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Appendix I: Declining Share of labor in claim on total output as ~~life of~~ decreasing function of life_x of capital: identity of single-cycle and going concern models.

A. Flowing (depreciating) capital.

(Fig. 1, Table 4), pp. 29-30)

The text shows that the share of labor in service revenues from ~~the~~ ^{the} service flows of an ~~object~~ a building or machine, is a decreasing function of life. Here we

show ~~this~~ is the rule and the math. are exactly the same in a "going concern" model when an investment in machines or buildings is

normalized or staggered. There is one ^{machine} of every age.

It ← ~~we~~ We build ^{or buy} one new machine each year, and scrap another one. The number of extant machines

is n , where n is the number of years each machine lasts. As in Table 4, Egn. (1), p. 29,

each one yields a flow of \$1 per year, so the

yearly flow is $\$n$.

The yearly labor input is ~~the~~ no more than the (over)

~~The capital value remaining undepreciated in each~~

warranted investment (I) in one machine when new. Dividing this by the yearly service flow (u) we arrive at the same result as when we analyze one machine over life, that is labor's share, I/u is:

$$I/u = \frac{1 - e^{-iu}}{ui}$$

[Samuelson (2), p. 29]

a decreasing function of u .

The share going to capital as interest ^{must be} ~~is~~ the complement of (2), of course. To check this, let us derive it directly.

The capital value remaining unrecovered in early

machine at the start of every year, y , is the present value ^(V_y) of future cash flows from ~~now~~ ^{that time} until scrapping:

$$V_y = \frac{1 - e^{-i(n-y)}}{i} \quad (3)$$

Total unrecovered capital (K_y) is:

$$K_y = \sum_{y=0}^n V_y = \frac{1 - e^{-in}}{i} + \frac{1 - e^{-i(n-1)}}{i} + \dots$$

$$+ \frac{1 - e^{-i(n-n)}}{i}$$

$$= \frac{1}{i} \left[n - e^{-in} \sum_{y=0}^n e^{iy} \right] = \frac{1}{i} \left[n - \frac{1 - e^{-in}}{1 - e^{-i}} \right] \quad (4)$$

Interest on K_y ~~is~~ as a share of total output flow is

$$\frac{i K_y}{n} = 1 - \frac{1 - e^{-in}}{in} \quad (5)$$

Q. E. D.

In the going concern, capital recovery is the excess of cash flow (n) above interest cost (Ki).

Rearranging (5), ~~it is~~

$$n - Ki = \frac{1 - e^{-in}}{i} \quad \text{--- (5A)}$$

But the right side of (5A) is $\frac{1 - e^{-in}}{i}$ $\rightarrow I$, the warranted investment (over) from all the machines together

So capital recovery, ^{just} is enough to finance one new machine each year.

Now ~~let us~~ ^{we} add land to the inputs. The capital is a ~~house~~ building on a good site. The ^{yearly} service flow is now \$1 plus \$ a , where a is interest on site value, ^{that is a is} the annual value of the site. Fig. 4

~~Fig. 4 shows the share of land: grows with life.~~

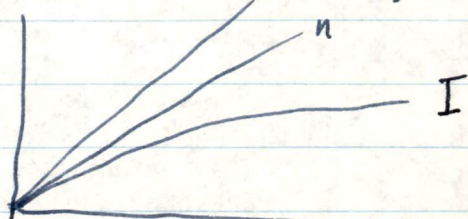


Fig. 4: Division of value of service flow of n houses of evenly staggered ages among warranted investment (I), rent (a) and interest. end of p2

Π remains the same as before. So does I .

Only service flow is greater. The shares of labor and capital are accordingly smaller.

The share of land is $\frac{na}{n(1+a)} = \frac{a}{1+a}$ (6) ~~(4)~~ $\frac{na}{n(1+a)} = \frac{a}{1+a}$

⁶
(*) is not a function of n , ~~and~~ i.e. is unaffected by life.

(under the present simplifying assumption of level service flow.)

~~Accordingly the share of labor now falls ^{slower} ~~more~~ because it (over) slowly than before with increasing life, ~~and~~ the share of capital rises ~~more~~ ^{so} faster, because it, too, starts from a lower base.~~

~~which~~

Accordingly, the share of land rises relative to labor, and falls relative to capital, with increasing life of capital.

As to The last point seems a little surprising

~~The value of λ is $\frac{1}{2}$~~

begins from a lower base. And

~~and to stay, until dinner is over, and then~~

of capital and labor, but the

~~and will be very~~

Winter

Accordingly, the degree of land use reduction is

from relative to capital, with increasing life of capital

as to the last point seems a little surprising

because in the last years of an old building the cash flow covers little more than land rent, ~~and~~

In part the surprising result comes from my artificial simplifying assumption of ~~the~~ level cash flow over "life." In fact, there is ~~an~~ a geriatric terminal ~~the~~ life of old buildings, ~~when the~~ after the service ~~flow is~~ life is over, when the carcass survives and yields just enough cash flow to give a return on the site. When we include this

terminal ^{period in "life"} ~~life~~, the share of land rises with life, and more when site value rises over time.

But that is not the whole story. In ^{the main} ~~fact~~

the surprising result ~~that the share of land falls~~
~~falls relative to capital with increasing life of capital~~
 represents a real phenomenon: to build for long sustained

service flow of capital calls for heavy inputs of capital from the beginning of life, inputs which must be paid from the beginning. Note we are not here treating what happens from year to year to the individual (own). The share of labor falls ~~in any event~~ with increasing life. But ~~the presence of~~ land tempers this effect by claiming a share of the product even when life is short, ~~or when there is very little as the~~ like the life of ~~the~~ corn ~~crop~~ plants in rich Champaign County, Illinois; or when there is little capital, as on a pentwing lot. Appendix III develops this aspect further.

~~house~~ a building as it ages, and the unrecovered capital approaches zero. Of course capital's share then also approaches zero. We are treating of ~~capital~~ shares over the whole life of buildings, and what amounts to the same thing, $\sqrt{x}$ normalized collection of buildings of every age shares generated from a

B. Growing (appreciating) capital

Assume we plant a tree on marginal land, ~~and~~ at a cost of \$1, and harvest it u years later (when the growth of its stumpage value as a percentage of the base equals the rate of interest.)

Stumpage revenue (R) is e^{ni} . Labor's share is no more than e^{-ni} , ~~if~~ and less if planting cost is not all ^{wages} ~~labor~~. e^{-ni} is a decreasing function of u . Labor gets a lesser share when life is longer.

This conclusion ~~that~~ does not depend on using a single cycle as an example. Let the operation be normalized by staggering the cycles to keep a constant flow of input and output through a going concern. Each year we plant one new tree, and harvest the oldest one.

~~The~~ The number of trees in our inventory must equal u , an increasing function of u . In addition, the average tree ~~is contains~~ must be older and contain more

capital. ~~the~~

The capital stock (K) is the sum of the value of all the trees:

$$K = e^i + e^{2i} + \dots + e^{ni} = \sum_{n=1}^n e^{ni} = \frac{e^{ni} - 1}{i} \quad (7)$$

~~$K_i = e^{ni}$~~

The share of capital in receipts is:

$$\frac{K_i}{e^{ni}} = 1 - e^{-ni} \quad (8)$$

(8) is an increasing function of n , and of course the complement of labor's share, e^{-ni} , a decreasing function of n . This is exactly the same result as for a single cycle.

Now we add land. Let the tree grow on a good site, of value $\underline{S}$. Now growth must cover

~~the~~ interest on S as well as on ~~the~~ capital in the tree, by reaching at maturity a value on the function:

$$R_n = e^{ni} + S[e^{ni} - 1] = (1+S)e^{ni} - S \quad (9)'$$

Bottom p4

The share of labor is $1/R$, obviously a decreasing function of n since R grows with n .

The share of land is Sn/R . We will see ahead that this is an arcade function, an increasing and then decreasing function of n . The increase comes ~~when it~~ first because labor's share ~~halves~~ with ~~each doubling~~ drops almost inversely with n ~~at first~~ for low values of n . The decrease comes later because

1. (9) may be derived from $(1+S)e^{ni} = R+S$, which simply says we put in land at the beginning and get it back at the end, along with the mature tree.

K increases logarithmically with n so K_i takes nearly all.

The ~~return to~~ ^{share of} capital is the sum of

interest on planting cost plus interest on ground rent, divided by R .

Interest on planting cost is $e^{in} - 1$.

Interest on ground rent is $S(e^{in} - 1 - in)$.

The share of capital is:

$$\frac{e^{in} + S(e^{in} - 1) - 1 - Sin}{e^{in} + S(e^{in} - 1)} = 1 - \frac{1 + Sin}{R} \quad \left(\frac{10}{8}\right)$$

$\left(\frac{10}{8}\right)$ is also the complement of land's and labor's shares, as we would expect.

1. Note in passing that when S is large relative to planting cost (here equal to one), most of the capital is geogenic ~~to~~ (land-derived), and ~~does not represent much labor~~. For some reforestation is entirely voluntary and geogenic, representing no labor at all.

Capital's share is $(15) \div R$.

$$\frac{I}{R} = \frac{Pe^{mi} + S(e^{mi} - 1) - P - Sim}{Pe^{mi} + S(e^{mi} - 1)} = 1 - \frac{P + Sim}{R} \quad (16)$$

(16) is also of course the complement of land's and labor's shares.

(16) is an increasing function of time, approaching 100% as m gets large (unless i is very low.)

Intensiveness of land use (u) is the sum of labor's share and capital's share, and the complement of land's share. Either way, it works out to:

$$U = I - \frac{am}{R} \quad (17)$$

U describes a U-shaped function, troughing where land's share peaks at intermediate values of m . But maximum U is no goal for labor, unless it be to the left of the trough. Labor-intensiveness comes at short lives. Long lives mean capital-intensiveness --- and much of that capital is not even labor, but stored-up rent.

To normalize the single cycle, assume a fixed piece of land divided into $\frac{1}{n}$ cells or tracts. Each year we plant trees in one cell, and harvest another. Payroll to plant one cell is $\frac{P}{n}$. Receipts each year are $\frac{R}{n}$. Yearly land cost is Si , and for each cell is $\frac{Si}{n}$.

The capital stock at all times is:

$$K_y = \sum_{y=1}^{mn} \frac{(P + S) e^{yi} - S}{mn} = (P + S) \frac{e^{mi} - 1}{mi} - S \quad (18) \quad (19) \quad (11)$$

Receipts each year are:

$$\frac{R}{n} = \frac{(P + S) e^{mi} - S}{n \cdot m} \quad (19) \quad (10) \quad (12)$$

Labor's share is:

$$\frac{\frac{P}{n}}{\frac{R}{n}} = \frac{P}{R} \quad (20) \quad (11) \quad (13)$$

Intensive Land Use and Employment, TRED Conference, Oct. 19-21, 1973

(13)
This is the same as the single cycle case.

Land's share is:

$$\frac{S_i}{R/m_n} = \frac{m S_i n}{R} \quad (21) \quad (12) \quad (14)$$

(14)
This too is the same as the single cycle case.

Capital's share is:

$$\frac{K_i}{R/m_n} = \frac{(P + S) (e^{mi} - 1) - S i m}{R} \quad (22) \quad (13) \quad (15)$$

But (22) is the same as (16), the share of capital in the single cycle case.

So we have normalized tree-growing operations and shown that the shares of land, labor and capital are the same as when we look at one cycle over its life.

Now let us get a better idea of how the shares vary as functions of life (m). Table 5 is an example worked out for assumed values, with $i=.05$, and $S=800$, and $P=200$. ~~The~~ Instead of assuming the original investment is \$1, as in the algebra above, it is \$200, ~~called P~~ assumed to be all payroll (P).

(1)	Interest Factors		Receipts	Wages		Land Rent		Interest on Cap. Stock		Sum of Shares (check)	Intensiveness
	(2)	(3)		Am't	Share	Am't	Share	Am't	Share		
	e^{mi}	$\frac{e^{mi}-1}{i}$	$\frac{1000(2)-800}{(1)}$	$\frac{200}{(1)}$	$\frac{(5)}{(4)}$	40	$\frac{40}{(4)}$		$\frac{(9)}{(4)}$	(6)+(8)+(10)	(6)+(10)
1	1.05	1.00	250	200	.80	40	.16	10	.04	1.00	.84
7	1.41	8.14	87	29	.33		.46	20	.23	1.02	.56
14	1.97	19.6	84	14	.17		.48	30	.36	1.01	.53
21	2.79	35.7	94	9.5	.10		.43	45	.48	1.01	.58
28	3.92	58.4	111	7.1	.06		.36	65	.59	1.01	.65
35	5.52	90.3	135	5.7	.04		.30	90	.67	1.01	.71
42	7.76	135	166	4.8	.03		.24	120	.72	.99	.75
49	10.9	198	206	4.1	.02		.19	160	.78	.99	.80
56	15.4	288	261	3.4	.01		.15	215	.82	.98	.83
63	21.5	410	328	3.2	.01		.12	285	.87	1.00	.88
70	30.4	588	423	2.9	.007		.09	380	.90	1.00	.91
77	42.7	834	544	2.6	.005		.07	500	.92	1.00	.93
84	60.2	1184	707	2.4	.003	40	.06	665	.94	1.00	.94

Table 5: Factor shares as functions of life of trees, normalized operation

- Notes: (1) Life (11) Discrepancies due to rounding
 (2) Amount of 1 at compound interest, 5% (12) Intensiveness

- (3) Amount of annuity at 5%
 (4) $(P + S) e^{mi} - S$

$P = 200$
 $S = 800$

(7) $S/i = 800 \times .05 = 40$

(9) $Ki = .05 \cdot 1000 \cdot \frac{(3)}{(1)} - .05 \cdot 800 = 50 \frac{(3)}{(1)} - 40$

Intensive Land Use and Employment, TRED Conference, Oct. 19-21, 1973

Applying the principle of leverage it is evident from Table 5 that a slight rise of interest rates will screen out ^{or shorten} long cycles, as we would expect from the simpler earlier demonstration. A rise of wage rates will screen out ^{or lengthen} short cycles - we economize on labor by using it less often. ~~A rise~~ (over) of land rents ^{or shorten} will screen out medium cycles, ~~in the table, those centered around 11 years.~~ An example that the model partly fits is cattle breeding, a very land-using business. The lives of cattle are foreshortened in the U.S.A. as compared with Argentina, where ^{range land and cash grain are} ~~land is much~~ cheaper, ^{and feed grain,} High interest rates are not enough to pry land away from cattle and sheep, the great historical depopulators of farm land. High holding costs must be brought directly to bear on the tenure of land.

~~It breathes some life into Table 3 to relate it to history.~~ ^{Historically,} Farm labor has had to clear away trees to find jobs working the land, and then to push back sheep and ^{range} cattle. These organisms of slow maturity create virtual economic deserts for ^{labor.} ~~man.~~ ^{Even the capital in them is mostly geogenic, (land-derived)} Now for some decades, forests and livestock have been repossessing land formerly tilled, while farm labor left for the cities, and food prices rose, ^{presumably because tax bias something} ~~it would seem that something~~ is scrambling the economic market signals; ^{we have seen that tax bias is part of that something.}

Aside from the intuitive leverage principle, how do higher rents and interest rates shorten life? It is geometrically obvious that any tree is mature financially in equilibrium when its growth curve touches the R function, where it has the same slope. ^{Differentiating (9):}

$$\frac{dR}{dt} = i e^{im} \left(\frac{1}{t} + S \right) = i (R + S) \quad (25) \quad (14) \quad (16)$$

⁽¹⁶⁾ ~~(25)~~ says a tree is mature in the year when its growth just covers interest on its achieved value (iR) plus rent (iS). Raising rent and interest thus results in shorter cycles.

1. → for example. But in Western Europe and Japan, lives are even shorter, ^{if} ~~where~~ cattle are grown at all.

For very long cycles, interest cost ~~always~~ dominates everything. Such long cycles are however unusual outside of forestry, and often pathological there, ^{permitted only} ~~resulting from~~ ~~caused~~ by sheltering ^{from} ~~against~~ real interest costs. ~~the~~ For ^{the} most growing capital, cycles are under 15 years, and land cost is a powerful force.

Inflation & life. Does it have intertemp bias?

~~1. Favor short?~~

~~2. overstate taxable inc. of short more than of long.~~

1. Infln. ~~favors neither long nor short, in a simple model.~~

Text

Hurts those of higher liquidity needs. Lig. needs vary with turnover. This way, hurts short

2. Infln. ~~overstates taxable inc. of long more than short,~~

~~I think.~~

Compare a one-year vs. a ten-year inv.

	C	R	$\frac{R - C}{\text{in price of year } n}$ Taxable	Real Gain
1 yr.	100	114	14	7
10 yr.	100	400	300	200 150?

Real gain in const. \$ must be in \$ of yr. 0 or yr. 10 or yr. 1.

<u>Numeraire</u>	C	R
yr. 0	100	
yr. 10		

in numeraire of yr. 10,

$$R = 400$$

$$C = 50 \text{ } 200$$

$$R - C = 350 \text{ } 200$$

As you're taxed on 300 when it should be 200. a 50% excess.

On the one-year, you're taxed on 14 when it should be 1. a 100% excess.

<u>Years</u>	<u>R</u>	<u>Taxable Inc.</u>	<u>Adjusted cost</u>	<u>adj. Taxable Inc.</u>
		14	101	7
1	114			
10	400	300	200	200
20	1600	1500	400	1200
30	6400	6300	800	5600
40	25400	25300	1600	23800

$$\text{Taxable Inc.} = R - C$$

$$\text{Rate of infln} = j$$

$$\text{Year of maturity} = m$$

$$\text{Adjusted cost} = Ce^{jm}$$

$$R = Ce^{(j+i)m}$$

$$\text{Adj. taxable inc.} = R - Ce^{jm} = Ce^{jm}e^{im} - Ce^{jm} = Ce^{jm}(e^{im} - 1)$$

$$B = \frac{\text{Taxable inc.}}{\text{Adj. Taxable inc.}} = \frac{Ce^{im}e^{im} - C}{Ce^{jm}(e^{im} - 1)} = \frac{e^{(i+j)m} - 1}{e^{jm}(e^{im} - 1)} = \frac{e^{(i+j)m} - 1}{e^{(i+j)m} - e^{jm}}$$

$$\text{as } m \rightarrow \infty, B \rightarrow 1$$

$$\text{when } m=1, B = \frac{i+j}{1+i+j - (1+j)} = \frac{i+j}{i}$$

Inc. tax bias to long life, timber.

Sec. 175, I.R.C.; 'farmer' can ~~deduct~~ expense soil & water conservation.

Sec. 182, farmer may expense "land clearing." (Does this include harvesting timber? I doubt it, but ask.)

By Tax Reform Act, 1969, there is recapture if the land to which the expenditures relate is sold within 9 years of acquisition (& regardless of when expenditure occurred, it seems), with declining share recaptured after 5 yrs.

Hold land into 10th year, no recapture.

- Wm. Condell, TIG, 10-70

Ideas and phrases for speeches

on FESP

Sheaf LP-4

Idea from discussion, etc., at conf.

1. Idea of "bricks - & - mortar bias" goes over.
2. Some ~~equates~~ think that the way to higher wages is using more capt./man. Don't get the idea of doing the best we can w. a fixed volume of K.
3. I need to introduce cap. thg by going thru my original sequence of reasoning:
 - a. Low-density land use pushes labor off land
 - b. Answer then is that p.w. tap new land
 - c. Problem then is that p.w. are cap.-using; & world land is limited.

Inv. is what employs, what covers payrolls.

Most invt. is ~~not~~ reinvestment.

Reinvestment comes from ripe goods.

Bull 21-M, for '41

Moh. R. ID, c. Lockeford, e. of Lodi. 2500 acres. p. 7. Admit flood control bens from Pardee since '28, but claim loss of flows anyway. Orgd to press claims. Rip rts below Pardee unknown, probly adjudication to be nec.

Bull 21-N, for '42

pp 9-11, Arvin - Edison WSD. 131,400 ams.

p 17 Propose divert Kern wtr @ 680'. Swap w downstreamers. LVP wtr, ~~etc~~

FK terminus debouching @ 370'

Dim W & Res given detailed study, approves as "feasible & practical".

p 16 1910-38, only 4 yrs when cd hv diverted wtr above existing rts.

Need 200,000 afy, get 20,000 from local streams. (for 100,000 a)

p 15 W-n boundary is East Side Canal. Some underground recharge from that. (showing gnd wtr gradient opposite from surface! And thus great disparity in depths to wtr. Exchange called for, none occurs.) Lifts now 100-300'

p 13. Very good soils. 26% gross area ind, '38.

p 11. Ff. State Rpt, BV WSD ('24) & KR WSD ('23) formed, based largely on info in it. BV bought its canals & ops successfully, but KR dissolved, '29, no agreement. (Probly KCLC held 'em up for wtr?). NK WSD, '35, for Calloway - Lendo wtr.

~~It~~ Invest, sell, & reinvest.

D { Capt. combines w. labor when invested, and recombines each time it turns over.

Combine & recombine, cycle & recycle, incarnate and reincarnate, invest & reinvest, circulate & recirculate, employ & reemploy

• Capt. incarnates labor in material form; and reincarnates each time it recycles & recombines w. labor.

Transmutates?

Transform

Activate & reactivate. Investing capt. activates labor; reinvesting reactivates.

Constructing dams, or any large piece of durable capt., is a one-shot investment, } Mfg. & agric. mean a steady flow of ~~attracting~~ a temporary bulge of payroll.

reinv. over time, bcs. products are consumed continually, & capt. recirculates

Logging is another one shot activity, but ~~the~~ on a small enough scale so the bulges may be sequenced, w-in a small area, to produce a steady flow w-in that area. When normalized, this lets complement of labor & communities be stationary. But the bulge is still there for each tree. & capt. recycles slowly.

E | But it's worse than simply not recovering the original capt. Planting a tree commits much more capt. over in years. The income of the capt. is automatically plowed back. The tree growth is internally financed. The owner cannot realize the income as it accrues, he must reinvest it in this particular form.

Yet it is income to him - income saved & reinvested. But reinvested w/o employing any labor. It subs. for other sav'g limits.

he might do.

As first, this is small relative to ~~recycling~~ original
capl. But over life of tree it becomes much larger, dwarfing
the original cost. None of it employs labor.

To make jobs, transmute dead capl. into lively capl.

Sell old trees, reinvest the capl. in:

cloth for needle trades, & wages of workers

farm labor producing berries, vegetables

maintenance of machines & bldgs.; remodeling

furniture

playgrounds

newspapers

U. Vic. stadium.

Cost c. \$10m (I guess)

Interest on that is \$1m. a year.

Write off in 30 yrs, annual cost is \$1,060,000.

Daily cap. cost is \$2,904.

But they won't pay a kid \$10 to open it up.
promote its use.

They do not

B.C. shd. identify ops. where most value is added by labor, and foster them.

Ops. that draw heavily on nat. res. are cap. using
Thus "full devt." of res. is a false trail.

(III) Cap. - using means long lag between costs & benefits,
soaking up & locking up capt.

Slow return of capt. — we need quick return

"Producing Payrolls for B.C." "

Benefits deferred are payouts deferred.

Payouts deferred are payrolls deferred.

Payrolls deferred — bcs. if they
come half as often, you get half as much, in pers.

Conservation means economizing on nat. res.

This means using less res. per unit
cost, wd. say, substitg labor for land

Forced cons. of res. is problem. Artificially induced.

Economics has a bad name - bes. much that passes for econ. is bad econ.
E.g. many value of res. by unit spent on guns & motels.
That's like many value of land by cost of developing it, etc.

★ complement, crew, quote enroute, clutch, adjust, affix,
auxiliary, baggage, equipment, supplies, ration, mate, match,
counterpart, coefficient, concomitance, accompaniment, escort,
retinue, entourage, attendant, convoy, usher, shepherd, partner
consort, correlative, equipage, requirement necessity, need,
indispensable, mandatory, absolute. require exact & absolute

Demands not only tie us up - they call for long term contracts & commitments. There can be no escape from, like Columbia R. Treaty. We're as stuck w. that as w. the mudflats & concrete.

IV What to do about it?

Change the instns.

Don't count on spending alone to make work.

In age of infln. need goods. And in age of short capl.,
need spending directed to uses that produce goods w. hi complement
of labor per \$ of capl.

Face up to contradictions.

~~#~~ Now, double think. If people save land by

using little, we condemn them for ruining land - apts.,

Trailer parks. If they use a lot of land we praise

them for conserving it. Is that making sense? Think
about it.

If an org. doesn't pay out, then to keep it going you must keep pouring in capl. until it does. But as you do - if you can - int. cost eats up more & more, & makes it harder to pay out at all.

P. w.

Important to avoid regarding ~~them~~ recourse to them to create empl.

They are seductive, a Lorelei for labor. They give quick results in jobs; but slow or no results in benefits & cap. recovery to sustain jobs.

We need "sustained yield" - of benefits & jobs.

Beware morality ints, or St. Thomas ints - good for you, for society, & based on zero-interest.

Need to keep B.C. competitive in world.
How? Avoid obsolescence. How? Replace more often.

Refinancing is not like selling. There is still a mortgage - it goes to an "end-lender"

E, A { It takes a small org. to handle small decisions. Govts. thus ~~start~~ get burned when they try it, and find their fulfillment in bigger things.

Repair contracting is an e.g. FHA program. Sect. 235 mortgage ins. FHA cookbook appraisers taken to cleaners by spec. & repair contractors, engaged in useful fr. of rehab. old houses to serve a few more yrs - a quick payout, labor-using side of housing, neglected for yrs. But they can't admin. it, turned into monumental catastrophe & rip-off. So back to frug. dams & draining swamps

Macro-economic
Topic: 1 Planning ~~the economy~~ with ^{scarce} limited capital.

- Historical examples of capt. crises

C | - Simple turnover e.g.s.,
Restaurant vs. land-fill
Book invy, revolving fund

D | - Indiv. can ~~invest~~ invest faster than deprec. or recover. - keep putting
in more cap. Whole ec. can't -- unless ΔK.

- Grandiose schemes; need for staging, e.g. - CVP
Master plans are seldom implemented. "Make no little plans" - G.S.

- Full-funding vs. logrolling. Word repr. weaknesses.
Relates to city planning
or

E | - While planning, keep an eye on what's really happening.
Life is what happens while we make other plans.

E | - Obsolescence. E.g. energy crisis & rancher house, &
big cars. And spread cities.

(Mine vita. I was a New Guinea pig)

Speech.

~~I-1~~ For decades, we've been substituting energy for labor & calling it "efficiency."

also cap. for labor. — & Berndt showed they are related.

also land — e.g. container ports; & agric.

Now, energy & cap. are the 2 clearest things,
& land

~~I-2~~

~~I-3~~ I think we'd better think it out again.

Idea has been, ~~rather~~ cap. requires incentives more than labor. England shows results.

(Taxes only inc. from cap. in rates, but exempt cap. gains.)

Feb. 16, '14

Full Empl. on a Small Planet

(Growth, jobs, & scarcity on a small planet)

50 minutes plus questions.

Topic, & outline.

Emphasize: sub. labor for land.

1. Scope for substiting.

a. Data from agric.

b. " related to size

~~A~~ — c. Rotation — replace 4% yield instead of 2%, e.g.

~~A~~ d. Mils. Dearer lumber, stop butchering logs in mill, use more labor
" energy, modify refining process; smaller cuts
" water in agric., husband it. E.g. from Cal.
" metals, recycle more

we are all familiar w. substit. re. farming can.

Can do same jobs w. less energy, also less capt. But more labor?

2

- territory.

- capt.

can double volume from same ceph, just by turning it

twice as often.

- people

- volume

of material

of value, labor impressed on material, or just labor

dermatology, as in Arctic Islands & undersea; capt. - not ~~information~~ for nation so much as (over)

4. ~~Extraction~~ Mining is not labor-using, but cap-using.

Fishing & farming are more labor-using

Processing retails. uses labor, but increasingly as you get further from source, nearer consumer.

Refining uses energy, & water or air for waste

Vertical fixed-mis fallacy of downstream benefits - but you can also process intake more.

immigration & retention, & high compliments (or "duties," etc., find best word.)

Theme. We appear to face black problem. Labor surplus & technology displaces labor; capt. & land scarce, & science keeps ~~down~~ increasing need for land & capt.

Fatalists, dilemmacists, nihilists, have field day.

But the fault dear Brutus... Intel. bias. Sci. & techn. respond to what, & what is manip., distorted by interests.

Mutually answering dilemmas — where "dilemmacist" sees half of a whole picture. (Rival bottlenecks)

Theobald et al. recycled old bogeys of Ned Ludd. Cybernation, Silent Conquest, Sci-Fi. We produce too much, too easily.

Overprodn. vs. new stress on scarcity. One answers the other — in part.

Is still a problem of Cybernation displaces labor where labor was used a lot; but we are short on raw materials which require capt. & land

✓ But this reflects results of ~~incentives which~~ intel. bias which has made labor cost employers ^{more} ~~less~~ than it costs society; and land & capt. less.

✓ In Wartime, urgent need for goods now. Hence big emphasis on labor-using opns. Investment rushes in to mfg; goods are sold fast, capt. recycles. That is the lesson of war mobilization. Investment goes into hi turnover, even A volume fast.

Govt. probly didn't do much investing, directly. It was the customer.

As a one shot thing, ~~the~~ ΔMV ed. create real demand for labor in those circumstances bes.:

- unemployed labor, of hi skill & motivation
- money illusion
- willingness to save from new hi money income.

So the $\Delta inv.$ needn't wait on or depend on cap. recovery. The new cap. was generated on the spot. Then it kept recycling. Prodn. was for immediate use.

We can do same thing today by changj incentives.

I'd like to see capt. exempt from taxes. But it shld. be exempt from inc. tax before prop. tax, bcs. inc. tax contains bias to long life.

Sluggish capt. (slow, sterile; ~~is~~ also narcissistic, low valence or valency; low metabolism.