — worthless? ^{had renters.} Vacant lots?

(Quiz: State princ. of dim. returns. (Not grade, after get in))

Imputation: mgnt is it — not ave. $AP \times no. = TP - Marx.$ What remains is rent.

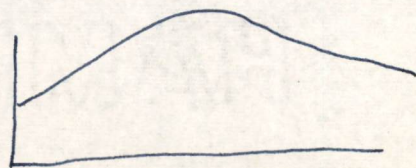
Best combination. If labor cheap, use much. If land free, ~~use~~ use more of it,

& wages rise until no residual. That is pt. of max. AP for labor.

So remember: pt. of max. AP — if land free, go + here
pt. of abs. dim. mgnt returns — if labor free, go + here.

Dim. returns & allocation. (p. 350 — good for thesis?)

2 farms:



Equimgnt principle.

Then reverse add land to labor, should get same. — but don't, Chile, bcs same land has diff. cost to diff. people.

Summing up Wed:

We moved from considering a fixed area of land, to considering ratio of land to labor.

Even if land were absolutely free, is a limit to how far $\frac{\text{Labor}}{\text{acre}}$ you wd. spread out -- how non-intensively you wd. apply men to land.

As long as conc. returns are Δ g, draw men closer together -- use more men per acre. Never use land less intensively, for best economizing.

But are we not flouting equmgnl princ.? That says move to where mp highest. Must use common sense in apply'g: ~~xxx~~ When in dim. returns, ^{in proportionality sense,} to labor, apply it freely. But when in increasg returns, don't. For

✓ think what it means that labor is in increasing returns: you raise the total product by using less land; i.e. you lower the total product by using more land. Land is in absolutely dim. returns. Draw another graph, showing $\frac{\text{Land}}{\text{Labor}}$.

So never ec. to ~~use land~~ spread labor over land more thinly than to max. a.p. of labor.

Is free land just an unreal hypothesis? No, many mgnd, unused lands, in US & world.

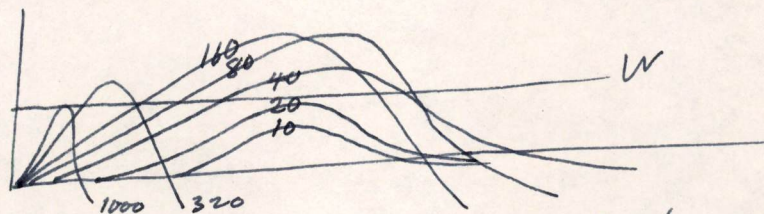
also, many spread out more than ec. to claim extra land. Pioneer farms. R.r.s, built when unprofitable, just to get st. of way.

Dams. Water use. etc. ad inf. Very common thing to use land where $mp \leq 0$ or less, just to claim it.

Chile -- big holders, own so much land, use only part, to them it is free. -- no alternative use of funds.

Fri.

0. Pfund
1. Sum up Wed.
2. But land not usually free. Must find best combo.
Easy - add labor until MP falls to = wage.
3. But incomplete. Only tells ratio, not scale. & that's not even half right, for until know scale, get diff. MP curves.
4. So look at diff. MP curves, for diff. acreages.



By doubling acreage, ea. time, cut in $\frac{1}{2}$ the unproductive labor per acre.
In fact, you don't quite cut it in half.
10 & 20 a, no rent at all. 80 a, max rent. 1000 a, again no rent.

5. That is still complex. Simplify. Single line, MP/unit of cost, where costs are by equingul princ. - preserving opt. ratio for ea. scale.

There see a new kind of Δ g & $-\Delta$ g returns - to scale.
Distinguish scale & ratio.

6. Firm produces where AP a max. Just like labor when land free.

✓ Mon

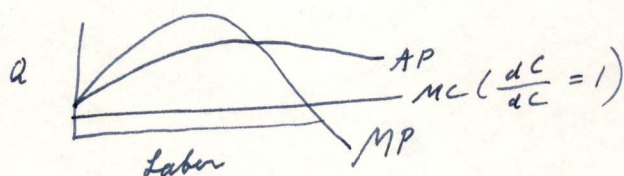
1. Effect of hi wage demands.

2. Effect of keeping land from use. Thus review elements of MP, go on.

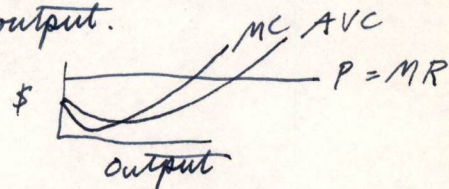
Today, discuss "eq. of firm" — i.e. what det's how much firm produces.

Have thus far discussed mk't supply curves --- how much mk't will supply at various P . Haven't discussed whether old firms expand, new ones enter, how Δ is split among them.

To explain firm, go back to law of dim- γ ret., elab.



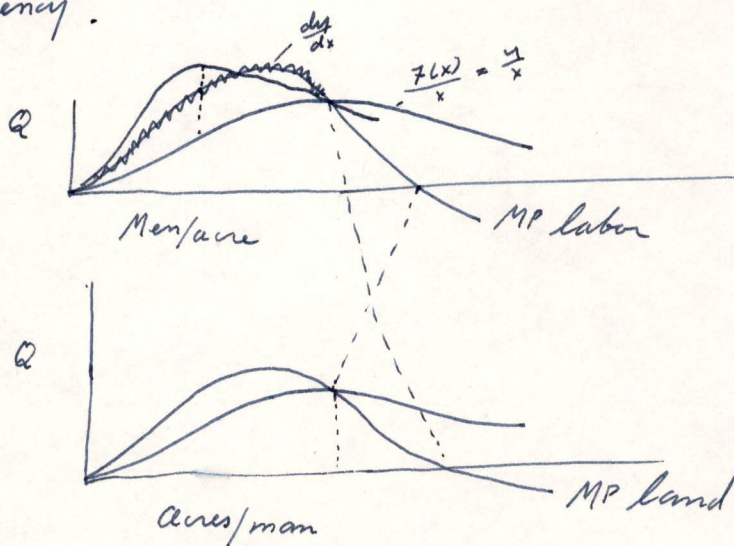
Turn it upside down, to talk about cost per unit of output.



NB: $MC = MP$, ideal.

N.B.: Not at max AP. H: AP means underuse

Not at max AP land, either. Conflicting ideas of "efficiency".



If one farm gets more per man than another, shd move men. — or land control. Mts to plains. So. to midwest.

Large to small.

but don't due to Maldistr. of pop. Due to unequal i.r. Why can't crowded S-n firms move to Pa? Can't buy land.

Conclude: cd. greatly Δ output by moving land from large to small farms. & thus.

1. Ideally all firms move toward medium opt. size.
2. Forced to by ~~price~~^{cost} of land
3. ~~Where do~~ But if small & large both forced out of business, who gets 'em? Medium size? Small grow from large.
Not nec. xfer to most efficient firm, but hi $\frac{MNP}{2}$.
4. But trend is opposite. Bes. cap. attracts cap.



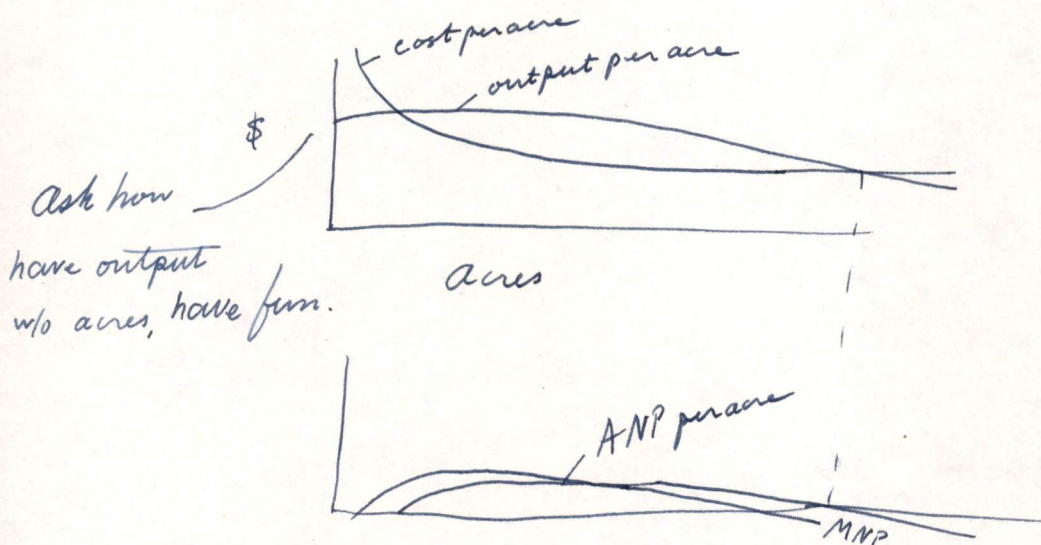
Cap. rationing

5. Hence great value of Keynes proposed R.F.C., great pressure for it, credit to small firms.

Also land tax.

Same w. businesses, infr. Large not more effic., just bes produce more per man. Is sign of underusing resources.

But wait: what of eco to scale? Can add all at once.



Small firms stop to left of max ANP, large go to rt. Remains true, small have

Diff. ^{annual} costs of land, make diff. size firms.

Above is "Production Eco." - assume P const. already discussed "Price econ." Now relate the 2 - compare ~~cost~~ cost & price. - integrate - thus see ~~how~~ what is best output for firm (& see if that jibes w social interest) over To do so, put on same graph. But to do that, must change units of one. Price ec, unit has been the product, ^{or output} Prod. ec, unit is input.

So take prod. ec, turn upside down. $\frac{\text{Input}}{\text{Output}}$. Cost becomes key word. Output becomes basic unit.

can tell if they're gypping us. Tell if you're making
money, as much as you might.

Can tell how public can act to make more jobs for
eng's, make goods available cheaper

2, MP curves, cont.

M.P. of only short run meaning? Sometimes, even in long run, can't Δ some fixed factor, e.g. downsize, so dim. ret. analysis applies. E.g. Hell's Canyon. Max AP

(Min. cost) not nec. best. ⁴ Incremental benefits vs incremental costs.

Sometimes, indeed, never get to ~~pt~~ stage of dim. ret. at all. Any grid, network: power lines, roads (?), public xptr, sewers, water, deliveries. Mkt runs out --- i.e. price ee. ... stops you before prod-n ee. does.

3. Cost curves. Only 4 of them to remember,
shrt run, 2 long.

Why give both cost & MP? Largely to develop
yr mental agility - which you need in this world.

Diff. categories, coordinates, ^{same curve has} ^{diff eqn} viewpts.

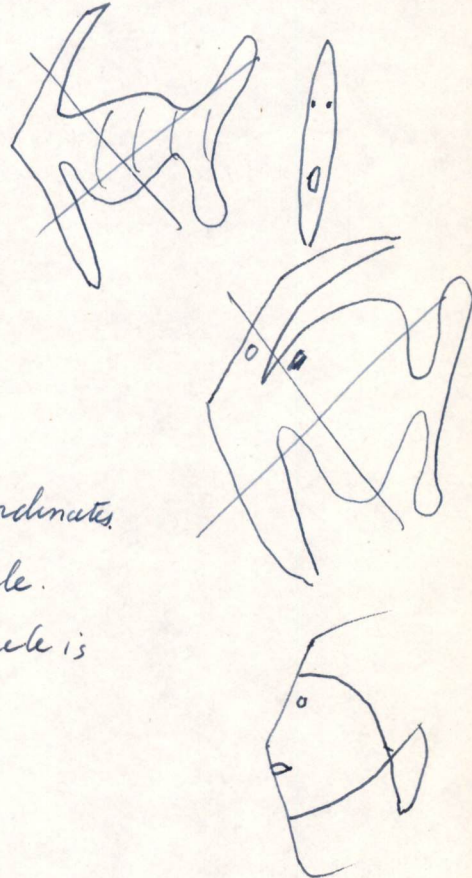
Semantics, relation. ^{Half} ~~Most~~ arguments
in this world between people saying
same thing in 2 diff. languages

on diff. coordinates

Polar, e.g., $x = k$ is a circle.

Rect, $x = k$ is st. line. Circle is

$$\sqrt{x^2 + y^2} = k$$



W, Dec. 1

Ass., next few weeks, 9.T.

Latin Am. diplomacy

Diplomat & lady

Some day when you're reknowned eng, call to S.A., ^{you'll want to} ~~better know~~ ...
 or when boss invites you over to dinner, talks politics & business, you ^{don't} want to be
 & right now, as citizens & voters, ^{& taxpayers & common fodder} you want to know - ~~don't want~~ tongue tied

Chicken growers, cost curves.

Draw 4 cost curves first

Quiz: draw 4 cost curves. 2 mi. Self grade

Sum up:

Short run

Assumptions
 i.e., before he makes any drastic changes.
 Basically, fixed costs fixed

- No ~~change in cost curves~~ revaluation
- No ~~new~~ entry or exit (1 exception)
- No change in fixed ~~costs~~ plant.

Long run

a, b, c, "Yes"

Results

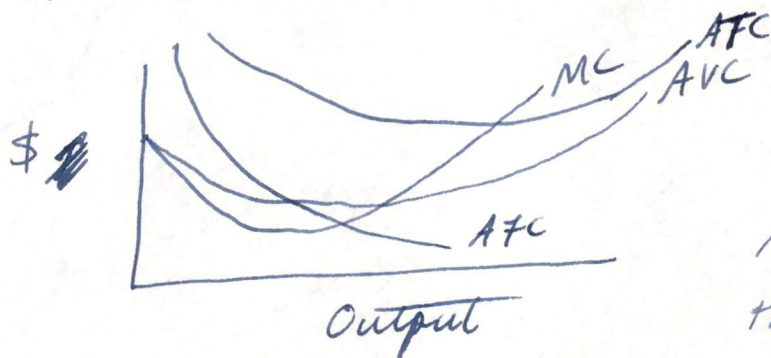
$MC = MR$, wherever
 that is.

all forced to
 min. ATC, by $\pm \Delta P$
 or $\pm \Delta$ costs.

10, Fri, just here, review long run. Reexplain how short & long run differ
 .. let's define sht. run as per too short to leave business, expand fixed
 plant, etc.

Again, distinguish ~~change~~ $\rightarrow$ change's props from change's scale.
 Shrt run vs long.

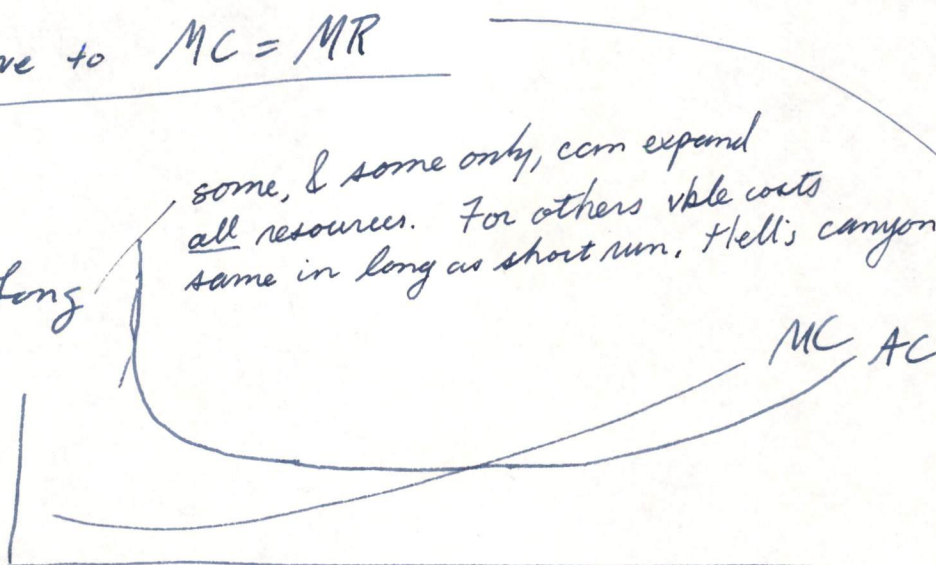
1. Shrt run. Begin w fixed plant. Put on ATC, then erase.



Look, 4 kinds of costs —
 & what do people mean when they say 'cost'? 'Profit'?
 Might mean several things, any one of which is of some importance

Move to $MC = MR$

2. Long



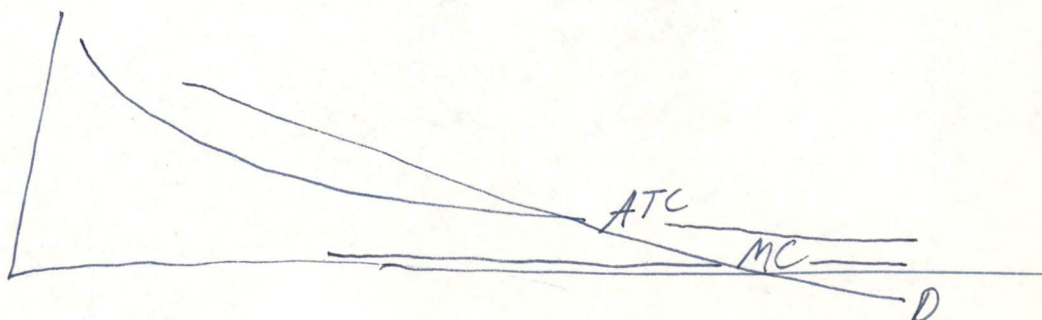
some, & some only, can expend all resources. For others vble costs same in long as short run. Hell's canyon.

Impute away ~~short run~~ excess profits.

Sum up w. these 2 basic conclusions.

all shd be forced to opt size.

3. P. U.



7.

10

You guys make things too hard

String along, I'm not trying to pull the wool over your eyes.

0. Engineer teachers say 'grade hard'.

1. Sht vs long.

Sht is no definite ~~pd~~^{time}, just a pd too short to wear out cap, & xfer land to other use. Pd. in which you've got what you've got, inherited from past. do best you can with it.

Emph, short, $MC = MR$ - ~~is sht run profit, or combe.~~ Maybe seem to be scalping us, maybe losing sht, is ok, sht. run.

Long, $P = \text{Min. ATC}$ (return)

2. Meaning of 'cost'

Includes implicit & explicit.

Can be a short run 'profit'. Long run, impute or compete away.

3. Adjustments occur long run.

a. P changes - ~~compete away~~

b. Costs " - ~~impute away~~

~~Scale can change. But get Δ costs automatically - e.g. down.~~

~~(Except for fixed site, e.g. down. There long run MC same~~

~~as short.~~ Make $P = \text{Min ATC}$

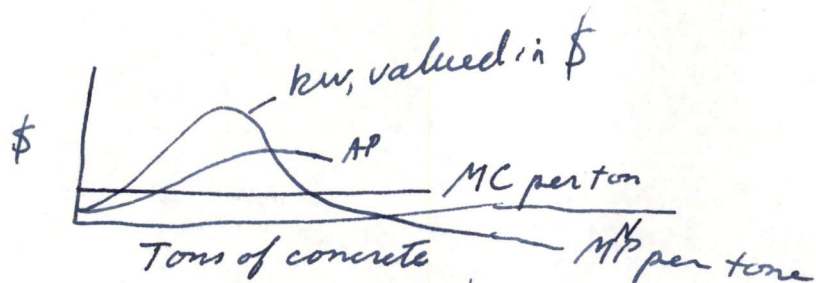
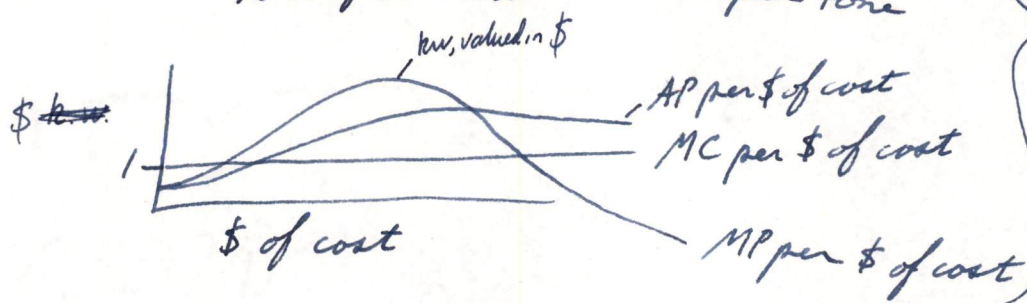
4. ~~Then~~ And not just any old Min ATC. At opt. scale.

5. ^{Is one important kind that can't stay in business if $MC = P$}
Deer. cost industries.

Sept., 10

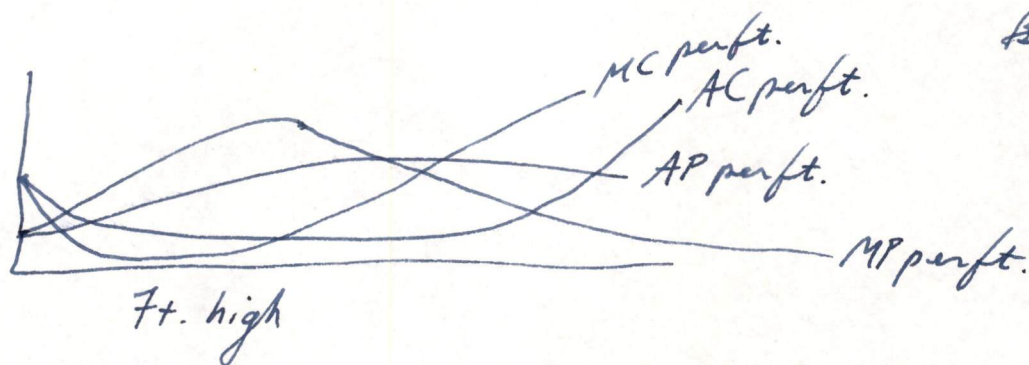
1. Bad inv. mts
2. Dim. rets., Hell's Canyon. Just got to begin msig deer size in fat.
3. Long run, 3 adj.
(Note that you can't always Δ all factors, e.g. damsite,
hence hit incr. costs soon.)
4. Special cc. of deer. wst.

Effect of different units on graphic portrayal of clim. ret.

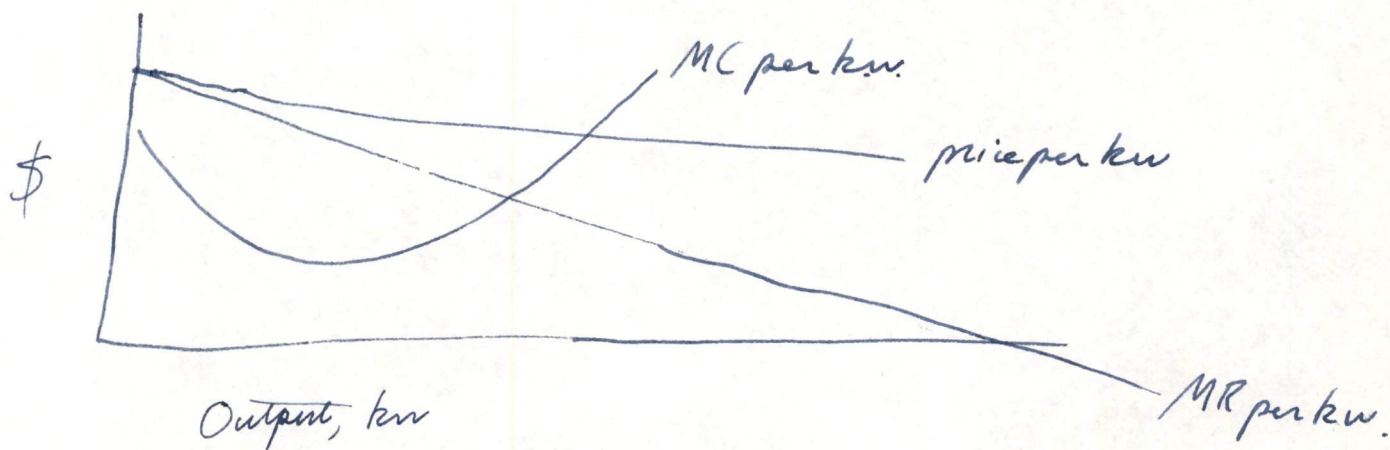


both a little strained & artificial. Hence use cost curves, units of output.

A more neither output nor input.



~~But when it comes~~



10, Thurs.

ass. J.T. Watch papers on Rio Conf. (part of ass.) Present plans

Final Wed, Jan 26, 3-6

Mgmt analysis. Decision making: ^{size of firm.} Always where $MB = MC$.

a few complications, due to ^a changing units, & ^b sig no. of vbles.

But basic principle ~~is~~ good for all.

a. MP: One vble only. ^(short run) Factor units.



Same next time

Use: ^a Show effect of chang'g props.

b. Evaluate shrt-run problems

c. " fixed site problems, e.g. dams, Hells.

d. Many other.

b. MNP.

Means of lett'g all vary.

c. MP etc wd be all we need, if P const. But isn't, need to integrate w P th'g. Change to cost an.

Purpose of cost analysis

To tell us ^{how to find} what is best output for firm, (in various situations)

To ~~focus~~ create basic conceptual framework for ~~and~~ business decisions, & public, for most efficient use of resources

Important? Sure. Hell's Canyon e.g. Public cd. decide intelligently if wd. focus thinking on mgnl benefits vs mgnl costs, require all evidence to be presented in that form.

Thus more jobs for engineers. (& it is a public decision)

Pvt. decisions - foolish man who wd. expand as long as A.C. less than P. Or who wd stop when A.C. a min.

Shrt run, produce where $MC = MR$ (define shrt-run profits)

Long run:

a. Comp-n.

P forced down to min. ATC. but cost also forced up, if is some limited resource, it costs more. Even if you own it yourself - ... This leads to discussion of what "cost" means.

But not just to copy old min ATC. Envelope cost curve.

How much ditch cost is
worth while to obviate
pumping?

Good e.g. for students, fixed
vs vble costs.

For eg, see Jordan R.
article in file f 1 b 2 a,
Intergovital Water

Pressing vs. limits of fixed
cap., motel, short run,

Is MC the foregone
gain, valued by demand.
A "rent"?