

E-G

Old Economics A

UNION No. 1012 FILE

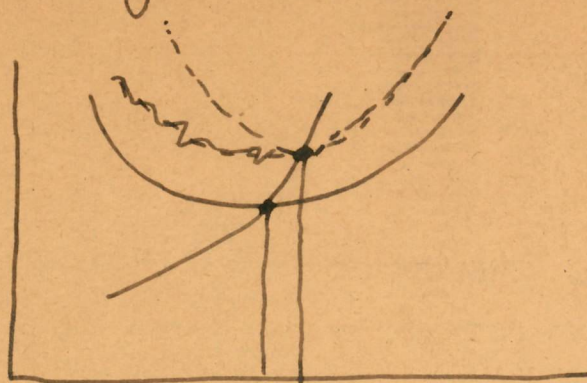
MADE IN U. S. A.

**PURCHASE ADDITIONAL SETS OF FOLDERS
FROM YOUR DEALER OR DIRECT FROM—**

UNION STEEL CHEST CORPORATION

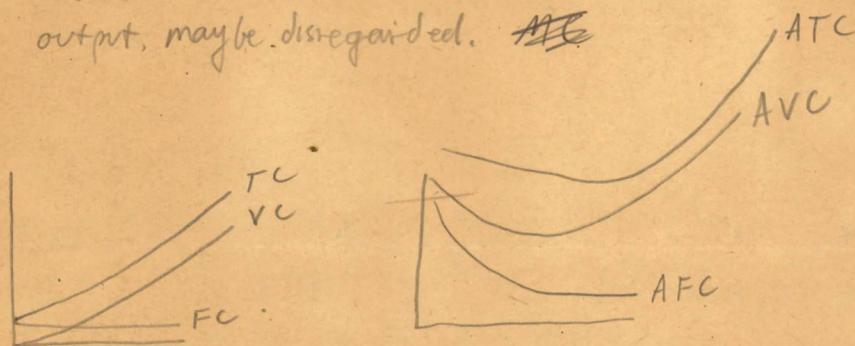
LE ROY, N. Y.

Any tax will ultimately affect MC - some more immediately than others, but all ultimately. (same Land Values)



Increase Fixed costs, & ----

MC is absolute ΔC due to Δq . The fixed cost does not change with output, maybe disregarded. ~~MC~~



MC, which determines output, is utterly indep of fixed cost. The seeming absurdity is ~~is~~ ok because in long run no cost is fixed, (same rent, in a sense) in short run one may have to produce below TC, if fixed is really fixed. As long as cost curves are stylized, ok, for MC is low when ATC is low, etc. But with irregular curves, $MC = MR$ at several outputs, etc. But these curves give the general idea. Fixed cost does not affect rate of output, but does affect profit, & this determines whether ~~more~~ the fixed inv. will be maintained in long run.

Midyears

1. Precise knowledge of definitions
2. Imagination - try to do some work with these tools.
(e.g. - what effect will tax have)

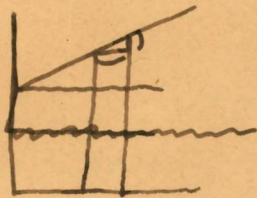
Long run - short run

Firm = librium is a short-run affair

Industry = librium " " long " " "

Wage change would affect vble. ~~the~~ costs.

Increase in fixed costs would not affect MC.



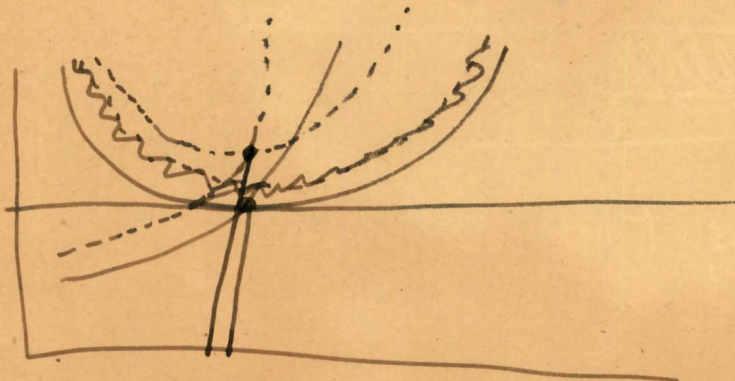
MC = ∂ vble. cost curve.

$\rightarrow$ ^{short run} A tax on fixed costs will not decrease output, ~~but only~~ ^{& note} raise prices. It will not affect MC - it will reduce, maybe, what is considered a normal profit.

Payroll tax for social security fund, will raise MC.

~~spread~~ Such taxes, since they affect MC, will contribute to unemployment.

e.g.



Then - - - - short run

But he is not making normal profits, so firms will leave field, & AR will rise.

2:30 + his P.M.

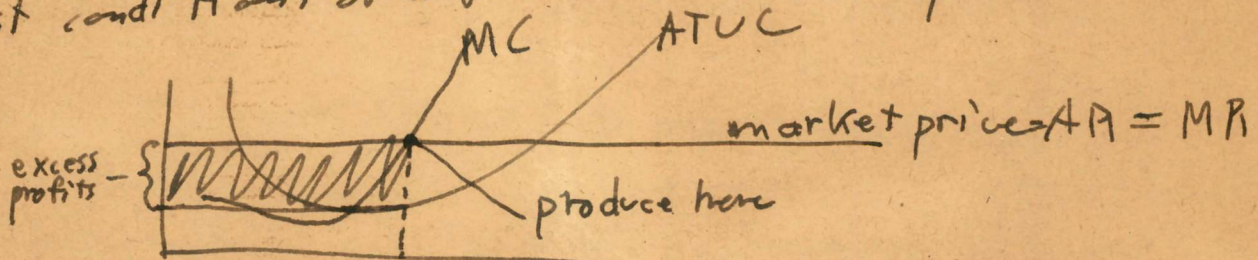
Shoe prices very low in this country.
 B'ata had more efficient machines than American
 firms, but ~~tariffs kept~~ vested interests made it
 pretty hot. B'ata had penetrated European markets.
 Japs sold watches by the ton in Geneva, world's
 watch center.

Under monopoly, MP declines as rate of sales
 expands.

Monopolist - faced by market demand curve - MR will be
 derive from market curve
 competitive monopolist - faced by particular curve

Equilibrium of an industry.

Cost conditions of a firm - Free competition



As long as these profits exist, people will rush to
 business, there will be additions to output, price will
 fall. When it gets to lowest $ATUC$, Σ conditions
 of equilibrium will be ~~reached~~ fulfilled.

General H. - 7, 9, 5, 10, 13, 14
 Meyer - 5, 11, 9.

Summary of conditions of equilibrium

Fundamental — condition by which profits are maximized. —
no inducement to contract or expand rate of output.

This condition is a pt. at which profits become maximum at
the given demand & cost conditions.

$$MR = MC$$

This condition is independent of the form
of market.

MR is constant when demand curve is horizontal.

Under perfect competition, the TR curve of any
one is a str. line; & MR is constant. ($MR = \frac{1}{2} \text{ of } TR$)

Whether MR depends on rate of output or not, $MR = MC$
will maximize profits

Under free competitive conditions, $MR = AR$.

Most all products are differentiated.

There is a monopoly in making shoe-making machinery.
Patents all held by United Shoe Machine ~~Corporation~~ ^{Corporation}, in
(Salem). It rents, does not sell, machines. Charges a
minimum. Machines have device which counts no. of shoes treated,
so machines are a proportional vble. cost.

No great initial outlay is necessary, so shoe industry is
strongly competitive.

Even under free competition it is not most profitable to produce at peak efficiency, but rather where $AR = MC \Rightarrow MR$.

However, if price is so high that it is greater than the lowest ATUC, competition will force price down till ~~AR = MC~~ the highest it = lowest ATUC. [Whose ATUC? ~~the~~ Price

will go down till profits are no higher in that industry than in any other]

N.B. Zalles — whose marginal costs. Marginal revenues must eventually come to the same thing I did.

Price determination in ~~large~~ monopolistic competition is like above, except that demand curve may change.

Tests for perf. comp.

1. No advertising nor brand names.
2. Prices quoted in small units

Equilibrium output for monopoly



MC = ATC



When $MC > ATC$, it is a mistake to expand
when $MC < ATC$, " " " " not " "

When $MC = ATC$, you're set. This will be at
ATC's minimum

If $MR > MC$, then you could make more by producing more

If $MR < MC$, you're losing \$ to expand.

If $MR = MC$, you're set.

Taussig, Chap. 3 - Division of Labor

2. Gain in dexterity. Continuity. Adaptation to various aptitudes.

4. Exchange, unconscious co-operation.

6. Extent of market.

Chap. 4 - Large-scale production.

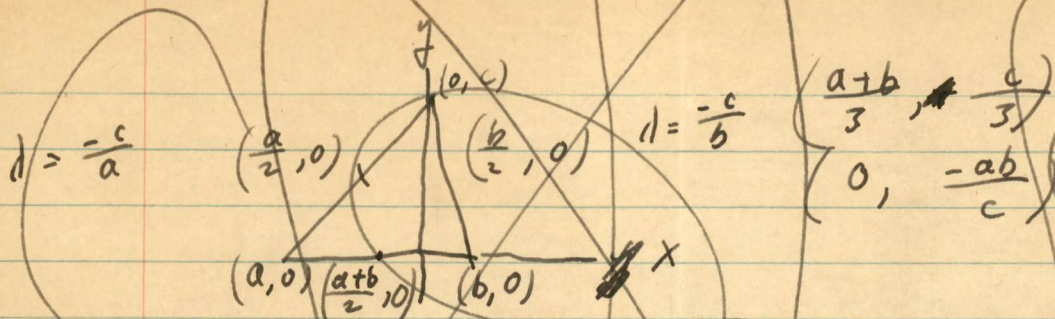
1. Advantages of large-scale production, i.e., lower ATUC.

2. Limitations - pt. of dim. returns of ~~the~~ manager.

Chap. 5 - Capital.

Chap. 6 - Corporate Organization.
corp.s generally large, partnerships small.

Loomis, Oct. 17



$d = \frac{a}{c}$ a can be replaced by b "by symmetry" to get other side $d = \frac{b}{c}$

1. Get equations of 2 lines
2. Solve for 4 points
3. ~~line~~ $\frac{x}{a} + \frac{y}{b} = 1$ - line A_1B_2 & line A_2B_1

P. 51 - 25

62: - 10

63: - 18, 19

Taussig - Chap 3 - Division of Labor & development of modern industry.

1. Distinction ^{of degree} between "simple" & "complex" division.
2. Advantages of simple div. as opposed to no div. Most skills from practice.
3. Terrible div. to simplicity, encourages machines, which can do one simple operation better than human hands.

1764 - Hargreaves, jenny; 1769 - Arkwright; 1779, Crompton comb. Cotton first, then wool, flax, silk spun & loomed.

Steam engine, Watt, 1781; Fulton, engine, 1807; Steph. 1830.

Says social ills are results of machinery

4. Unconscious cooperation

5. Formerly exchange covered limited area - town & hinterland. 1350-1800 Ericsson screw prop. RPP changed ^{extent} hinterland's

6. Large area of exchange encourages division.

7. Geog. dist. of labor. Diff. pos. of cities.

8. Some div. of labor between nations is from acquired skill rather than natural, ~~difference~~ geographical diff. "Basis for protective argument."

Chap. 4. Large-scale production

1. Bigger & fewer establishments. The tendency. (Cotton industry already established in 1850, steel not so much, agricultural implements not at all.)
2. Above due to improvements in the arts. & power cheaper when used on large scale. - That's why wholesaler sells cheaper than retailer. ~~Advantages~~ Advantages of largeness
 - a) Machine useful when used more often
 - b) Buying & selling (mercantile management) cheaper
 - c) Utilizing by-products
 - d) Clerical work less per unit
 - e) Experimenting can be done
3. L-S-P limited by labor not working as well for someone else esp. in agriculture. In retail trades there's no concentration, For advances individual initiative necessary.
4. Large-scale management (he means ownership)
 - a) Horizontal ~~is~~ - same kind of joint - Am. Sugar Refining Co. ^{owns} forests. "Trust", 1) ec. in management; 2) Form ironop.
 - b) Vertical, or integration. - U.S. Steel Corp. owns iron, coal, & limestone, railways.
International Paper Co. - owns spruce forests.
Harvester Co. - owns forests, iron & coal
(he confuses distribution with transportation)The 2 may go together. Vertical combination ^{is} ~~gives~~ in itself complete monop. - horizontal is, if complete (ie. with all land)
Horizontal movement stronger, iron an exception.
In textiles (unmonopolizable raw materials), horizontal only, but in iron, etc., vertical. (Alcoa both.)
Certain disadvantages to large scale work which set limit.
5. Waste in competition not so great.
It still prevails.

Chap. 4, G & H.

Chap. 9 - Consumer's demand & utility

Utility + scarcity = value

Diminishing utility. (assumes time unit, same tastes)

Marginal Utility & Market Price

Practical applications - soak the rich

Chap. 10 - Cost of production & normal price

Opportunity costs, or prices of things with derived value.

Cost price = normal price = equilibrium price

Prime (variable) & supplementary (fixed) costs

Chap. 13 - Dynamics of Competitive Price

Differential costs; estimating; individual differences;

Improvements -

Chap. 14 - Dynamics

G & H. Chap. 7 - Demand & Supply

Price & value -

Price analysis - abstraction.

Short run

↓
Market price - normal price

Demand - what buyer will take at given price, time, & place..

Individual demand price - what one buyer will give.

Demand = Desire + ability to pay

Individual demand schedule

Collective demand

1. Elastic when they think price is high, & vice versa
2. At & above pt. of competition, elastic demand.
3. More uses, more elasticity
4. Inelastic at very high & very low prices
5. Habit & custom make inelastic

Changes in demand.

When price drops & more is bought, there is no change in demand.

Supply & supply schedules

Supply - what sellers offer at given time, market, price.

Individual or supply price; collective market price.

Perishable goods - no supply schedules

Imp. comp. may let some spoil.

Spoiling the market - again monopoly (not always)

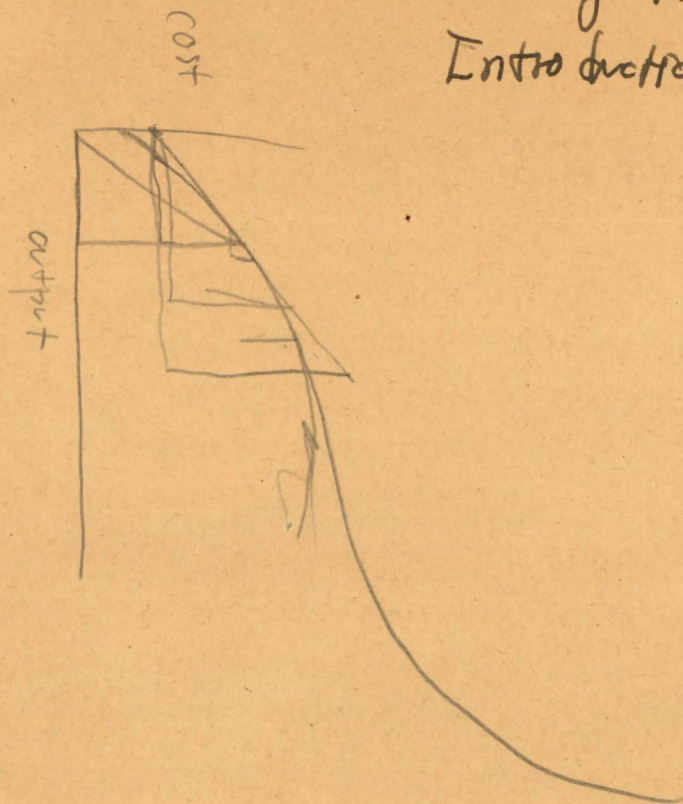
Men will be more willing to work at ~~lower~~ higher wages.

Determination of supply:

Supply without reservation. Administered prices.

Chap. 9 - Consumer's Demand & Utility

Irving Fisher
Introduction to Infinitesimal
Calculus.



Taussig Chap. 5

Capital

1. Production takes time.
2. Much capital used means cheap goods.
3. Must have 1st been surplus.
4. In insecurity hoarding takes place of capital production.
Hoarding was and is common in India.
Investments of today productive.
5. Capital is loaned by its owners to entrepreneurs.
(he's all wages funded.)
6. Depreciation

Chap. 6 - Corporate organization.

1. Joining liability makes partnership, unlimited liability.
Corporations have limited liability, in proportion to investment.
Old common law discouraged partnerships - now they enjoy continuing existence, inactive (dead) members, some limitation of liability.
Corps originally only for public interest, now anything.
Old partnership & corp. distinction now ~~an~~ unimportant.
"True" corps divorce ownership & management.
2. Advantages (1) large scale operations facilitated.
(2) Limitation of liability. (allows small investments)
(3) Ease of investment
3. (4) Transferability.
 - a) Facilitates ventures
 - b) Gives control to shrewd, sometimes unscrupulous.
 - c) Bad. Sense of common venture gone.
 - d) Caused stock exchange, which facilitates quick investment. (gambling, speculation)
 - e) Bad. Those in fiduciary positions play loaded market.
 - f) But stockholders never gypped.
 - g) Power (control, not ownership) of financial middlemen.
 - h) Not so much 1-man control in England.
- 4.

5. Stability of investor's position.

line wouldn't drop in '29 but for chain stores. After 133 liquor

$\frac{1}{5}$ est. fold annō, more appear

$\frac{1}{2}$ survive less'n 3 years. Thing were better 1825. Chain stores don't affect survival. Wisc. demands licences for auto-

dealers - state control. Corp. no. increased 2ce faster total.

139 from 500 showed deficit. Corp. do 60% countries work.

50% employers employ 3 or less, 4% employees.

$\frac{1}{100}$ % employers (calling GM one) employ 12 % employees.

55% corp. had 1.4% assets.

~~$\frac{2}{10}$ % corp " 52% "~~

averagely 1% corp. have 50% assets

1898-1902; & 1920 on, periods of consolidation.

Sherman anti-trust was avoided by consolidation.

"Clusters" of urban large corporations.

Metal industries, vertical expansion

Textile " horizontal "

Diagonal & conglomerate, too.

Great variation among producers, ~~all~~ same general trends.

Chains do 22% business.

TNEC

Economics - price theory Oct. 30

I. 2 parts - theory of short-run & long-run variations
Short-run (movement which takes place over short pd. of time during which there is no time to make adjustments in supply - i.e., variations of demand alone)

II Long-run (long time; long enough to allow reorganisation of supply)

I. What a price is. An exchange rate.

Affect price money { A. Special conditions of supply & demand - Relative
B. Fluctuations in prices in general - Absolute

When a factor affects all prices exactly the same, it is an ^{absolute} monetary factor.

Ford, in 1930 (i²), raised wages from \$6. to \$7. di^e.
Karp. says - He was working his men 2 to 3 days a week. He paid some \$5. di^e.

Kanes' The theory of the multiplier.

Nov. ~~Sept~~ I.

Income statement is ^{flow} of dollars in a unit of time
Balance sheet is assets & liabilities at any one time.

To know if you've made profit or loss, you must have a balance sheet which takes everything into account.

Assets must be reduced to account for depreciation.

'Amnuskag' mills - kept up front, borrowed when insolvent.

Demand & Supply as principles of classification
Demand of market is sum of individual demands.

No quiz Tuesday.

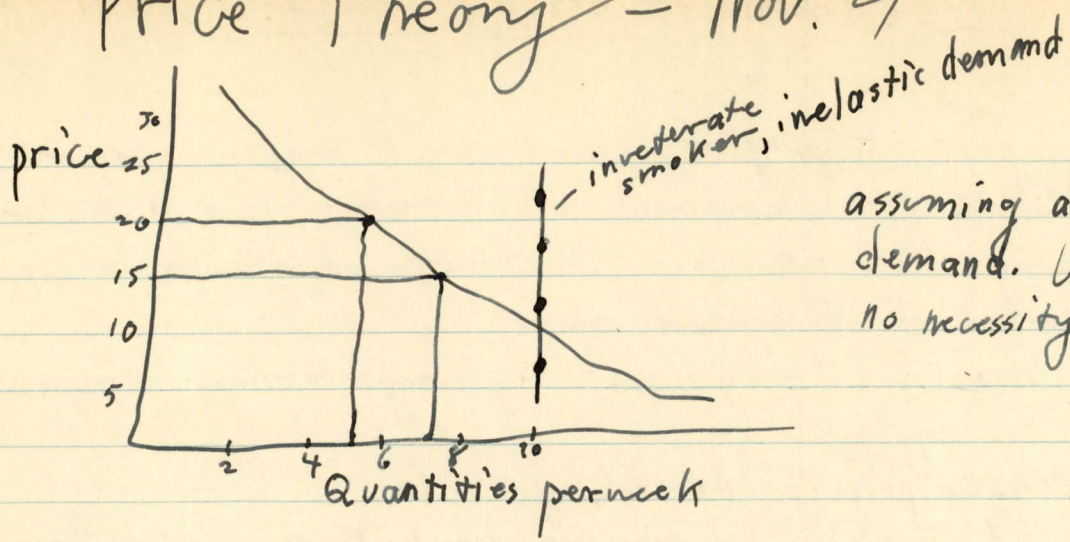
Read Monograph by Sat. - 50 pages.

Non-price competition - difference in quality.

Thurs. next week - exam on all I have read.

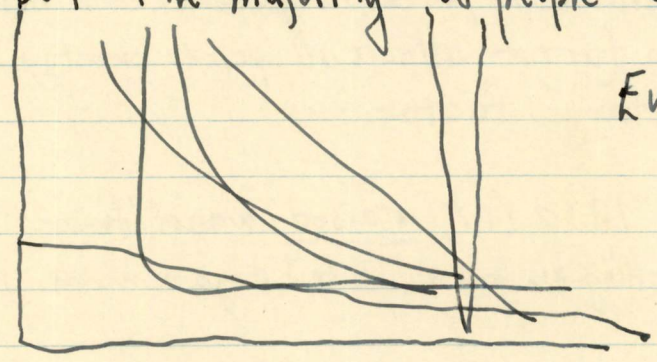
Price Theory - Nov. 4

I. Demand

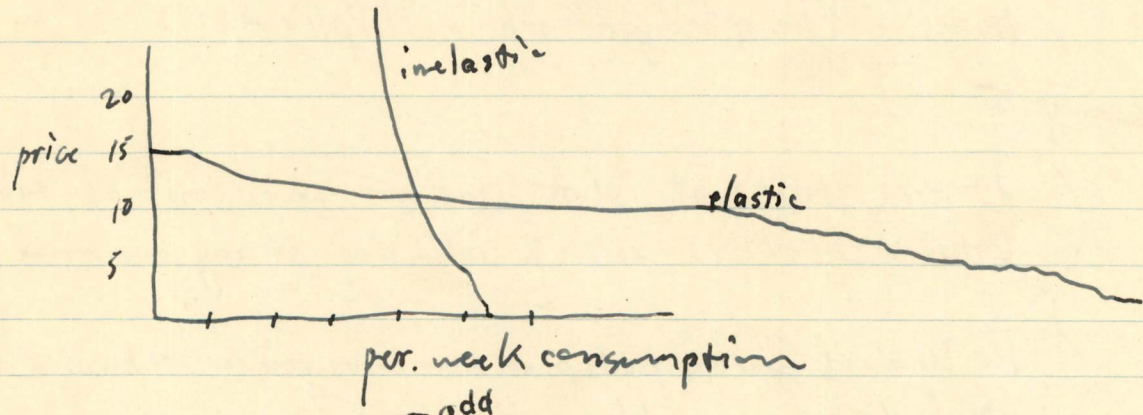


perfect
assuming an elastic
demand. Unlimited desire,
no necessity.

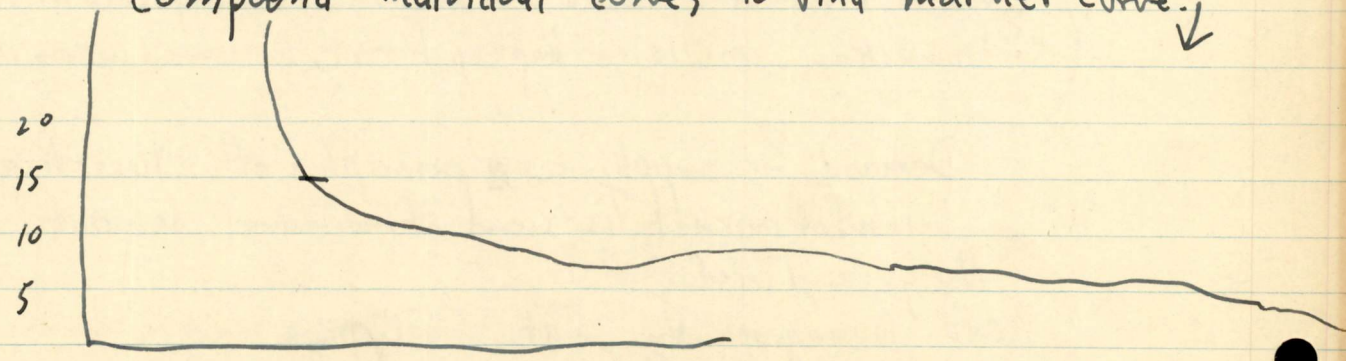
But the majority of people determine curve.



Everyone has a different curve.



Compound individual curves $\uparrow$ to find market curve. $\downarrow$
add



Elasticity Coefficient

0

Outlay

proportional to price

$$\text{elasticity of response} = \frac{\% \text{ change in dependent (or responding) variable}}{\% \text{ change in independent variable (price)}}$$

Elasticity Coefficient

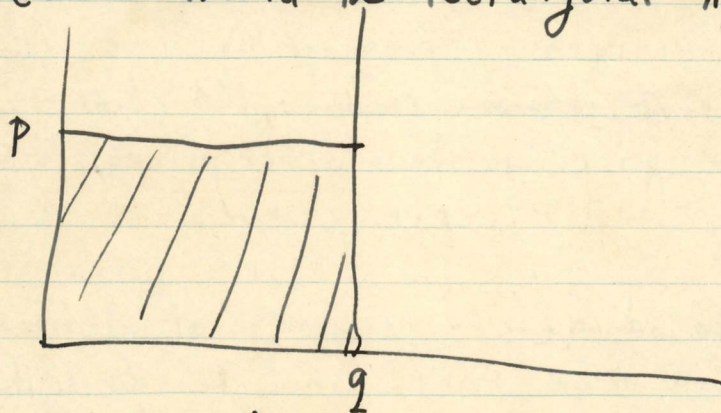
1 (unit elasticity)

(from unity upward it is elastic. 0 is absolutely inelastic. Below unity it is inelastic)

Outlay

Would not change, Constant

Unity curve would be rectangular hyperbola (figure this out)



area = price

At ~~elasticity~~ $0 < e < 1$, an inelastic curve.

Outlay increases with rising price, but not proportionally with price.

At $e > 1$, outlay increases with decreasing price.

For all products taken together, & all people taken together, elasticity is Unity (figure this out)

price	10	11	12	13	$\frac{10}{1.1}$	9	8
quantity	10	$\frac{10}{1.1}$	$\frac{10}{1.2}$	$\frac{10}{1.3}$	11	$\frac{10}{.9}$	$\frac{10}{.8}$

Economics, Nov. 6.

Steepness of curve determined by elasticity of demand.

A demand curve shows how much a certain man will buy of a certain commodity, at a given price.

An accurate curve can, in a concrete case, be drawn up. How much will a 10% excise tax bring in? The price is increased, consumers will buy less, so one must consider that in laying a tax.

Whenever there is a possibility of substituting, demand curve will be less steep above point of competition. In drawing demand curve we must assume, then, that substitutions will be made above a certain point.

If one man's income increases, his curve will ~~move~~ move farther from y-axis, ~~become~~ ^{become} steeper, ~~MAVE~~

A decline in price (relative to other prices), or a greater desire for the thing, will steepen curve.

Fallacious to induce urgency of demand ^{from} ~~by~~ slope of curve, because the units may be ~~different~~ different.

Find the ratio between ~~~~~

% change in quantity

% change in price

= elasticity coefficient

~~If you figure from bottom of line that goes down~~
Quantity & price vary inversely

% change in quantity is 0, $\frac{0}{x} = 0$,
elasticity coefficient is 0.

Staehle pamphlet

1. Butter -

Consumption varies in general inversely with price, but there are obviously other factors.

They are

A. Increase of pop. - so we shall consider only consumption per capita.

B. Fluctuation of prices in general. Divide absolute price by index number of prices in general, get real price.

C. Fluctuation in national income. Not those due to increase of population, but National Income per capita.

Not interested in changes of money's value, so $\frac{\text{Nat. inc. \$ income per cap}}{\text{cost of living index}}$

= real income per cap.

When we use them, anomalies disappear.

But it is difficult to combine graphically, intuitively, the significance of the real income line & the real price to explain consumption per cap.

So we have another source, (Consumer's' Purchases Study), which explains effect of income on purchases of butter.

$\frac{\% \text{ difference in quantity}}{\% \text{ difference in income}} = \text{income elasticity} = (\text{for butter}) .38 (1936)$

$\% \text{ difference in income}$

i.e. - 1% ~~change~~ difference

in income means a .38% change in butter purchase.

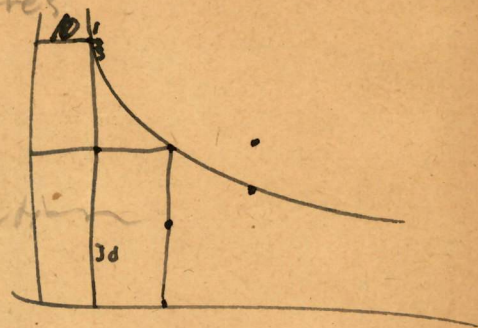
A "scatter" - a bunch of unconnected pts, in this case showing what consumption was from 1927 to '34. If price had stayed at '23 level, they would all have been on a line, which they weren't near. Price elasticity found to be .67 - i.e. 10% increase in price, 6.7% decrease in purchases.

2. Substitutes

If it doesn't vary with income, everybody has all the wants.

Dec. 10 - 1500 word + time

1. Henry Adams - Mont St. Michel & Chartres
2. Matthew Arnold - Culture & Anarchy
3. Charles A. Beard - America In Midpassage
4. Crane Brinton - The Anatomy of Revolution
5. J.B. Bury - The Idea of Progress
6. S. Freud - General Introduction to Psycho-analysis
7. William James - varieties of religious experience
8. Laski - The State - in theory & practice
9. Lerner - It is later than you think
10. Lippman - An Inquiry in Principles of Good society
11. John L. Loes - Essays in appreciation
12. John Henry Newman - Idea of University
13. Francis Parkman - Conspiracy of Pontiac
14. Robinson - Mind in the Making
15. Russell - Selected papers (Modern Lib.)
16. Fred J. Turner - Frontier in Am. Hist.
17. Thorstein Veblen - Theory of Leisure Class



16-27 in handbook
Definition of an abstract term.

From shirt, "monopoly"

Monopolists, to raise price, restrict production

market.

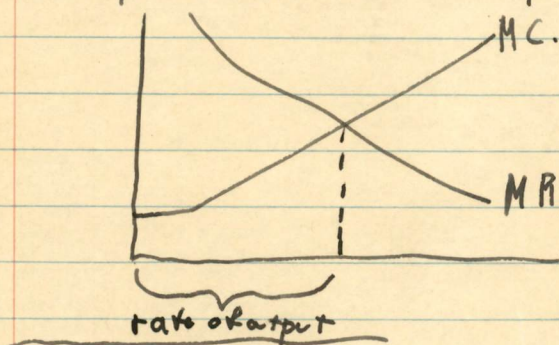
In perfect competition
Product differentiation

Meyers - Demand as seen by the seller.

each seller sells to a perfectly elastic

Economics, Dec. 20

Pt. of equilibrium output for monopolist, last hour
 2. Monopolist cannot control price, save the rate of output?



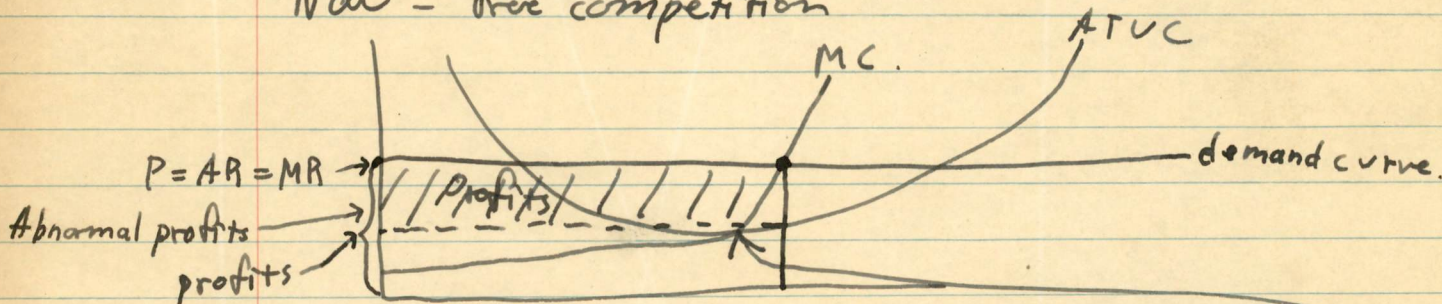
Now we pass on to equilibrium for an industry as a whole. —

if $AR = AC$, it's in equilibrium.
 if $AR > AC$, producers enter
 if $AR < AC$, producers will leave industry. ~~EE~~

Proposal to tax profits above 6% 100% is now in force in England.

Rate of profits distributes production activity properly.

Now - Free competition



Competition will then drive prices down, ultimately to, & there will be equilibrium. (MC = MR)

producer's interests

$$\begin{array}{l} MC = MR \\ AC = AR \end{array}$$

Community's interest

$$\begin{array}{l} AR = MR \\ AC = MC \end{array}$$

~~Monopolistic competition~~

In free competition $MC = MR = AC = AT$

VI

Costs.

1. Constant, or Fixed, or overhead costs: functions of time

Typical - Interest (That part unrelated to output)

Depreciation (")

Rent (")

Obsolescence

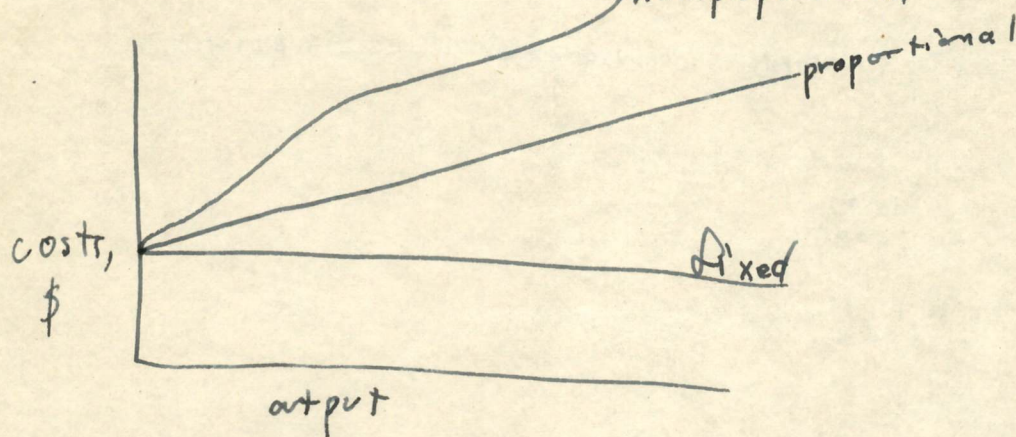
2. Variable - function of rate of output

Typical
a. Proportional

Materials, Labor (sometimes)

b. Non proportional

Labor, other things which must be correlated.



$$\frac{\text{Total cost}}{\text{output}} = ATC = \text{d of radius vector}$$

At pt. where ^{not} radius vector has minimum, costs have minimum

VII

Utility of last unit's worth cigarettes
= utility of last unit's worth butter

This affords maximum satisfaction
(There is decreasing marginal utility)

$$\text{Utility l. u. w. c.} = (\text{Kicks of last pack. cig.}) \\ \times (\text{no. of packs for 1 unit})$$

} certain
amount
of
~~the~~
indifference

Utility last unit's worth butter

Price of butter per unit

$$= \frac{\text{Utility l. u. w. cig.}}{\text{p. of. cig. per unit}}$$

This = ity means consumer's = ibrium.

Marx Meyers.

Assumptions

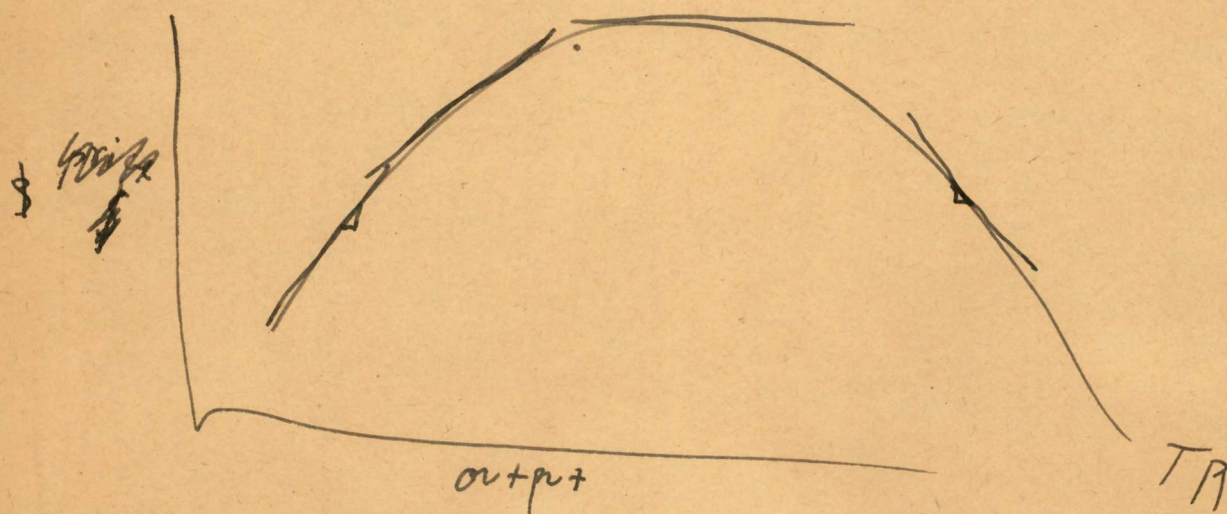
- Equilibrium - 1. all ~~factors~~ ^{of one factor} must be ~~at~~ ^{paid the} same price.
2. Prices of various factors must be in proportion to their marginal products. (principle of substitution)

$$\frac{\text{Marg. product of factor A}}{\text{Price of A}} = \frac{B}{B}$$

If $\frac{A'}{A} > \frac{B'}{B}$, use more A' till A' goes down, & $\frac{A'}{A} = \frac{B'}{B}$

3. It may pay to vary everything.

4. You must ~~be~~ get best bargains in everything.



$$\frac{\text{incremental product}}{\text{output}} = \lambda = MP$$

CG: $\nearrow$

Demand as seen by the seller.

Product differentiation - monopolistic competition. (Arrow shirts)

Conditions for pure comp.

- 1) Buyers indifferent about sellers. Price only factor.
- 2) One seller is not so big that he alone can influence price.

It follows - demand for product of individual seller perfectly elastic.
(curve of differentiated product less elastic. - seller may have to curtail production.)

Advertising does it.

Marginal revenue (derived from average revenue) is the net amount added to total revenue by each successive unit added to the no. offered for sale.

40 41 units - Average revenue		\$79.	-	Total Revenue	\$3,239.00
40 "	"	80.	-	"	3,200.00
Difference (Marginal Revenue)					\$39.00

Total Rev. at maximum when Marg. Rev. = 0

→ Points on curve^(monop.) are alternative, not successive. - see Myers

True demand & estimated demand. - Public Utility Co's.

2 def. of commodity.

1. Product as differentiated.

2. Group of "1", surrounded by a gap in the chain of possible substitutes.

Market - area in which buyers & sellers can communicate.

We are not discussing. Chap. 11, Mayers. & others.

Consumer's equilibrium — identical with producers, different names.

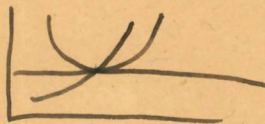
Review chapter in Taussig on capital.

Condition toward which forces of market drive stuff.

Recapitulate

then case of perf. monopoly.

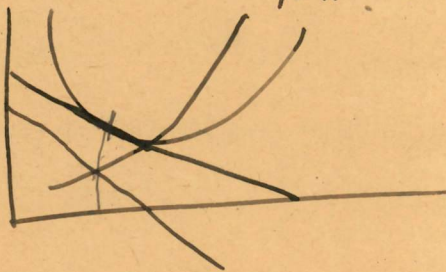
① Perf. comp.: $AR = AC = MC = MR$

picture 

② Monopolistic competition:

(What is marginal utility)

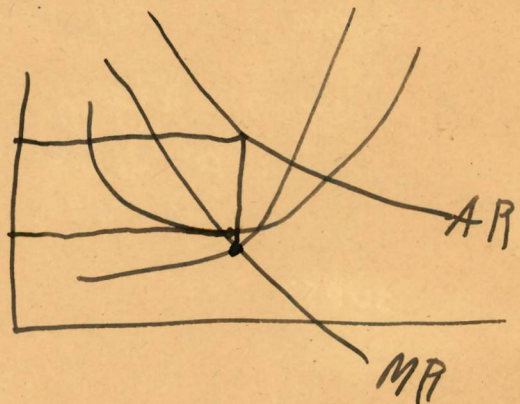
$$AR = AC > MC = MR$$



③ Pure monopoly:
Cost conditions the same

$$MC = MR$$

$$AR > AC$$



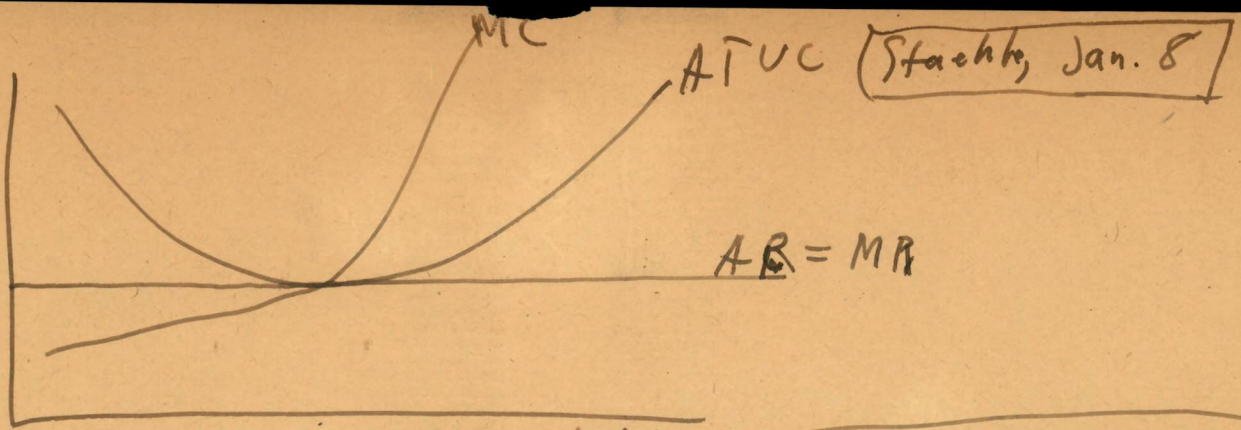
Just for fun, defend monopoly.

①	②	③
a) $P = \min. AC$	Price $> \min. AC$	$> \min AC$
b) Output at $\min AC$	Smaller than at $\min. AC$	Smaller
c) Utilization of the equipment - optimum	Underutilization	Underutilization
d) profits - normal	normal	abnormal

Defense - Abstract from difference in degree (the hole)
A joke, he says.

Those who try to figure out socialism end up by concluding that the commissar of production must do exactly what perfect free competition will do.

Workers start running plants - GM, under cloak of national unity. New privileged group.



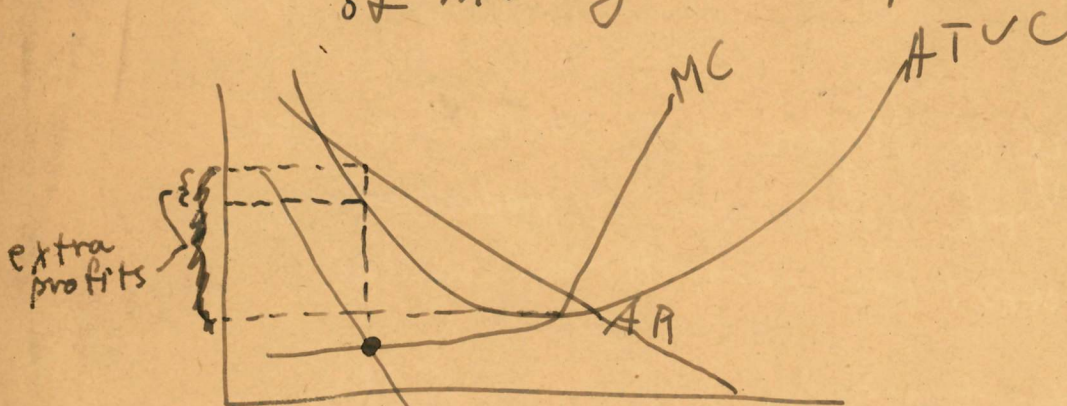
$AC = AR$ - Industry
 $MC = MR$ - firm
 (Increase of normal profits)

$AC = AR = MC$
 This simultaneous equality is equilibrium.

Effect on equilibrium of

a) firm b) industry

of making a monopoly

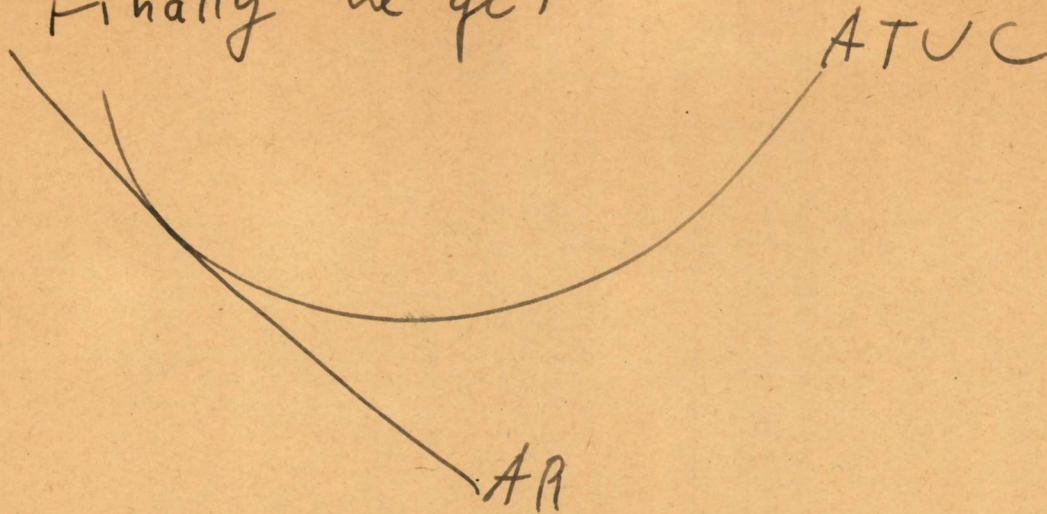


MR always $< AR$ as long as AR is decreasing.
 MR not necessarily decreasing

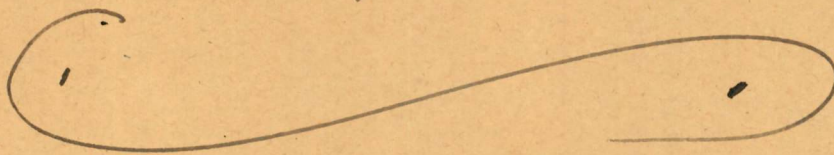
Entrance of new firm into Gillette-Treet market, whose curve moves down & left. Cut into extra profits on 3 fronts.

1. The Ark 2. Letter 3. Test

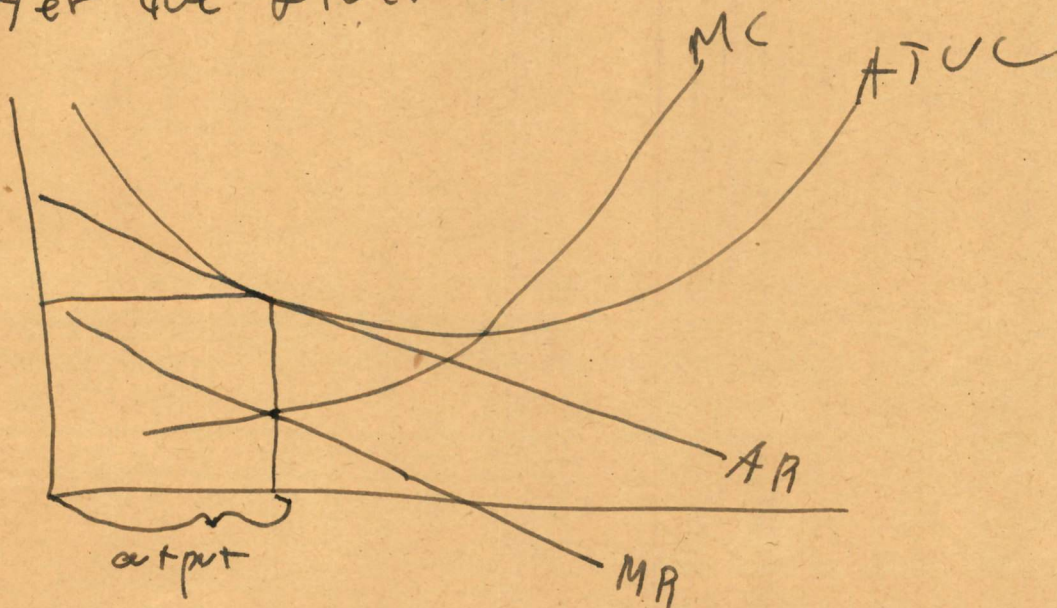
If 3rd person enters, AR moved bodily again.
Finally we get



& equilibrium.



After the fluctuations:

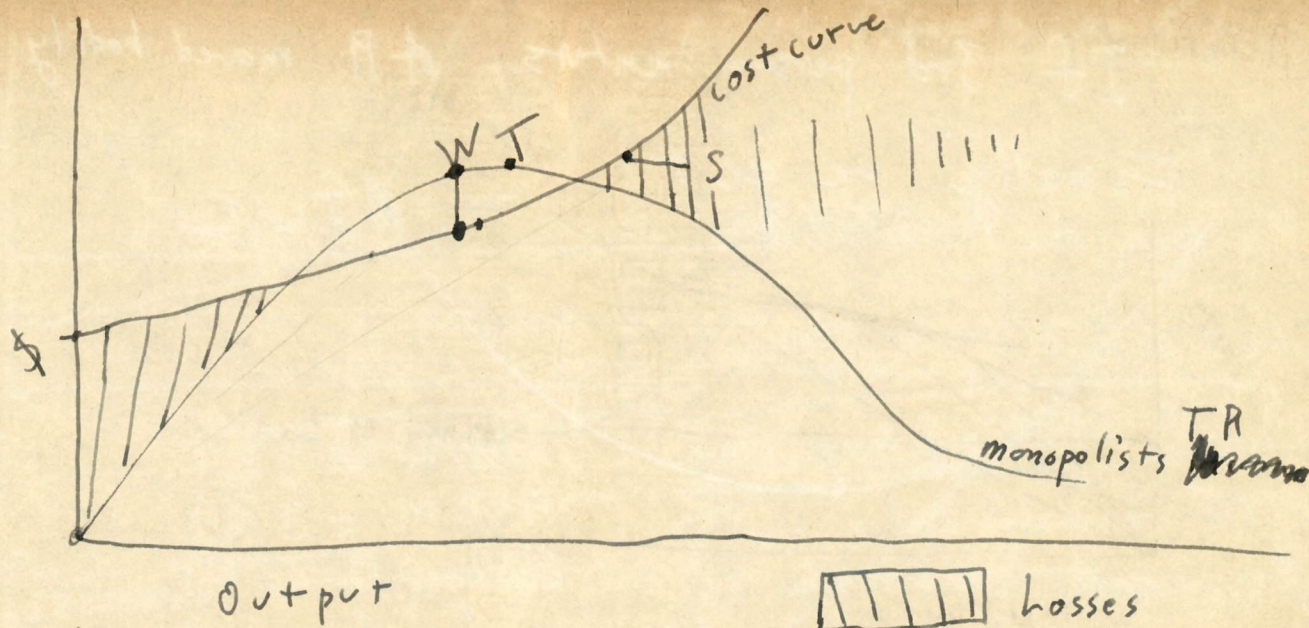


$$MR = MC$$

$$AR = AC$$

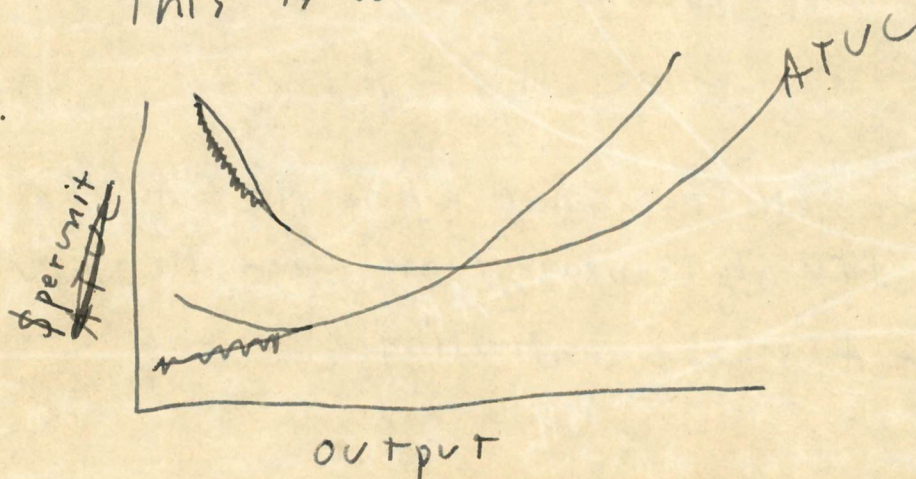
II

A.



1. S is the point of maximum efficiency, but to produce there would not be wise.
2. T is the point where Total Revenue would be greatest, but he should not produce there.
3. W is where the slopes are equal, ^{where $MC = MR$} & therefore where there is the greatest difference between TR & TC. This is where he will produce.

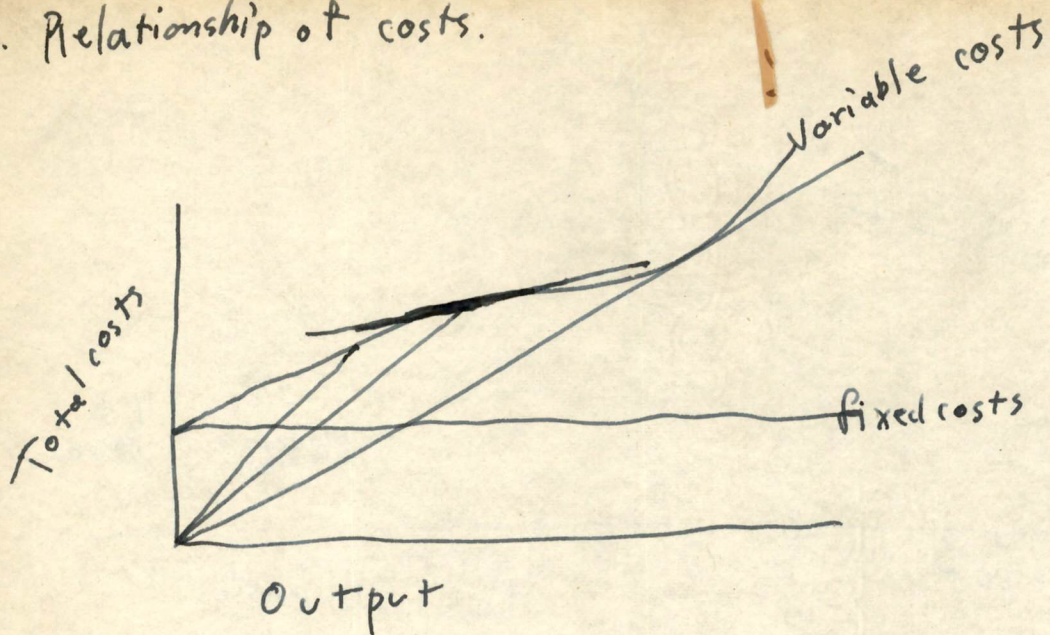
B.



$MC = ATC$ at pt. of max efficiency

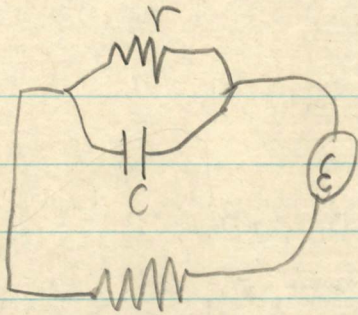
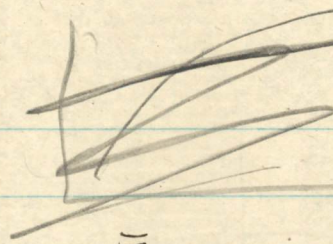
Reason shows that if $MC < MR$, it would be profitable to expand; if $MC > MR$, we have expanded too far. If $MC = MR$, things are just right.

I. Relationship of costs.



1. The ^{dot}radius vector to the cost curve at any point is the $\frac{\text{Total costs}}{\text{output}}$, which $= ATC$
2. The tangent to the cost curve at any pt. $= \frac{\text{total costs}}{\text{output}}$ for an infinitesimal unit, $\equiv MC$
3. Geometrically, we can see that the dot radius vector will be least ^{at the lowest pt.} where it coincides with the tangent, i.e., where $MC = ATC$.
 - a. Reason tells us that where $MC < ATC$, we could lower ATC by expanding; and where $MC > ATC$, we could lower ATC by contracting.

2 proofs above.



$\bar{\epsilon} =$ fractional Δ in output price

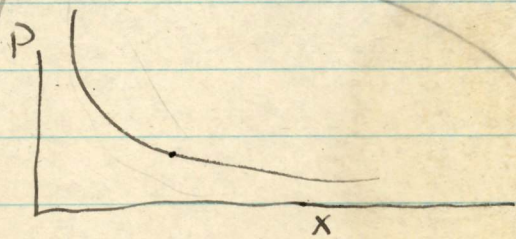
$$\omega t = 2\pi$$

$$t = \frac{2\pi}{\omega}$$

$$\frac{1}{\omega} \int_{\omega t=0}^{\omega t=2\pi} \sin^2 \omega t \, d\omega t$$

$$\frac{1}{\omega} \int_0^{2\pi} \sin^2 x \, dx$$

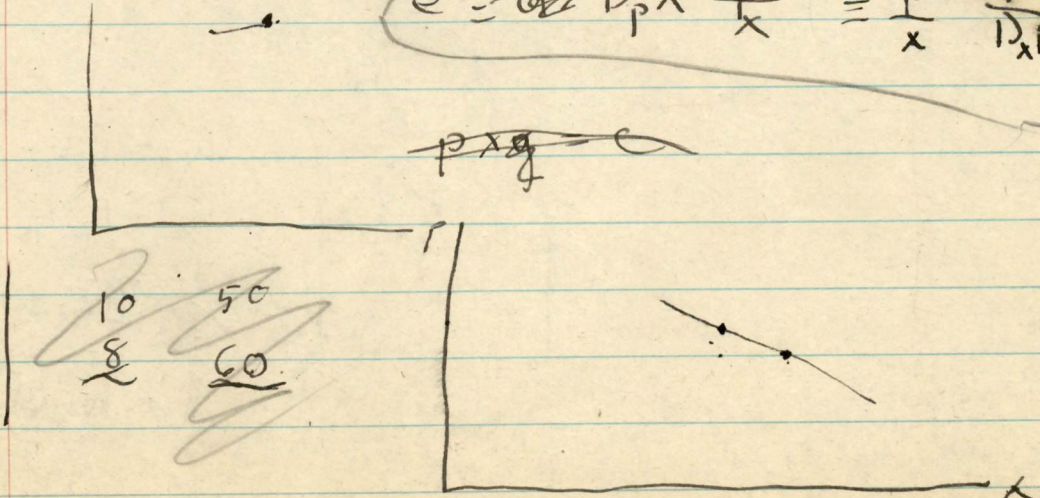
$$\frac{\pi}{\omega}$$

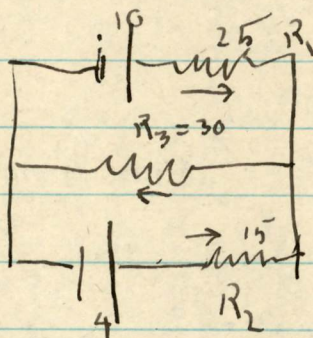


$$e = - \frac{\frac{\Delta x}{x}}{\frac{\Delta p}{p}} = \frac{\Delta x}{\Delta p} \frac{p}{x}$$

$$e = D_p x \frac{p}{x} = \frac{p}{x} \frac{1}{D_x p}$$

$$p \times q = e$$





$$-E_1 + R_1 i_1 + R_3 i_3 = 0$$

$$-E_2 + R_2 i_2 + R_3 i_3 = 0$$

$$i_2 = i_3 - i_1$$

$$10 + 25 i_1 + 30 i_3 = 0$$

$$15 i_2 + 30 i_3 = 4$$

$$25 i_1 - 15 i_2 = 6$$

$$5 i_1 + 6 i_2 = 2$$

$$135 i_2 = 56$$

$$i_2 = \frac{56}{135} = \frac{11}{27}$$

$$i_1 = \frac{\begin{vmatrix} 10 & -15 \\ 25 & 6 \end{vmatrix}}{\begin{vmatrix} 25 & -15 \\ 11 & 6 \end{vmatrix}} = \frac{\begin{vmatrix} 10 & -5 \\ 25 & 3 \end{vmatrix}}{\begin{vmatrix} 25 & -5 \\ 11 & 3 \end{vmatrix}} = \frac{2}{5} \frac{\begin{vmatrix} 13 & -5 \\ 15 & -1 \end{vmatrix}}{\begin{vmatrix} 15 & -1 \\ 11 & 3 \end{vmatrix}} = \frac{2}{5} \frac{14}{26} = \frac{2}{5} \frac{7}{13}$$



$$E_1 - R_1 I_A - R_3 (I_A - I_B) = 0$$

$$E_2 + R_2 I_B - R_3 (I_A - I_B) = 0$$

$$10 - (25 + 30) I_A + 30 I_B = 0$$

$$4 + (15 + 30) I_B - 30 I_A = 0$$

$$17 \mathcal{E}_A - 6 \mathcal{E}_B = 2$$

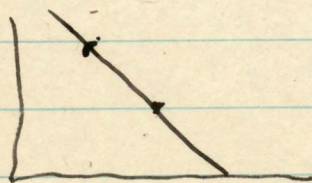
$$30 \mathcal{E}_A - 45 \mathcal{E}_B = 4$$

$$\mathcal{E}_A = \frac{+2 \begin{vmatrix} 7 & 6 \\ 30 & 45 \end{vmatrix}}{+15 \begin{vmatrix} 11 & 6 \\ 30 & 45 \end{vmatrix}} = \frac{\frac{2}{15} \cdot \frac{11}{7}}{\frac{22}{3 \cdot 35}}$$

$$i = \frac{E_0}{\sqrt{R^2 + \frac{L^2}{4} \left(\omega - \frac{1}{\omega C} \right)^2}} \sin(\omega t - \phi)$$

p	λ
10	$5a$
5	$10a$

$$e = - \frac{-\frac{1}{2}}{1} = \frac{1}{2}$$



$$e = \frac{-\frac{p}{x}}{\lambda}$$

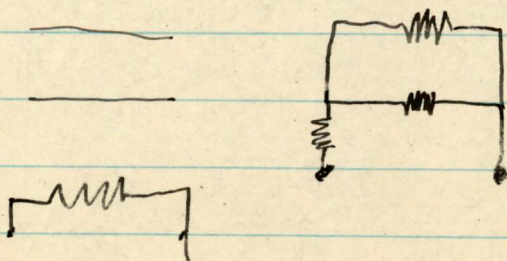
$$- \frac{E_0}{L\omega} + C\omega i = \frac{1}{Z}$$

$$Z = \frac{1}{i\left(\frac{1}{L\omega} + C\omega\right)} = \frac{i}{\left(\frac{1}{L\omega} - C\omega\right)}$$

$$Z = R + i\left(\frac{L\omega}{1 - CL\omega^2}\right)$$

$$i = I_0 \sin(\omega t - \phi)$$

$$i = \frac{E_0}{\sqrt{R^2 + \left(\frac{L\omega}{1 - CL\omega^2}\right)^2}} \sin(\omega t - \phi)$$



$$\frac{1}{r_2} + \frac{1}{r_1 + r_2}$$

$$\frac{r_1}{2} + r_2 \text{ e } , \frac{1}{r_3} = \frac{1}{r_2} + \frac{1}{r_1 + r_2}$$

$$\frac{r_1}{2} +$$

$$r = \cancel{25} + \frac{1}{\frac{1}{30} + \frac{2}{30}} = 35$$

$$i = \frac{E}{r} = \frac{E}{35}$$

$$i_2 = \frac{2}{3} \frac{E}{35}$$

$$r = 15 + \frac{1}{\frac{1}{30} + \frac{1}{25}} = 15 + \frac{5}{\frac{1}{6} + \frac{1}{5}} = \frac{150}{11} \approx 15$$

~~E~~

$$i = \frac{E}{r} = \frac{E \cdot 11}{(150 + 165)}$$

$$i_2 = \frac{2}{3} \frac{102}{357} - \frac{4 \cdot 11}{3 \cdot 105} = \frac{4}{3 \cdot 7} \left(1 - \frac{11}{15} \right) = \frac{4}{3 \cdot 7} \frac{4}{15}$$

.05

$$i = \frac{2}{3} \frac{E}{35} \frac{11}{6} = \frac{4 \cdot 11}{315}$$

$$Z = \sqrt{R_L^2 + L^2 \omega^2}$$

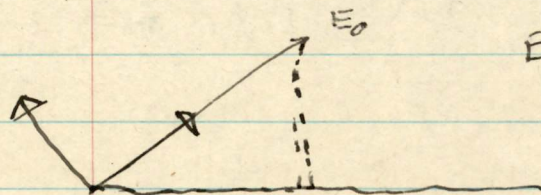
$$\text{admittance } Y = \frac{1}{Z} = \frac{1}{\sqrt{R_L^2 + L^2 \omega^2}} = \frac{\sqrt{R_L^2 + L^2 \omega^2}}{R_L^2 + L^2 \omega^2}$$

$$Y = \sqrt{(-\omega C)^2}$$

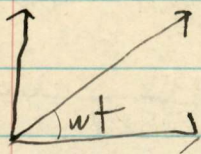
$$Y_{\text{net}} = \sqrt{\frac{R^2}{(R^2 + L^2 \omega^2)^2} + \left\{ \frac{L^2 \omega^2}{(R^2 + L^2 \omega^2)^2} + (-\omega C)^2 \right\}}$$

$$Z = \frac{1}{Y} = \frac{(R_L^2 + L^2 \omega^2)^{\frac{1}{2}}}{\sqrt{R_L^2 + L^2 \omega^2 + (-\omega C)^2 (R_L^2 + L^2 \omega^2)^2}}$$

$$Z_{\text{total}} = \sqrt{\left(R_0^2 + \frac{(R_L^2 + L^2 \omega^2)^2}{\sqrt{R_L^2 + L^2 \omega^2 + (-\omega C)^2 (R_L^2 + L^2 \omega^2)^2}} \right)^2 + \frac{L^2 \omega^2}{2}}$$



$$E_0 = E_0 \cos \omega t + E_0' \sin \omega t$$



$$\frac{1}{Z'} = \frac{1}{\sqrt{R_L^2 + L^2 \omega^2}} + \frac{1}{\sqrt{C^2 \omega^2}}$$

$$R + Z' = R + \frac{\sqrt{R_L^2 + L^2 \omega^2} \sqrt{C^2 \omega^2}}{1 + \sqrt{R_L^2 + L^2 \omega^2} \sqrt{C^2 \omega^2}}$$

$$i = E_m \sqrt{\left(\frac{1}{R}\right)^2 + \left(\frac{1}{\omega L} - \omega C\right)^2} \sin(\omega t - \phi)$$

$$i = \frac{E_m}{\sqrt{R^2 + \left(\omega L - \frac{1}{\omega C}\right)^2}} \sin(\omega t - \phi)$$

$$Z_L = \frac{1}{\sqrt{\cancel{R^2} + \left(\frac{1}{\omega L} - \omega C\right)^2}} = \frac{1}{\frac{1}{\omega L} - \omega C} = \frac{\cancel{\frac{1}{\omega L}} - \omega C}{1 - \omega^2 LC}$$

$$Z = \cancel{Z_1 + Z_2} = R + \frac{\omega L}{\frac{1}{\omega L} - \omega C} = \sqrt{R^2 + \left(\frac{\omega L}{1 - \omega^2 LC}\right)^2}$$

$$1 \rightarrow c$$

$$1+1 \rightarrow c+c$$

$$n \rightarrow nc$$

$$R^2 + \frac{2RK+1}{K^2} + \frac{1}{c^2\omega^2}$$

$$\frac{1+2RK}{c^2\omega^2+K^2} \stackrel{?}{=} \frac{2RK+1}{K^2} + \frac{1}{c^2\omega^2}$$

$$K^2 c^2 \omega^2 + 2RK^3 c^2 \omega^2 \stackrel{?}{=} 2RK^2 \omega^2 + c^2 \omega^2$$

$$+ 2RK^3 + K^2$$

$$\frac{1}{c^2\omega^2} + 1 = 1 + \frac{1}{c^2\omega^2}$$

$$1 + \frac{1}{c^2\omega^2 + K^2}$$

$$E_{\text{strut}} = Ri + \frac{g}{c} (RK+1)$$

$$\dot{=} \frac{dg}{dt} + K \frac{g}{c}$$

$$R^2 + \frac{1}{c^2\omega^2}$$

$$R \frac{dg}{dt} + (KR+1) \frac{g}{c}$$

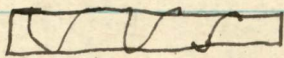
$$R^2 + \frac{1}{\frac{c^2\omega^2}{(KR+1)^2}}$$

$$\frac{c}{KR+1}$$

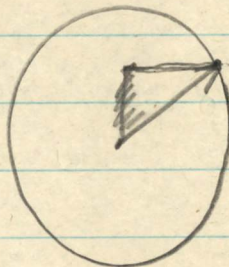
$$\frac{g}{c}$$

$$E_d$$

$$\frac{(KR+1)^2}{c^2\omega^2} \stackrel{?}{=} \frac{1+2KR}{c^2\omega^2+K^2}$$



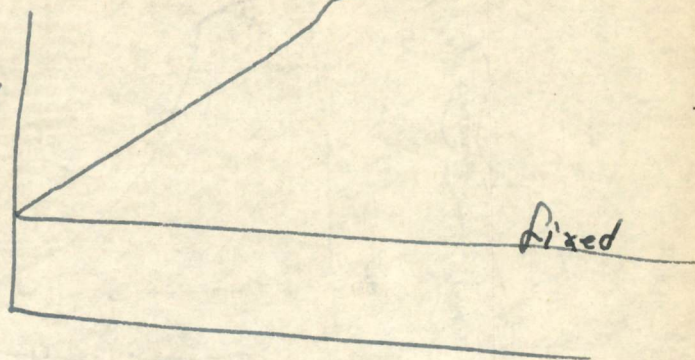
in hydraulic



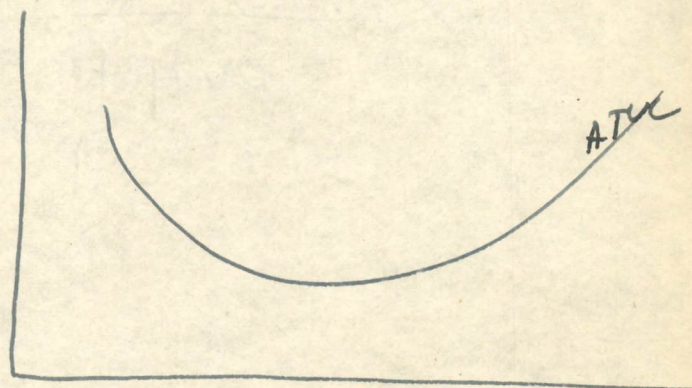
III ~~AB~~ We have 3 ways of representing costs. ^{able.}

1. Total Cost graph

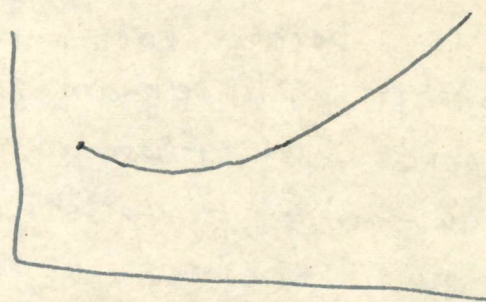
Ordinary profits are included as costs. Monopoly profits are not.



2. ATC graph

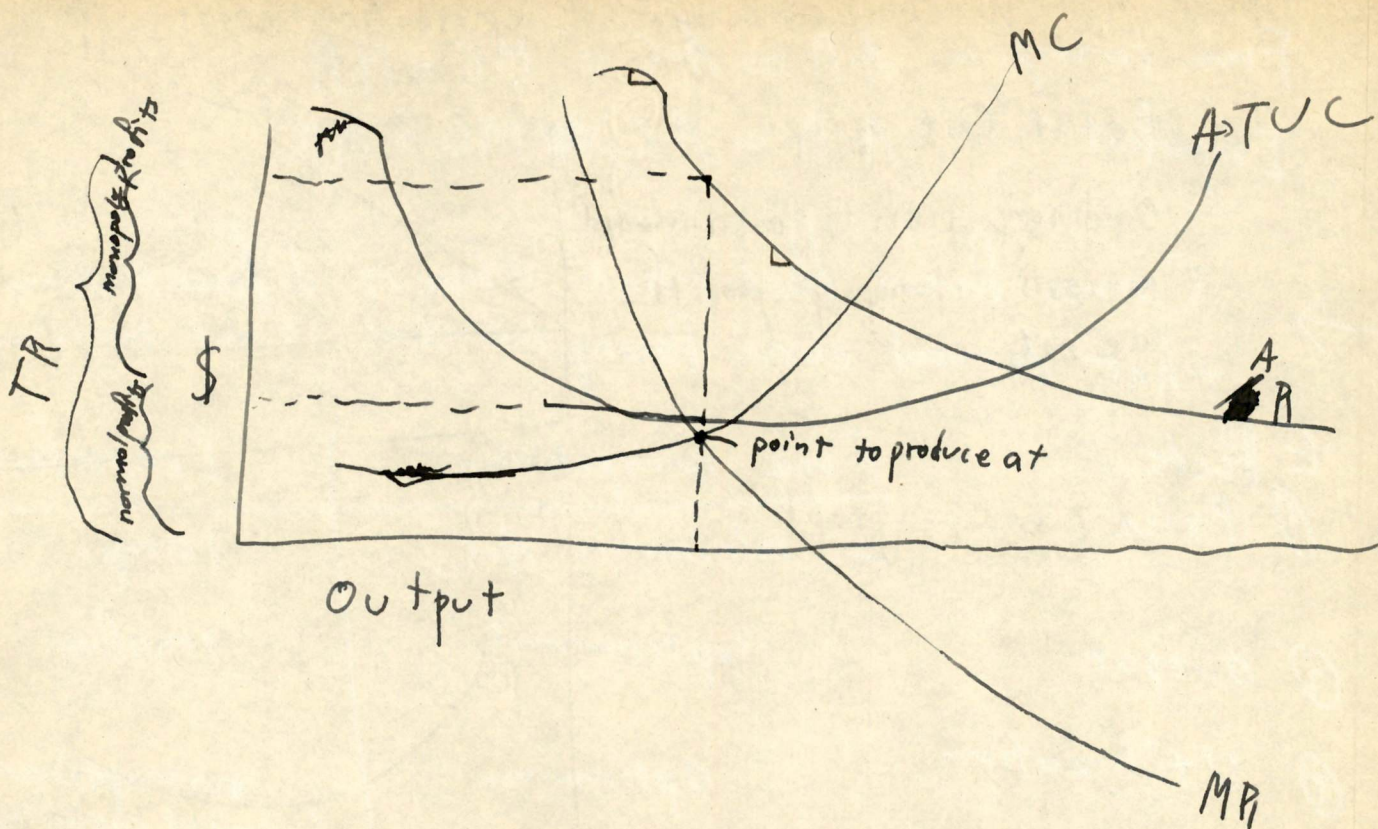


3. MC graph



$$\text{Profits} = TR - TC$$

$$\text{Gross profits} = TR - \text{current cash outlay}$$



IV

2 demand curves ^{in duopoly} do not add up to total demand curve, because each curve assumes that the price on the other will remain constant. 2 points, however, (if the price is at those pts., i.e., if the whole curves were drawn assuming the price at those pts.,) will add up to a pt. on the ~~the~~ total curve.

V

When a product is differentiated, and $MR < 0$
 $\% \text{ increase in quantity sold} < \% \text{ decrease in price}$
 or

$$\frac{\% \text{ increase in quantity sold}}{\% \text{ decrease in price}} < 1$$

This is elasticity.

So:

$$\begin{aligned} E_{D, P} &= 1, M.R. = 0 \\ E_{D, P} &< 1, M.R. < 0 \\ E_{D, P} &> 1, M.R. > 0 \end{aligned}$$

Free comp. - $AR = AC = MC = MR$

Imperfect " - $AR = AC > MC = MR$

→ Comes from fact that there is differentiation - that demand curve facing individual is not horizontal.

Effects	Free competition	Imperfect
① Price	= minimum AC	larger
② output	? optimum?	smaller
③ Utilization	Optimum	not optimum (unused capacity)
④ Profits	Same	same

Entrepreneurs don't get anything out of monopolistic competition. Consumers lose.

1. If Gillette lowers price, & Treet does not, average price will fall, there will be increase in amount sold, all of which would accrue to Gillette.
2. More than this, many Treet consumers will turn to Gillette.

→ The demand curve, ^{which we use, is the one which} however, only considers the first factor.

This seems ok, because Treet probably will change his price correspondingly.

If Treet does, he will get $\frac{1}{2}$ the new market. (He would if income levels were a smooth curve - but they are not)

The volatility, or lack of stability, in demand curves, is the object of all this.

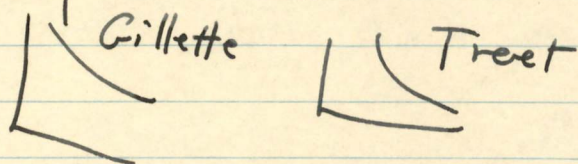
No quiz Tues.

Economics

Non-price competition is only one form of product differentiation.
Addition of individual demand schedules is market demand schedule.

1. Individual buyer schedule
2. Market " "
3. Individual producer " "

Almost nothing you can buy without a brand name.
No product differentiation in wheat pit.



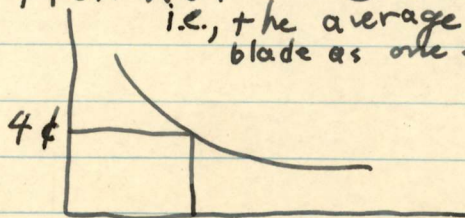
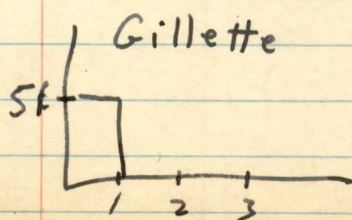
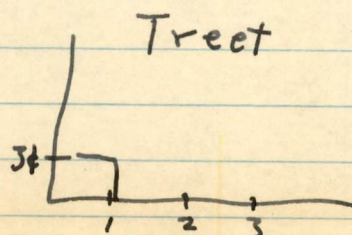
These curves assume ceteris paribus, but actually if Gillette lowered prices he would attract some Treet consumers, ceteris non paribus.

Since curves are more elastic below point of competition if Gillette lowered price the point of competition for Treet would be lower, Treet would

They do not add up to the market demand curve.

Imp. At one price, which we know, the two add up to the market demand. But the 2 curves don't add up, for one curve assumes that the other curve doesn't change.

Market Curve for razor blades in general -
i.e., the average of the 2 prices, regarding one razor blade as one unit.



Assume same amount sold.

Ise - Dec. 9 - U. of Kansas
Amherst this year

Consumer Sovereignty - truth or myth?

2000 years ago, S.E. Europe on Medit., very poor people.
Greeks, great culture.

Great German musicians also from rude civilisation.

He says - Plato is better than gadgets.

Then he says he cannot decide what is good for man.

Must improve quality of life.

Negative → Defensive goods. - Food, clothes - to avoid hunger, cold; jazz, ^{to avoid} boredom.
Creative goods, - build life above hogs in shade of old apple tree -
music, art, literature, etc.

Want is inseparable from satisfaction.

What's the use of leisure time if we then have boredom
& must kill time.

A "good" satisfaction should last long. Durability.
Animal satisfaction, end in satiety & boredom.

Spiritual " multiply with enjoyment.

Mark Twain, Hardy, - got rep. as time went on.

Kipling, Longfellow - are cheap, go down.

Good music wears well.

He that increases in wisdom increases in sorrow; idiots, on the
other hand, - - - -

Elements of Modern economics - Mayers

Slichter

Chap. 8

100 years ago few corps. - now they own $\frac{1}{3}$; $\frac{5}{8}$ "wage-earners" in manufacturing, $\frac{9}{10}$ in mining. Still 10,000,000 independent businessmen.

Corporations privileged by exemption from ?

Collateral trust bonds - security

Debenture (pay regardless) & Income bonds.

Preferred stock. - directors must vote dividend - cumulative & non-cumulative. & participating. Sometimes votes, Sometimes "sinking fund".

? $\frac{1}{f}$ Stockholders get fleeced by insiders. If organisation were that of one man borrowing money this couldn't happen. What's different about a corp? It's state formed, & men are willing to pay for corp. charters, so it must have something.

Co-ops don't attract much capital, don't pay executives enough.

Trade associations. - credit info - industrial research - training apprentices - advertising - fighting unions - standardisation -

Current ^{gains} - from selling

Capital - unearned increment.

Ec. A, Reading notes

Meyer, Elements of Modern Ec. - Chap. I

Ec. science of human wants & their satisfaction

Problem of getting wealth is the problem

"Other things being equal" is big toughie for ec. 1st.

"rationality of human conduct" MSTGTDWTLPE

Persistence of human habits

Chap. II

Good - anything that satisfies a human want

Fresh air & sunshine - Free goods - freely supplied by nature, no labor required

Ec. " - require labor

A service is a non-material good.

Utility is the quality of a good which enables it to satisfy a human ~~desire~~ want. (i.e., utility is desirableness)

4 Kinds utility, - form, place, time, ownership

Production is the addition of utilities to goods, or the rendering of services possessing utility.

Consumption is the direct & final use of goods or services in satisfying the wants of free human beings.

Coal not consumed till products worked upon by coal's heat consumed - nuts.

Consumption the end of production.

Property is the right to the possession, use, enjoyment & disposal of goods (& services)

Factors in prod. are Land, Labor, Capital

Land - All natural resources used in production.

Labor - all human effort, mental or physical, expended in production.

Capital - 1. Goods

2. Money

Circulating cap., fixed cap. - means nothing

EC. Oct. 4.

Ceteris paribus

Since 1920 no. of men employed in manufacturing unchanged,
the output increased. Service renderers have grown.

Quiz next Tues on reading @ss.

Oct. 11 - Ass. for next 2 weeks - till 25th

Garner & Hansen Chap. 3, 4

Taussig '21 ed. Chaps 3 to 6

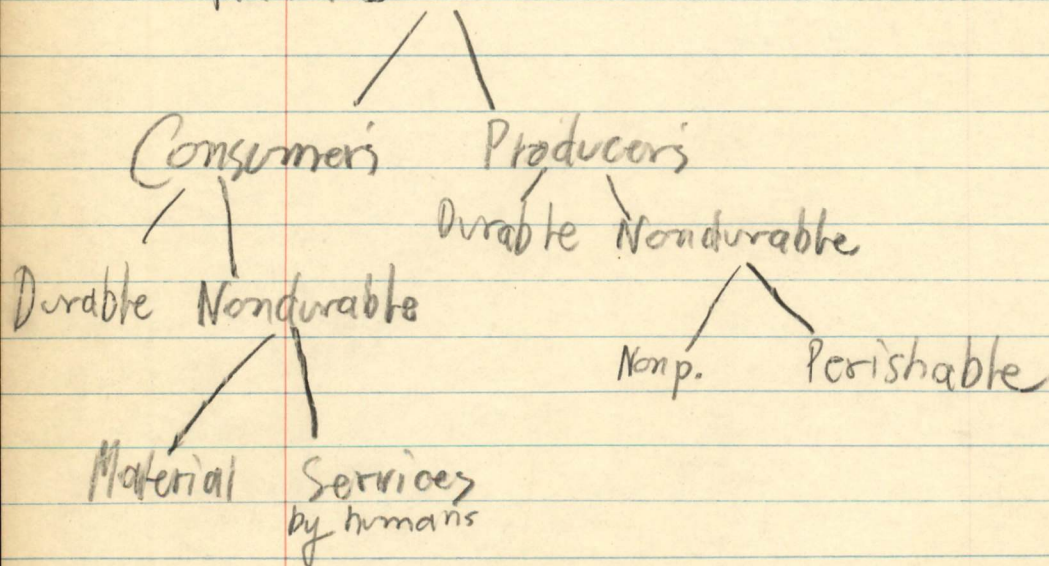
Slichter

" 8, 2, pp. 25-32

EC. goods

Public sector - he tells a lot of lies about it.

Private "



Coal in the ground is not a good.

Quiz Tues. on TNEC (HELL)

TNEC, Monograph I chap.s 384 of part 1

1. " Before market, self-interest means production.
In " " " " making ^{money} a profit.)
2. Possibility of using machines makes for large producing units.

Distinction between technological units (plants) and enterprises as a whole (Ford's empire)
3. Increase in size of plants makes for new legal form, corporation.
4. Increase in plant size, by reducing number of producers, restricts competition.
5. With \$1,000,000 you can control more than \$1,000,000 worth of stuff (but not profit from it)
6. Such control may be used for nonproductive self-interest.
7. Horizontal is monopolistic
Vertical is for efficiency.