

f4a Too Small

## PROBLEM

The too-small farm. Is the land "underused"? No factor there is "underused" in sense of having low mp, probly: for the fact of being below optimum size means higher mp for all factors: mp greater than ap in general. Remember, Euler's theorem and mp theory of distribution, only hold closely when at opt. size. Might get away with having them hold approximately.

When you are under optimum size, mp ceases to be method of imputing. Fact that you ~~xxx~~ could get high mp from more land is of theoretical and practical interest. But does not mean you can impute that to the land you already are using. To that, must impute less net rent than opt. size could: for your costs per unit product are greater than opt. size would have.

Matter is complicated by intensity question. Too small land unit, you use it more intensely maybe. This, then, means can impute more rent to land. But if so, only at expense of other factors. And if other factors are mobile, and land mkt is responsible for the land unit's being too small, must impute all to the land. So here, too, it gets less net rent.

The pregnant idea is, tho, that the too-small farm has very high mp for more land. As it is its land that is too small, not its labor or capital, will give high mp & payment of rent for more land. Hence the too-small farms are typically the ones that could offer high rent for more land.

Could get some of this into a paragraph, re the too-small farm. Mention that, tho it can impute but smaller than optimum rent to the land it uses, it could impute higher than opt. rent for additional land. Hence its existence is evidence that the one able to pay highest rent doesn't get land. (esp. as with too-large farm is opposite, & it will pay rent of less-than-mp for more land)

Problem, now, of using mp for imputation, e.g. with too-large farm. There, sum of mps is less than tp. So cannot say rent, residually determined, is same as mp. -- except by barring the influence of its changing the farm size. Can still retain this as basic procedure for opt. size farm, adjustments must be made for too-large farm. But don't get into what those would be, strays too far from main topic.

With the too-large farm, again, to impute the results of being too-large to one factor, we determine which factor is responsible. It being land, the losses must be imputed to land alone. Labor, mgmt & capital will not be applied past point where mp equals cost, & cost, even where implicit, is market - high, for these are not the factors being held in too-large units. But land is so applied, to the firm.

So this all makes my medicine much stronger, but more complex. So just allude to it.

[This business of when over opt size,  $\sum MP_s \neq TP$ , is probly bunk. For, taking any factor individually, its  $mp > wage$ , because mp declines. (But, taking a parcel of all factors at opt size, is no change of mp - thus it differs)]

v. ch. 8 Outline on problems of

too-small

See Excess Subdiv in file

One big advantage of cap. is it allows one big operation, as opp. to patchwork. Landlady says she patches up old house, instead of tearing down & rebldg, becuse she never had the M, in one bunch, to do whole job.

When one buys, if he has, cuts into cap, forces lower use. over

LVT, as ~~is~~ Mgr. needn't buy land, he has cap left to use on land, avoid patchwork, & other less prod.-ve ways from cap. ~~starvation~~ ~~starvation~~ starvation.

I.e., if one buys land to become owner & achieve economies of it, he loses cap. with which he might have improved land.

Small specs worse

Quote of someone, Taylor-Roosevelt type, that is problem of big specs. Then shoot this at them: Hedges, 164, says small specs held on longer than big. This leads into R & P section & moral that all land misallocated.

Over

Also a very effective technique: quote someone, then quote facts contradicting him.

Use anti-160 law, for that doesn't do a thing vs spec, just is a P control law, & limits size of specs.

5121

p. 164 1901-6, CP sold some land to big colon. gen co.s, & some other to smaller --  
'a few thousand acres'. These 'lacked the capital necessary to the conduct of a  
vigorous campaign of colonization. The turnover of lands in the hands of  
these men was much less rapid than that held by the great co.s."

USDA, Dept. bull. 1295, 1925, "Land Settlement & Colonization in the Great Lakes states", J.D.Black, & L.C.Gray (~~NY~~ Economist in Charge, Div. of Land Ec., BAE)

Small spec bad →

Idle 1a

4, 2

Land originally in very concentrated lumber co. ownership. Then they sold it in small parcels, largely to absentee speculators from local cities like Minneapolis. These hold without using for future recreation or just spec. Being widely scattered & disorganized, no unified colonization program.

PVT 9 1v

Rising burden of taxes makes many lumber co.s sell, that otherwise would not, p. 16.

9

Most "of the high grade land co.s" were not expecting payments for the first few years, even up to 10. (so a land co. is a means of giving credit to actual settlers, selecting the settlers for the credit, etc)

Concern.

3

Bias toward selling large tracts by co.s, because selling expenses smaller. But if small tracts sold, whole area develops faster, l.v. rise faster, and buyers can make payments better.

It has proved more cheap to have settlers clear land in odd moments than to have it done by co.s

8 1/2

Some land co.s didn't pay any attention to roads. Sold scattered tracts with very poor xport.

5, 9

Paternalistic policies with lots of advice have been tried, generally so much ill feeling engendered where the advice was poor that most gave it up, went back to straight commercial relationship. (Delhi might have profited from this observation)

Selling costs of land co.s were \$1-15/acre.

9

(various objections to govt loans at low mr as answer to land spec. problem: many other causes of spec; gives unearned increment to present owners; govt will take a loss on it; )

Very poor -- very hard to follow, lots of disorganized ideas.

Ch 8

Is another kind of "too-small" who is not bad land user.

He just economizes on land too much, acct'g very hi annual charge for it, more than o.c.

He is one who borrows all - no split i.r. expl.

He is the complete contrast to strong spec.

Nelson, Lowry, "The Mormon Village", Salt Lake City: U. of Utah Press, 1952

ch 3  
Too small  
p. 143 Ephraim, Utah, 1925. Holdings very small. 80% farmers had less than 75 acres of irrigated land -- also grazed on public domain. ~~"This would not be so serious"~~

"Even when large areas of grazing land are included in the total acreage, the average holding was less than 150 acres, which is not high enough for optimum results. In fact, it is difficult to see how Ephraim farmers could operate economically with these small average holdings. 60% of the farmers had less than 50 acres of irrigated land. Nearly 80% had less than 75 acres. This would not be serious if the farmers had an intensive system of agriculture, but the fact is that they had a very extensive system. Except for a relatively small acreage of canning peas, the farmers grew alfalfa, wild hay, wheat, and oats as the main crops." supplemented by livestock which grazed in Nat. Forest.

p. 157 In addition, a "cottar" class emerging. Worked at odd jobs. "Often a house and lot in the village was about all the land they could secure, altho some of them had a few acres in the fields. ....They were on the economic margin of security, not unlike the cottars on the medieval manors."

p. 192 Tenancy in Am. Fork c. 12%, near Utah ave. Escalante & Ephraim, much lower. Utah tncy always low, with small farms, low productivity. Am. Fork more productive than other 2.

(Alternative land system: Mormon)

Very Good - split mr.

Ch. 8:

The asset-starved indiv.,  
we can now conclude, cannot be  
a bad land-user. He cd never  
buy title on strength of spec. power, so  
must be on basis of high yields/acre.

Except, he can have low mr  
up to a pt. - & never get beyond  
the pt. Say he has \$5,000, cannot  
borrow. He buys too-small land,  
& some cap. MP of cap. is low  
from start, bcs he must buy bigger  
units than has land for. So mr  
stays low - no inv. opp. & he has  
exhausted cap.

Why not sell land? Does him no  
good to sell a little, gets too small.

All or nothing.

Why not sell all? Bes then  
cd. only make hi returns by  
putting m into equipmt, being  
industrious tnt. Doesn't want to —  
so that not an alternative. So  
has no alternatives for m,  
hangs on to land, the yields low.

Thus adequately  
explain why ~~the~~ too-small  
persists. Split m. More  
assets wd be very vble to him, bes  
below opt size. But can only  
persist below it by hug low  
m up to that pt. No equilibrium  
contradiction.

Western great plains, '30s, much prematurely subdivided land, absentee held, small units.

USDA tried to negotiate 10 yr leases between owners & op-rs needing more. But little success "since a large proportion of the land is held for early resale."

J C Gray, 'Our major land use problems', USDA Yrbk '40, pp 398-415.

First blames it on homestead system. Then says find same thing in South, many parts.

To get opt. of unit, may buy land, more than can finance well, &  
erode it to pay for it.

NB: Am't of land held by  
'too-small' appreciable. - For many  
'too-small' in assets try to get bigger,  
over-encumber selves to buy  
land -- become too large for  
cap., still perhaps too small for  
labor, items of equipment.

Extent of  
absenteeism

311 'Most of the farms in the Corn Belt are operated either by tenants or  
by owners who are not free from debt.' 312 'The distinction is 519  
essentially a legal one...' (I disagree -- fewer diseconomies of enclav. when mortgaged)

Mortgaged  
owners  
use bad

316 ~~Deep~~ The ~~less~~ less equity a nominal owner has, the ~~more~~ smaller the  
farm, lower land quality, less working cap/acre, less productive livestock. 519

Mortgaged  
worse than  
tenants?

323 'Changing tenant farmers over to encumbered owners reduces measurably  
the returns of farmers who have limited assets.' 519

Too large 80 Weak owners, too, hang on, because maintenance standards of city  
& codes not enforced; & because they can afford to do little else. --  
too small (those would be like the too small farmers.) "Both classes of owners --  
those who can afford to wait and those who are unable to do anything else --  
make for stagnation." 146

Too-small p. 84-5. Many holdouts were local owner-residents, poor, life  
savings sunk in bldg, life centered in area, sad cases etc. 146

p. 142: "Dawson County was typical of much of the Great Plains  
region in the throes of the drought. A series of crop failures,  
farm units too small except in the most favorable years, and a  
discouraged population made the area a fertile field for attempt-  
ing adjustments in the use of resources." 5159

"Too-small" means relative  
to mgr's capacity etc.

So does too large.

A small fm may be at once too  
small for owner's mgmt  
capacity, & too large for his  
fincl capacity... he lacks funds  
to improve it, hv'g bought it,  
perhaps gambled.

Imputation,

when below opt. size.

~~H. G. Jr, Menace of Priv. -~~  
~~an mmpy.~~

~~331~~

~~G 293M~~

*Imputation*

p404 Pioneer production economists began with net farm income. Really hammed it up I judge. Found it unsatisfactory measure of how well resources are used because 1, some use unpaid family labor; 2, tenants share farm income with landlords - golly, that does mess it up. 3, interest is a debit to those farms that have borrowed. 5124

So 2 measures of profit were substituted: management return, and labor income, as indices of efficiency of resource combination. These are got by subtracting costs of all other resources, and imputing the residual as the manager's. Another, perhaps earlier, idea was to impute it to the land, valuing everything else as a residual.

— Heady would use Euler's theorem, and impute all their mps, not single out any residual. (seems unaware that residual imputation & mp imp. are the same)

Legenda: Heady & Hopkins, "Farm Records", Ames, Ia press, 1949\*  
on imputation

sl24, p. 5

*Imputation* p. 404 Suggests most common way to impute is to treat mgmt or labor of farmer as residual, subtract mkt prices of all others. Rather, ~~make~~ ~~this way~~ that this is somehow a way of judging efficiency of resource combination -- whatever that means, I don't think it means anything, I would stick to judging one factor. But they are clearly wrong to choose mgmt as residual. Land makes a better residual, because its cost to firm changes so, & is farther removed from o.c. than others; esp. short run, where aren't supposed to change land. & none of these is measure of efficiency of resource combination.

All we really need to know is that a small man may impute much rent to land, having low alternatives for his labor, & thus get high net rent from it despite not availing self of best technological economies. So small not nec. bad, landwise. But that also he may impute little rent, keep it because of low mr for a small sum. That is bad. & test is whether he would keep land if he had to pay full social o.c. for it. *This a good in for l.v.t., don't duck it.*

We are talking about best use of land. That is where land adds most to production. That is also where people are willing to pay most for it.

Opt. size of landholding is that where highest product imputes to land. But mere size not only vble, are differences of individual mgrs. We are concerned, not with general problem of opt size, but opt size of landholding. But that is not something separate from individual mgr. So basically we are concerned with the use-ownership where land contributes most to production: where it would get max net rent to keep it there, if nec.

Opt size, in general, is where output per unit of cost is max. It is an opt ratio, as well as size. So it is an opt quantity of each factor -- including land. So there is an opt size of landholding -- for each individual.

But as to land misuse, only important point is that someone else could use it better, it would add more to production in some other use. That is keynote to stress.

( Individual's lack of perfect alternatives probly generally understressed. We train for some profession, then are in it for years, even when rewards go way down, we can't jump right into some other. Desire for certainty & stability, too, keeps many in same groove. If we were continually balanced between equally attractive alternatives, would soon become neurotic.)

It is quite possible on a small farm that mp of small increment of land should be very high; but mp of total land, i.e. ap of land as on ~~XX~~ VI, subtracting associated costs, --or, what amounts to same thing, rent as residual -- should be low per acre. Discontinuity in cost of land to individual explains. Is no question here that land should be rewarded by its mp. That only holds where costs constant. Here, land cost rises. Its mc, times Q, might more than exhaust product, with nothing for other factors. Solution: impute to land only its ap at the pt, its total addition to production there. Same as residual determination.

Only problem: is other factor whose cost rises, sometimes: mgmt. In this case, tho, this is minor, for land is by presumption factor whose cost rises first, most, to stop expansion. Can virtually ignore other matter. Or, if choose not to ignore it, can solve it by subtracting as associated costs from land only the current value of labor, not final. What we are trying to do, after all, is figure the value of land, not labor. Figure the value of land in this particular use, not in some other use. Hence can treat land differently - just as would treat labor differently if were trying to figure its value. There will be some values, like X in V, that are from particular combination of this labor & this land. They are destroyed by withdrawing either factor. Hence they impute to both together. And when we discuss value of any one of the factors here, as opposed to elsewhere, all of X imputes to it. Hence, as we are discussing land allocation, it all imputes to land here.

Mon., Lib:

Meissner & Coukos in

'The Land', vol. XIII, No. 2, '54

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ch. 3 { C. J. Coukos, "For Family-size Farms"  
&  
Mrs. Ewell Harwell, "Hold that land,  
regardless"  
Convincing on advantages of working at  
home.

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Frank Meissner, "Comm. & Land Reform"

from margins elsewhere, which margins represent actual alternatives. But cannot reverse it & say rising cost of land is because of better alternatives for land. Cost rises to individual, not to society, thru credit rationing. From social viewpoint, take some labor & add land to it, taking land from margins elsewhere, labor's contribution to production is increase of production minus loss of production elsewhere. As cost of land to individual rises, thru credit rationing, cost of land to him exceeds social cost. ~~xx~~ MP of the whole glob of labor taken together, i.e. its residual share (can always cite Stigler on this), <sup>-p178-9</sup> is more than it~~s~~ will actually get. Social cost of land is less than cost to individual.

In VI, ~~xxxxxxxxxxxx~~ equilibrium where A equals B. Cost of complements or cost of land will rise to make it do so.

In V, question of interest is, how much does land add to production here. That is how we judge land use. & it adds Y plus X. Now this is not to say X must impute to land as rent. That is perhaps insoluble & meaningless. We only say that land in this use adds this much to production; that someone would pay this much for it to keep it here. Mgr may only have to impute Y to it to keep it here, now. But as he collects both his own wages, & land rent, it doesn't much matter. If he were renting land, Y is ~~imputed~~ rent, x & W are imputed wage, X being producer surplus but still wage. Land renter could, if recognized his unique position, collect that producer surplus. But chances are the surplus imputes more to fact of being owner, -op, than to particular site, so arises not in renting case, only in ownership case.

It is the land that adds X to production; not the labor. So? No, not that. Could turn it around, say land was drawn from margins elsewhere, labor adds X. Fact is, X is product of the particular combination, not of either factor alone. As combination belongs all to one person, no problem in practise. If parts belonged to 2 persons, bilateral mnpy bgng.

But when studying land allocation, we take labor cost as given; just as we would take land cost as given when studying labor allocation. & we speak of what land adds to production here, & there, when joined with opt. labor complements, at cost. & is more reason to do it this way than opposite, because cost of labor is generally its social cost, cost of land to individual rarely is.

If labor can go anywhere else & get same surplus, then it belongs & imputes to labor. If pertains to particular site, imputes to land. Labor generally has alternative of working next door, same neighborhood etc. So generally it imputes to labor. In that case, labor can get its mgnl wage elsewhere. So its mc does not rise -- starts high. Sometimes imputes to land. But in either case, imputes somewhere. Need be no doubt. & generally, this just a small problem in imputation.

So too-small farmer: mp of land to him is high. But he imputes low net rent to it. He can make this up by imputing low wages to self, much rent to land; or by having low alternatives for price of land. Max ap best use. Too-small must stop before max ap.

On VI, max AP is a particular kind of AP, the AP that imputes to land. That is the max, where land is best used.

✓ ~~xxxxxxxxxxxxxxxx~~ (Economists who picture the human being as a eternally balanced delicately among almost equally attractive alternatives picture a ~~xxxxxxxx~~ situation that would drive most of us neurotic. in a short time. Most people like some certainty, do not like too much of deciding to uproot & move on -- tho granted, are others who like that for its own sake. But, again, is individual matter. Big weakness of economics, to treat all as if identical.)

Most people, probly have a substantial cushion of surplus reward because of aversion to change, uncertainty -- not to mention explicit costs of it.

This cushion is something equity holder can draw down into if nec. to reward land more, if nec. to justify its imputed rent.

✓ The gravy is greater when cost of land does not rise to you as you expand. This goes to you, not in your capacity as mgr or labor, but your capacity as one able to borrow; or one having assets of own. As the supply of people in that position is limited, they get a return for it. Again, at the margins, this return is equal to mc. But infrmarginally in any firm cost of supplying it is less than its mp.

✓ Now have clear answer to question if imputed rent can differ from land's mp: YES, it may; it ordinarily will. Because cost of supplying land rises as firm grows. Same is true of mgr. His mp, too, will exceed his inframarginal mc.

The problem of splitting imputation between the 2 is a personal one. The margin out to which mgr works tells us something, but not everything, since cost of ~~xxxxxxx~~ a time or accomplishment unit of his work rises as he puts in more per day, past some point.

In V, area W is enough total mgr's wage to keep him there. In drawing line, it means more than just he personally feels better in the morning. It means there are no alternatives other than liesure at which he could make more than mc-intercept with y-axis. Variations in the shape of this curve could make tremendous differences among individual mgrs, how much they could impute to land.

✓ The unit problem solved: Can use #1, the unit is an acre of land of given quality plus the optimum complement of other factors at given prices. Or a labor-unit with opt. complement of others.

V, when come to expand, can make the unit labor with opt. complement of everything but land.

✓ V, refers to fixed Q of land. Y plus X is max rent you can pay for it. To consider changing land, get new mp curve for each Q of land. The more land, the more total rent. But not nec more per acre. Adjust am't until Y plus X is max per acre. There is opt. size. Z-1 & z-2 are mp of land, when 10 acres added.

To avoid all these complications, could just write chap. on idea that land doesn't go to highest mp.

✓ As firm expands, rising cost of mgr's labor is due to rising alternatives -- liesure. Rising cost of land, however, is not because land has better alternatives, but because of credit rationing. Therefore we can say x plus y is mp of the land, because associated labor is drawn

I don't like this one because it does not distinguish between technical scale relations, & changes in financial cost. So try to work out unit for other.

The composite unit could be defined in several ways, each giving different MP curve, each instructive, worth combining on same graph. The unit could be fixed physical quantity & ratio. That gives lowest, lefttest mp, as mgr cannot adjust to either changing technology or cost changes. Could be a fixed quantity of one factor, say land, & optimum complement (at original or current prices). Could be what a \$ would have bought at the original prices -- but mgr buying in view of present prices. This is the one to use. It is arbitrary, but is ok.

Can use flat one, too, & distinguish technical from financial ok simply by drawing an extra line out to show how far you could have gone if costs stayed constant.

What I also want to distinguish is those rising costs that are legit -- those of mgr's limitations? -- no, they are in falling mp. Anyway, distinguish ~~falling~~ limitations of mgr, which are inevitable & basic disec to scale; from rising cost of getting land, or borrowing m to buy land I should say.

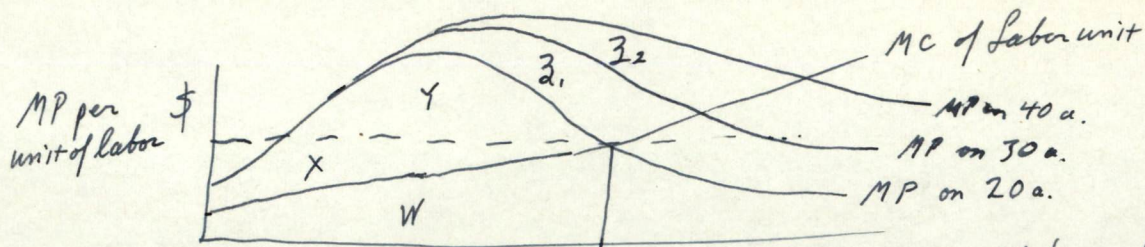
These graphs are just alternate ways of saying same thing. I probly won't use any in thesis. Just so I understand; can say basic ideas simply in English.

Flat curve advantage, is clear, you are at max <sup>ap</sup> ~~ac~~ for situation, in any case. Max ap per unit of cost. So distribution is exhaustive, always. Very good. Much simpler that way than going to composite unit graph, defining unit, & going thru some rigamarole to show why some get less than seeming mp.

The MP/MC curve is truly the converse of the usual long run cost curve graph. For that is ~~maximize~~ cost per unit of output. Now unit of output is a good natural unit. When dealing with different factors, changing relative prices of them, better to use the cost curve. But needn't use cost curve to use unit of output. Make the composite unit of input that unit nec. to produce another unit of output --- NO, cost curve no better. Even on cost curve, have to measure cost in something. If money, costs affected by price per unit. So if want to distinguish factors, must have separate graphs.

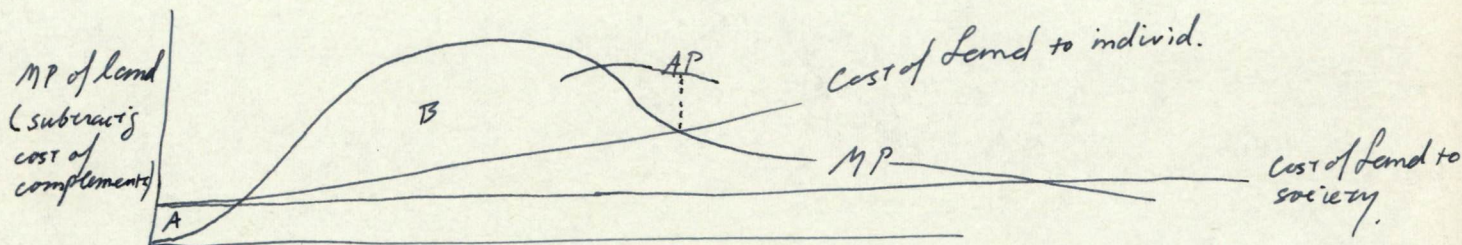
Envelope cost curve, as we know it, is planning curve for one firm, costs given. My mp/mc curve shows different potentialities with different costs. It corresponds to just one AP curve on mp/mc graph. IV corresponds to II. Distribution is always exhaustive because you are always where mp equals ap; or mc equals ac. Within limits of your present understanding, inertia, etc. This is purely formal, but good to get straight. Substantively, to increase opt size, lower costs per unit of output; i.e. increase output per unit of costs. -- for situation of increasing firm size.

V



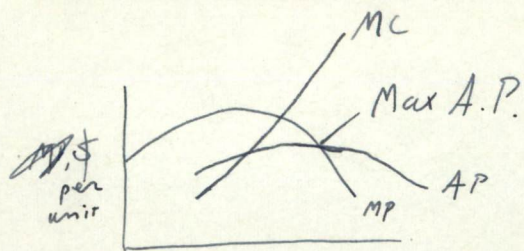
Amount of Labor units provided by mgr., added to a fixed Q of Land.  
(no other factors.)

VI



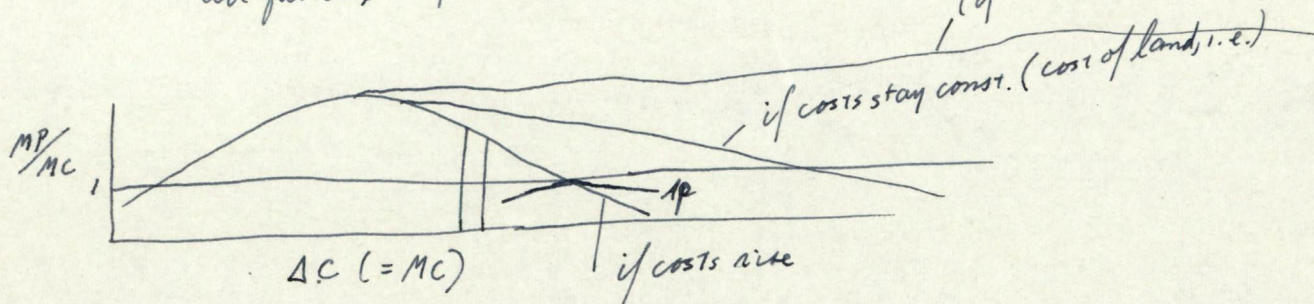
Acres of Land with opt. complements

I

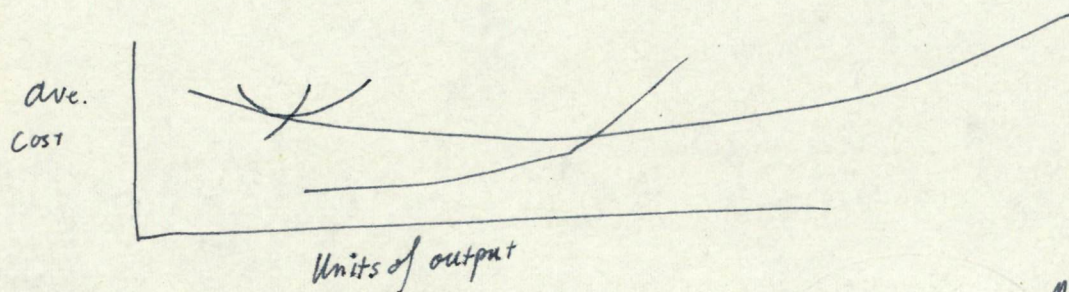


all factors, composite unit: acres of land + opt. complements, at current  $P_s$ .  
 (if all costs stay const., including  $r_{gr}$ )

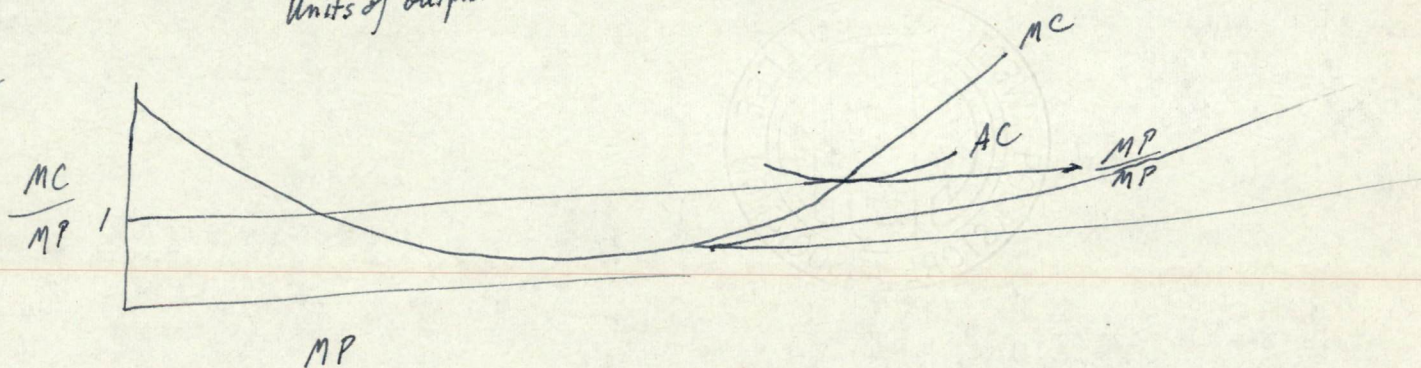
II



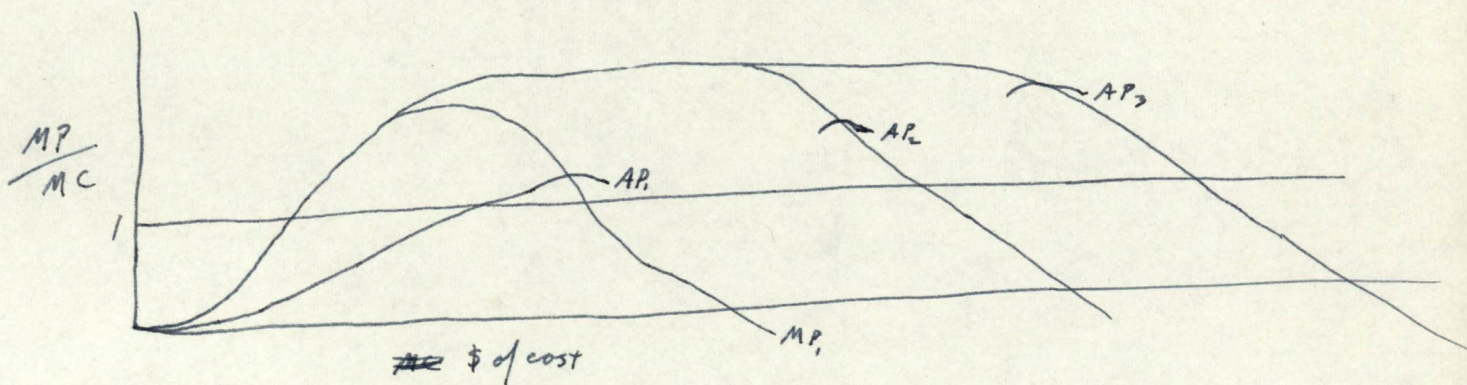
IV



IV



II



If there is more than one implicit cost, there are several ways he can work it out. i.e. if he owns land & capital & supplies labor, then he can figure it many ways -- that is his internal affair, what he imputes to what, each of the 3 has its alternatives in his personal economy, & just so long as the 3 together produce enough surplus to keep him going that is all we care about. The inframarginal imputations especially don't matter in such a case. At the margins, his behavior with each of the 3 at the margins tells us how he values them there.

(Euler; Stigler)

So are some small farmers who impute much net rent; others little. & they may have land at same mp.

Opt size, net rent the criterion, max; not max mp. When below opt size, mp land probly higher than when get there. High mps just tell us should shift to that use. High rent tells us have achieved good use.

As between land & labor, if anything is to be residual it should be land; because you don't really know what cost of land is, except when it is rented; & always know cost of labor, by margin to which works, if not wage.

But nothing is really residual. That is just a way of partial analysis. You figure cost of say land & capital out to some point, see if enough is left over to pay labor. If so, & is still some more, that doesn't mean insoluble problem over who gets surplus. Just expand some more, bring down some mps, until no surplus, distribution is exhaustive. In end, no one will be getting any rents at margin. E.g. if labor getting more than enough to make him work, he works more until aversion rises, wage falls. So in partial analysis sense, no one gets rent at margin, no factor does.

Stigler's proof that residual & mp imputation is same, is that when add land, draw labor from margins elsewhere, apply them supermarginally on added land, increase in production is excess of ~~typ~~ tp over costs of labor & cap at margin. So mp is same as rent determined residually. This is generally true: the residual left to a factor after subtracting the costs of associated factors is what it contributes to production: its marginal product. Now you might say that without any one limitational factor, production could not occur at all. But wrong: the associated factors could work elsewhere. They are always drawn from margins elsewhere, applied supermarginally here. Residual is same as mp of this factor -- this true for a whole farm, not just little bit of one. But this is assuming perfect divisibility? How bear on opt. size question, which hinges on indivisibilities?

Same analysis holds when firm below opt size. For still, labor & capital drawn from margins elsewhere. Then, mp of land is a bit higher, & so is rent determined residually, as this is just the excess of ~~land~~ increment to total production over costs.

When firm is below opt size, a given % increase in all factors brings a greater % increase in production. So mp imputation will be more than exhaustive. If land is fixed, L&C will be applied until their mp equals cost. So then the entire surplus to be had imputes to land -- i.e. it is land whose mp is higher, because it is land that is too scarce, & whose supply conditions prevent moving on to opt size. But cannot impute this mp to land, then distrib. would be more than exhaustive. Rent, then, must be the residual, which is less than mp.

Whenever enterprise is smaller than opt size, must be a reason. I.e., if we take the entire cost structure as ideal, given, every enterprise is at opt size at any time, has made best adjustment to conditions. To say is off opt size is to say you, the analyst, wish to consider something the mgr cannot consider.

Euler's theorem is that you are at max a.p. of all factors taken together -- i.e. where ap equals mp. That is where distribution is exhaustive. You always are at such an equilibrium, in respect to your individual managerial limitations. This is the kind of economics I would write -- modifying the perfect competition, identical individuals assumptions, & still keeping analysis precise.

Distribution concerns AP always -- i.e., for composite unit, that is all there is to distribute.

If you stop below opt size, it does not follow that you are at your personal opt. size. You have made best personal adjustment. But can distinguish between that & opt size, by drawing personal cost curve, for composite unit. Individual expands out to where his personal costs rise to meet his mp. Now here the effects of indivisibilities etc on efficiency are all subsumed in mp curve; cost curve refers to costs per unit of factors, not per unit of output. With no capital rationing, ~~perfect~~ no limits to his ~~maximize~~ desire to work (this goes in costs; limits to his ability to handle more owned assets go into making mp decline. At least that seems reasonable, could be all in one) mc would be constant. But it rises, limits expansion. Now here, ap is below max. & is question of whether can distribute product in such a way as to keep all factors in composite unit in the ~~firm~~ firm. If all had alternatives of joining opt size firms, obviously not. But if not; &, at equilibrium pt, AP equals or exceeds AC, firm can survive. This means that inframarginal costs are less than mc finally.

When a firm is thus below opt size, it is because some resource in it is giving of its surplus -- inframarginally. If the factor is land, then the land is yielding less net rent than alternatives. & is misallocated. & It should either go into other firm, or bring more land into this firm. Can't bring in more land because credit rationing ~~xxxxxx~~ prevents mgr from bringing in more. Don't sell to other because others in same fix; & because present owner can hold land despite low imputed rent. (having ability to do this may be his best wage opportunity - i.e. to work in conjunction with land, imputing low rent to it)

Now we must add complication of proportionality changes in composite unit. As you go along to right, ratios in unit can change. So can size of unit. Let the unit be in that ratio which planner finds best, considering costs. Try to keep units comparable in size; but if fail, won't matter, for mc will be affected same as mp. As a matter of fact, concerns infinitesimal increments in each case. Well, that's tough. Could draw an mp curve for product per unit of cost. The ratio, i.e., of benefits to costs. That would solve unit problem. Ratio of mp/mc, expand to where it equals 1. Then mc would be straight flat line. This may be neatest way.

Now we have solved 2 problems: distribution is always exhaustive, firm is always at where  $mp$  equals  $ap$ ; and residual same as  $mp$ ?

Advantage of getting out to larger scale w/o rising financial costs shown on II by higher  $AP$  on each succeeding one. Of course you carry production on out past max  $AP$ , to where  $mc$  equals  $mp$ .

If production takes place off opt size, due to mkt imperfections as to individual differences, then  $mp$  not basis of distribution for at least one factor, but residual. E.g. land? Do not impute its  $mp$  to it, but residual rent.

Because costs internal to the firm do not remain constant, the method of imputation by  $mps$  will not do. That only applies where no costs change as firm expands. But no firm can expand w/o their changing. Cost of owner-mgr -- increasing aversion to more work, beyond a pt., (& reduced efficiency -- i.e., combining them, higher cost per unit of accomplishment); & cost of land often rises, due to credit rationing. The mgr. need not be paid as much as his  $mp$ . He needs to get, for his mgnl efforts, specific mgnl rewards equal to their cost. But his inframgnl efforts can bring much less. Indeed, if mgrs were rewarded with their  $mps$  all the way, this would attract more mgrs, bring rewards for mgrs down.

Hence we must not try to reward mgr by his  $mp$ . But residually. That makes sense. He uses price discrimination vs himself, cannot get as much as his  $mp$  generally. Now if we have a mgr alone, using entirely borrowed assets, he might be only residual. But, again, due to credit rationing, he must stop buying land while its  $mp$  is quite high. I.e. cost of land is never, to borrowing firm, constant. Of course if he just rents, as usually assumed in mgr-centered theory, ok, no problem. But when he would buy, there is another factor with a rising cost. The mgr need not impute its full  $mp$  to land to justify buying it. The marginal ~~xxxx~~ purchase of land must return its  $mc$ . But one need not impute so much to inframarginal land purchases. They may have less cost than the mgnl.-- meaning by mgnl the next step. Of course there is another matter, too, the discontinuity in  $mc$  of land for some. Clearly it is there the lower  $mc$ , that actually undertaken, & not the further  $mc$ , that counts.

This concept is clearer when we draw rising  $mc$  curve, instead of flat type.

On the other hand, someone may also get more than his  $mp$ . On II, the mgr expands output to max  $AP$ , & there  $AP$  exceeds  $AC$ , including his labor in costs, he gets surplus. So he expands. But this expansion does not destroy the surplus. True, it ~~raises~~ lowers his  $MP/MC$ , but even so when  $mp$  eq.  $mc$ , a surplus remains. His total reward -- he the residual claimant -- exceeds his  $mp$  times units he gave. And this despite fact, previously recognized, that his supply price was probly lower for the earlier units. Not despite it - is another manifestation of it. As he contributes more the need for his work declines -- dim. ret. -- his ability to work declines, & his desire declines. All together produce result, lower  $MP/MC$ .

The gravy goes to equity holder. While it does not lure people into expanding firm, it does tend to lure people into becoming equity holders. Except insofar as it is something that imputes only to one individual, because of his particular circumstances.

Question remains of how to know opt size when find it.

If one small user can impute such high rent to the land, then he is the best user of the land -- even if total output is less, for he demands less for his wages, so costs are even less yet. He himself would be even a better user, to be sure, if larger. If we compare him, small, vs himself, larger, then the larger use is better. But cfr him, small, vs others, large, he is better. Here, again, residual imputation is same as mp, after all.

*2 His mp of land to him shows is no eq. yet.*

We cannot study scale apart from individuals. Net imputed rent subsumes all ~~xxxxxx~~ influences.

It is not the labor that is misallocated - he is free agent, has his preferences, abilities, alternatives -- is best here.

So in Chap 3, probly stress individuals before scale, as it is more heart of matter. Different scales not nec. so different.

Residual imputation differs from mp when unperfect competition. For then cost is not steady. e.g., land/labor graph, cost of land differs to 2 small types, inframarginally; but cost of extra land prohibitive to both, at same margin. More wages impute to him who can get land at low cost. Then, on labor/land graph, latter may work out to same margin as former, but ~~xxx~~ cost of his labor, inframarginally, would be greater than at margin. Well, get situations like that, and can't say simple mp is it. On graph, can still see areas clearly showing who gets what, & why. Can call it residual imputation if you like, but probly don't give it a name, just do it.

Someone will doubtless say this is misallocation of labor as much as land -- point is labor & land ownership should get together. If they see it better that way, ok, just so the point is made. I might even put it that way myself. ~~The waste of land is just half the story, rather. Is corresponding waste of labor.~~

It is opportunity for labor to make ownership decisions, to work with land it owns, that is special labor opportunity open to title-holder.

E.g., if man who charges very little for his labor gets most rent from small acreage, too-small technologically, just because of low imputed wages, that would be good land use, but bad labor use. Our reckoning does not call it bad land use. Hence we get just part of story.

"Residual" is bad word for what I would do. That implies that one factor given special treatment. What I would do can be done either way: labor/land, or land/labor. On land/labor graph, show rising cost of land by rising cost line, moving e.g. from C on left up to A on right; on corresponding labor/land graph, show falling cost of labor. So on either one, labor gets some, land gets some, is same on each graph. Neither is residual. This is just the way they split it. I don't say just how they split it: but just there is some way to do it that will justify his buying the land, & also his labor.

Of course if he borrows all to buy land, is no doubt, straight line at A is cost of land, wages is what remains. This means he must be ready to impute that small wage to self, and that much rent to land, to make it pay. That is clear. There is no leeway -- except that he might think it paid even if wages smaller. But where gets some land at less cost, can impute more wages, doubtless will.

Must know rent, too, to spot opt size of farm?

Important things to put over: land misallocated when mp different, different ownerships; and land misused, despite high mp. The too-small farm is one where the mp of land is higher, but the residual rent is lower (cf too-large, where both lower)

Wrong to seek for an imputation that is causative. What is to explain is just how factors can cooperate, & distribute product; & how this affects allocation. Productivity at margins good stuff for that.

When land ~~xx~~'s mp is greater than residual rent, it means too little land, expand. ~~xxxxxx~~ Then cost of the money required to buy land is greater than residual rent, too. & then no one would have borrowed the m to buy the land -- so must we impute to land, after all, equivalent of cost of money?

Perhaps easiest way to look at it, after all, is that indivisibilities carry mp of labor & cap below their cost, this detracts from rent, residual. But makes mp of land higher. The other way of looking at it is that when cut land in half, & labor, are then induced to add more labor to get economies to scale; ~~xxxxxx~~ this would seem to increase residual rent per acre, so, by implication, mp of L&C in earlier increments is lower. The former is perhaps the better way to express indivisibilities in terms of mp curves, designed for divisible units. For it is arbitrary to go back & flatten the mp curve for a big tractor added in one lump from very start. But that is mistatement -- adding means adding not one thing on top of other, but choosing different kinds of capital, at various intensities of capital in general. When land is halved, you have different choices all along, different curve.-- lower all along. Flattening curve better way, for keeping same curve impli s you have same choices, but you don't: have new set of choices. *Either way ok - keep's same curve doesn't mean same choices, if is no choice but to be too intensive. First way easier to grasp right off.*

So only problem is between residual & mp imputation. Sum of mps only equals tp at opt size; & perf. mkts. ~~xx~~ To analyze other situations, such as we are doing, calls for something different.

We can distinguish 2 types of too-small farmer, one who nec. imputes much rent to the land; the other not. One who borrows whole sum to buy land, must impute to the land enough rent to justify the cost of the loan. (except insofar as he imputes some of his implicit & explicit wages to having his own land. Perhaps that could be included with the rent?) To him, land's mp is high, & its rent equally high, imputed. We could say he is using land too well -- i.e. he should have more, spread himself thinner. There is another who has his own small capital, no alternatives, he can hold land & impute small rent to it. -- & thus perhaps impute high wages to himself. Technologically, his situation might be just like first's. Except first would be applying his labor to low margins, 2d not. On other hand, 2d wd be applying capital to low margins, first not. Not so sure 2d applies capital low -- else wd buy land.

Well, anyway, effect of mkt imperfections is to seal off each one in his own little economy. How we impute inside that economy subject for fertile dispute - sterile, rather, probly. Important thing is that there are wastes, land poorly allocated among individuals.

Our man starts to attach land to himself. He reaches the optimum amount he can handle, where land's mp is highest, where would stop if labor were free. -- rather, would stop a bit further on where land's ap is highest. Continues down to A. There is cost of land to him. But there is similar land producing C, with social cost therefore of C. And then there is B, the level to which o.c. would rise if the barriers were broken - a rough concept, but perhaps useful, a sort of average, & to avoid seeming to use extremes to show that A is high cost.

"There are no markets so perfect that they destroy individuality." So no ec. theory can assume away individual differences. Such as one man better for one piece of land.

Generally, other things equal, the more scarce land grows, the smaller the optimum size of production. Graph shows that clearly. I.e. the costlier land is. So it is odd paradox to say more expensive land makes for larger units - e.g. recent trend to mechanize, some will probly say that. & so, also, my rough generalization that costlier land means smaller opt size is ok. Except that some land is valuable for the very reason that it yields well when little cost applied.

...His wage is what he finds above A. At least that is what is left to him after he subtracts cost to him of carrying land. But is that wage? The man with more acres clearly can impute a higher wage to himself, & his superior ability to borrow, or his having capital, is a personal attribute. So he is clearly in a position to impute more wages to himself. And this is a market imperfection, labor is misallocated. (but by taxing land, can prevent this mis-allocation of labor). Or at least mis-rewarded. But that is different. ~~His~~ Labor is rewarded for the attribute, inherited perhaps, can say it is immoral or something. But labor is misallocated only in that poorer man could do better if he had the assets of the other.

Now the annual cost of land to the individual, at his mr, is not the social cost of land. And because you get into this difficulty, perhaps is a reason for saying you can't turn this reasoning around; must stick to analysis of men per acres, figure rent as what is left over.

Now the am't he will get is ~~xxx~~ just the area above A. That he gets above his payments on mortgage. But A is not the cost of the land to society, or, really, to him. It is the cost of the money he had to borrow to buy the land. In imputation, some question of whether can use it ~~xxxxxxx~~ as cost of land, & impute rent at that level. You might impute rent at C, or B; and say he must give up some of his imputed wages to pay the cost of buying the land, which he had to undertake to get in the position to earn those wages. (assuming he has high wages here, low alternatives)

What does imputation mean? Nothing apart from real situations: allocation & distribution, & distrib. only as it affects allocation. So confine yourself to allocation, productivity, save much pain. Except that they aren't synonymous. Rent may be low when mp is high. Land not best used just because mp high.

Assuming good mkts for other things, as we are, must impute losses to land entirely. I.e. we must pay, or account, mkt prices for labor, & cap. So where land/labor is lower than opt ratio, mp of land is extra high, rent is extra low. And both facts are significant. Low present rent indicates poor present use; high mp indicates good place to send land.

? On graph of labor/acre, on too-small farm you actually get labor working to mp below wage -- & thus getting paid more than mp, which comes out of rent. Rent is max when mp labor equals wage. But of course this is only true for indivisible labor & cap.

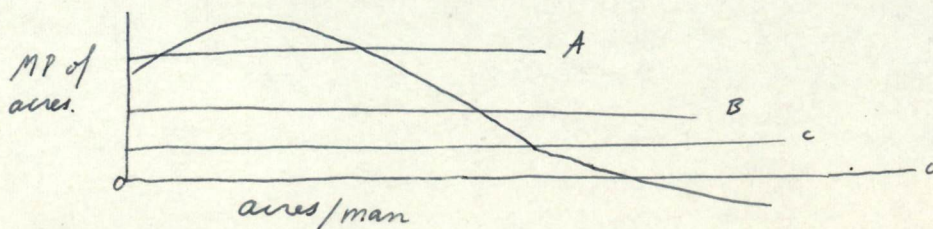
If we apply labor/land to where mp of labor a max, & then stopped, it would be because cost of acquiring more labor prohibited it. This would not nec. mean that the social cost, the foregone gain, prohibited it -- might be imperfection in mkt. So with land/labor. If have little land/labor, so mp land is high, doesn't mean o.c. of land is that high, unless assume perfect land mkt. Cost to individual is that high.

If are forced to cut land in half of opt unit, this does not immediately force you to use more labor/land. Can cut labor in half too, keep same ratio. But, to secure some economies to scale, will keep some more than half labor, say 75%; use land more intensively. Because if cut labor in half, mp of labor, even on just ~~xxxx~~ half the land, would be higher than before, than wage. So expand labor again. Is not matter of hiring labor when mp is less than cost. (Except for indivisibilities. But they are subsumed under economies to scale. So no exception. Or, if you wish, two ways of seeing same thing). The cause of lower rents on land in smaller units is not, strictly, the higher costs - i.e. intensity - per acre. For you could keep low intensity -- only to have rents drop even lower. Greater intensity is just best adjustment to new situation.

There is less to go around to all factors. But labor & cap., same as before, are paid wage, equal to mp. (even if they aren't, we are just concerned with land mkt, assume no change in other mkts)

The man who can borrow thereby gets a change to work for higher wages of mgnt -- since ~~xxxx~~ he gets an opp. to work with more of his own capital & land, & the owner is in unique position with respect to them.

There is room for long <sup>unproductive</sup> dispute over how to impute the loss. But no doubt that there is a loss; & it is due to land mkt. Graph below.



*hes are talkg about opt size landhldg.?*

You wouldn't say it was opt. size when wages were maximized. Why say it is when rent is? If there is a special reason, land is different.? If you stop applying labor before mp equals wage, to maximize wages, you wouldn't do so -- you'd maximize mp of labor, but that would not affect wage level, which is determined over whole country. Assuming competitive mkts, i.e. that scale of operations here has no effect on costs per unit of factors, then optimum proportionality adjustment, i.e. labor per acre, is where labor's mp equals wage. That maximizes rent. You don't ask "What about maximizing returns to other factors?" As they are mobile, there is no question of that. If they ever received returns analogous to rent, more labor would move in to bring them down.

This thinking does not involve ass. that land is fixed, labor not. It is changing labor/acre -- pure proportionality matter. On the graph of mp of labor, is sometimes carelessly expressed as adding labor to a fixed am't of land. But more generally, is just labor/acre abscissa, mp labor ordinate.

Suppose we turn it around: acres/labor abscissa, mp land ordinate.? Now if we apply land to labor, can say same: if land earns more than what a unit of land is generally worth -- & units of land, tho lands differ, are just as precise a term as units of labor -- land "flocks in" to the firm, bringing it down. Except as land mkt is stickier than labor mkt, which it is. & even Heady recognizes this, his distinction of long and short run changes, in short run you can't change land. There is a basis for distinguishing -- which he fails to see, for he makes them perfectly parallel.

In my case, as it is the use of land I am questioning, am focussing on land mkt, naturally I mainly let other mkts take care of selves, assume them good. And I ask if land flows to uses yielding highest rent; just as if, were I studying labor mkt, I would ask if labor flowed to where produces highest mp. Perhaps I should put it that way for land -- is it in uses with highest mp? Is its mp higher to some than to others? Talking of allocation, it is more direct to speak of land's moving to the ownership wherein its mp is highest, rather than its net rent. Could just say its productivity, like Wanbrup. This better than "rent" for popular consumption, because focusses on production, not a word associated with exploitation. The product imputed to land.

When discussing the allocation of just one resource, we need not consider all the social implications every time we take a breath. Labor is best allocated, as far as the labor mkt is concerned, when it moves to where labor is most productive, taking other mkts as given, taking other price structures as given. So land, too, best used, best allocated when moves to where mp highest - where most productive - taking other mkts as granted. So, if we stop applying land to labor before mp of land equals cost of land, we can say land is best used here, where its mp is higher -- i.e., that land should move here, not that land is now taking highest net rent here. Net rent and mp are only the same in equilibrium. If labor is more intense than where mp equals wage, rent is less than max. But of course labor never will be more intense than that, assuming as we are good labor mkts. Cause of ~~kana~~ too-intense use is not that labor is applied beyond alternatives. But that land unit too small to allow opt size labor & cap. -- i.e., this proportionality distortion can only exist as a scale distortion.

This is only an elaboration on the principle that he who accounts less for his own labor can account more for the land. Less at the mgn, & less inframgnly, both count. I will not stress this complication, but be ready for it if it comes up.

So our small farmer may or may not impute much to the land. Case at hand, imputes little, but still mp of more land is high.

If credit rationing forces you to stop expanding land before opt size, then product that imputes to land is of course far less than mc times Q of land. But product that imputes to other factors, whose costs ~~do~~ do not rise, is mc times Q. So the loss from being below opt size imputes entirely to land. Rent is less than it might be; mp land more. Original idea vindicated.

Even when bring in rising cost of mgr, that makes no diff. For we are just concerned with land mkt, effect of barriers in it. Mgr's rising costs exists regardless of them.

The man who can borrow, new opportunities for labor open up, true. But these not just for one piece of land. Hence on any piece of land, his labor here not more productive than elsewhere, just because he can borrow. The labor opp. goes with the loan, not the land; goes to him, not it. Hence needn't say social o.c. of mgr's labor is low on this land. It is high everywhere.

The man who can borrow, or has much m or land, has more opportunities for his labor. Looking at it on labor/land graph, he can raise his imputed wage and still keep busy all day. On land/labor graph, he adds land to self of same mp as other fellow, but pays less for it, more remains for self. So he is the very one less likely to impute most rent to land, because of his high wage. Has advantage of being able to go out to opt. size, compensating. in part -- but never perfectly.

Some question as to whether this should be called wage. If he can have land for less than its social o.c., he is imputing some of rent to self as wage. If he hires others, doesn't impute it to them. But whatever capacity he imputes it to self in, it is not as landowner -- i.e. doesn't impute it to land. For if could net more from land some other way, would do so.

To avoid antagonizing conservatives, well to ~~deal~~ deal with individual differences more than a technical opt. size. Is also more correct probly.

e. Also, type who has much cap. of certain kinds, essential items of large opt. size; but lacks other kinds of cap., has had to sink funds into essentials  
But, gmkly, easier to get credit for things other than buying land - refer ahead.

But even as to rent, these small fellows do well.  
Test of that is whether wd keep land if had to pay out  
o.c. explicitly annually, <sup>to keep land</sup> & many small fellows do, & more:  
hi n.a. mortgage; hi discrim. taxes. (Use This, too, to prove  
them not to left of 'the hump', below max. AP land)

Qualify, ~~for~~ middle sizes

Once again, let us be clear, our argument does not imply MP always higher on small; but only on those small which are over-supplied w labor & cap <sup>incl. competent mgmt</sup> relative to land.

✓ Are some larger fms on which MP higher than on some smaller fms. Many, in fact. No implication here that shd make all fms same size, for individuals differ.

E.g. of larger fms, better use.

also smaller, less intense.

a. The casual spec, small.

b. The tragedy of one who aims to establish fm. of opt. size, sinks all in title, can't improve. (Not much land held so, can't hold out.) Plunger, miscalculator.

c. Tragedy of premature subdiv'n. Opt size for culture attempted, but too soon. More land won't do much good,

Integrate fm size & premature subdiv'n exp's. ✓

d. also, the one for whom MP of land would be higher <sup>despite intensity</sup> if he cd. <sup>get</sup> ~~any~~ land w/o <sup>title.</sup> ~~sink's~~ funds in expensive <sup>Over</sup>

But these offset by opp. no.s on large side: a. Large casual spec. b. Empire builder who sinks all in title. c. Premature consolidation. <sup>as to big, of little import what occasional outstanding may ~~do~~ do;</sup> but what typical one does do.

✓ Sum up: MP land greater to smaller, in genl, for 2 reasons.

a. More complements there.

b. Small are below opt; large are above it. Another are for small not only lets him spread what he has better; but consider buying something better.

How do too-small get stuck w/o enough cap. to improve?

Buy in premature subdiv.-s.  
Pay hi p, expect'g rise, & be'g able to borrow.

But tide recedes, so unit is too small, & they lack funds to improve.

Due to this common fate of small who seek to become holders, most lands of future promise remain in large hld'gs.