

LP, Used-up Materials

I. Need strong positive case.

Niggling reasons carry great weight vs. LVT. They seem small cfd. to benefits we think we see.

~~It~~ It's not that obstacles seem smaller to us, but we see greater benefits.

But haven't articulated them.

Partly, ~~but~~ we have fallen for trick. If see ^{modest} ~~too few~~ benefits, opponent says why bother? If see major benefits, he says you're peddling a panacea. ~~I'm not~~
You can't scare me. I see great benefits, If this be panaceaism, make the most of it.

Most exciting field in macro. Enthusiasts see policy as alleviating unempl. & poverty. But haven't developed rationale. Our very membership shows preoccup. w. details of local tax policy.

This is good, impt. to develop technical op's skill.

But not exciting enough to overcome inertia of transition.

Orig. excitement for LVT derived from ^{& distribul.} mass, a way of creatg empl. opps., alleviatg poverty, removg privilege. Answered deep yearnings — which have not gone away, but now may be seen in less rational manifestations among youth.

Idea was simple. Use land more intensively. Replace ~~the~~ ^{our} extensive frontier, safety valve, w. internal frontier. Also anti-imperialist — end manifest destiny, release aggressions cultivating our own garden.

Today, ~~still~~ there are still good issues. Add concern w. environment. Stop pressing outwards. World is round. Must find ways to thrive w/o expanding territorially.

~~My object~~

Old single tax movement ~~split into 2 parts.~~

had issue between technicians & zealots. Former, "s.t. limited,"

prevailed. ^{Local.} ~~But~~ So by Depression, unprepared for mass,
'challenge. Vacuum filled by "FMP" - fiscal-monetary
policy to its votaries, funny-money panaceas to skeptics.

FMP in ascendant ever since, in Troika w.

highway juggernaut & military-indl. complex.

LVT idea to use more labor per land was rejected.

Bcs. of alleged overprodn. Need was to reduce prodn, & empl.

producing things we don't need — (mil. hardware) — or

won't need for a long time to come (B.R. projects);

~~seem~~ R & D, cite Bldg's poem.) Result: infln.

II. Bankruptcy of FMP - or at least "overloading"

pp. 1-3 of E, CS, & TI, (ECSTI)

III. Main benefits of using land intensively

FMP adversary of LVT in depression said we, mustn't use land, you'll create supply w/o demand.

Killed Say's Law. Overkill. Gleam of ridicule, comes to halfwit who can say "~~Are you serious~~" Don't you know Say's Law is disproved.?"

Now to beat infln, supply w/o demand is needed. So

old argument n.g. -- altho you still hear it. Now,

FMP directors say no, mustn't encourage new inv, it will only ~~create~~ "overheat" etc., which seems to mean creat'g demand w/o supply.

If we bought one line we shldn't buy the other. In genl. shldn't buy either. Putting men to work on land, ^{in general} creates supply & demand in balanced proportions. It is p.w. & mil. that create demand w/o supply -- & these are neeq. concomitants of denying full empl. thru priv. enterprise. "Over

compensatory territorial expansion."

Intensive land use solves many problems:

A. Products now all have higher labor component.
More empl. of labor per unit of output

B. Faster turnover.

1. If worry re inadequate demand, note that inc. creat'g exps., $C + I$, can be reduced to gross inv.; & gross inv. is autonomous, largely det'g C ; and gross inv. depends on life of stock, as caps. reinv. is antic. of sales; and there are thermostats to change life of stock, if needed, e.g. lower wages lead to shorter cycles.

✓ 2. If worry re excess demand, note fast turnover means demand creates its own supply ^{simul.} ~~quite~~ soon. And higher wages slow down replacement, another thermostat.

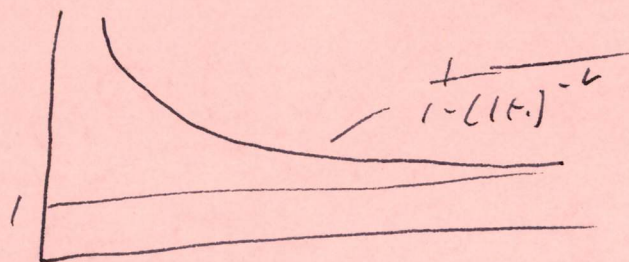
I love thermostats. Yes, Va. there is our inv. bound.

IV. To get higher share for labor, speed turnover. This is aspect of intensity most helpful to labor

A. Timber case. Distrib. model

B. Deprec. assets. Assume const. ST over L .

$$ST = i \left[S + \frac{C_0}{1 - (1+i)^{-L}} \right] + o \& m.$$



As L grows:

- ST from given C_0 falls rapidly
- share of $C_0 \frac{i}{1 - (1+i)^{-L}}$ which is int. rises,
 ~~to 100%~~ to 100% when $L = \infty$. Share which is ~~sent grows~~ labor falls
- absolute unit which is int. also rises, bcs. when C deprec. rapidly, ~~half~~ take int. on only $\frac{1}{2} C_0$ on ave.

- $o \& m$?
- share which is sent ($S \cdot i$) rises.

V. Prevailing taxes (8 c. instm. slow turnover, reduce labor's share.

A. Timber tax.

(This material returned to file called "Severance tax: Life & ripening")

B. Bldg. tax. - even property tax.

$$PVR_1 + PVS = a \frac{1 - (1+i)^{-L}}{i} + G_2 (1+i)^{-L}$$

$$= \frac{a}{i} + (1+i)^{-L} (G_2 - \frac{a}{i}) \quad ?$$

if $G_2 = \frac{a}{i}$ the 2d term = 0 and $\Sigma = \frac{a}{i}$, a

const. So a must drop, or $G_2 > \frac{a}{i}$, to get end of L.

Actually, a normally drops, so:

$$PVR = a \frac{1 - (1+i+d)^{-L}}{i}$$

and

$$PVR_1 + PVS = a \frac{1 - (1+i+d)^{-L}}{i} + G_2 (1+i)^{-L}$$

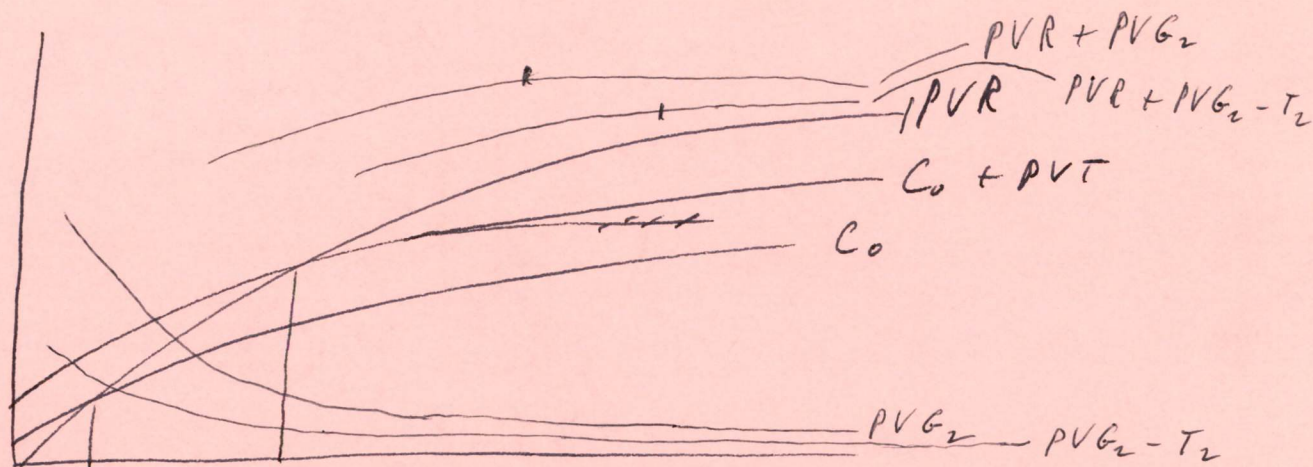
PVR_1 keeps growing w. L; but PVG_2 keeps falling, ~~making~~ so their sum reaches a max., helping end L.

Also, ~~the~~ C_0 is $f(L)$. Not enough to end L by itself; but helps in conj. w. fall of PVG_2 .

✓ In fact, may not Δ w. L at all after a while. Later L comes free of ΔC_0 . So almost entire cause of end of L is fall of PVG_2 .

Major effect of bldg. tax is lower PVG_2 relative to last years of G .

- 9a -



PVT rises faster than C_0 at first; then becomes const.
as further L comes free at no ΔC_0 .

1. Tax shifts breakeven to ~~be~~ longer L
2. Tax doesn't affect opt. L of G , but is still $= \infty$
3. Tax reduces PVG_2 . Add PVG_2 to PVR

Tax lengthens L .

Bldg. tax not same as higher i , but applies only to C_0 ,
& not to discounting revs. a difference from tree tax. a
bldg. tax is like tree tax based on $C_0(1+i)^n$, omitting value
derived from a $\frac{(1+i)^n - 1}{i}$. A fundamental diff?

An ΔC_o to extend L of bldg. one year gets lighter taxn. under prop. tax than wd. same ΔC_o in a tree.

Bes. the lowest value of the ΔC_o is excess of ~~of~~ cash in yr. L

flow over land rent in L . Thus the Δ to bldg. value is only that. But lvt. value of tree includes land rent all over yr.

2 characteristics:

- a. Can stop ΔC_o ^{at} any pt. ^{as $f(L)$} , still keep gett'g ΔPVR w. L .
Later longevity bought by own, not taxed.
- b. Can ΔC_o and ΔPVR by greater amt, but ΔT based only on ΔC_o . The extra land inc. untaxed.

Bias to longevity.

C

Re waste of capital.

Perception bias, people do not see
int. cost as a true cost.

E.g. to ~~stop pollution~~ use ^{less} ~~more~~ of raw
mtl. may require big capl. outlay.

Take on yelf. int on cap. of \$100,000. ~~per~~

say \$10,000/yr. to save \$5,000 of

raw mtl. The mtl. is concrete;

the int. is abstract, gets under

rated.

✓ Similarly, they see inv. as employing labor,
but not as soaking up capl.

Direct use, free of tax; plus gain, free of tax.

Also, you say, no real inv. there. But there is, in public capl. Urban sprawl, ~~capl~~ in conj. w. idle land. Longer lines, streets.

Also, you repeat, that employs labor. True, but soaks up more than ave. duty of capl./job, & that is the pt.

P.W. are cap.-using.

A { How do we know something is cap-using? Labor produces capl. so what's the diff? Value added by capl. after labor produces it. Tree, ends up \$59.0 v.a. by capl. Farm machine, it's still needs labor.

1. Deferred benefits

2. Most cost is int. — & hence most value-added.

3. Prodn. sensitive to i.

4. Small unit replaced each yr.

5. Labor employed in bulges — [unless elaborate & exp. countermeasures]

6. Instatement to retire debt is not much higher than int. on debt.

7. And usually, bus. owners demand special treatment, "regime"

shelter from int. & prop. taxes, & accrual taxes; cheap credits from govt, or govt. cover carrying costs by giving them a hammerlock on Crown land.

8. *Object obsolete last half of life.*

P.W. have these qualities.

This brings us to another kind of bias, re p.w. (& utility lines)

- free from ~~tax~~ prop. tax

- freed by bonds, int. free of inc. tax (?)

gent. oblign, subsidized i.r.

bonds paid off by ~~deductible~~ ex. payable taxes.

- internally forced, low i.

- often, no acct'g at all

- logrolling; partial funding; the half-finished syndrome,

too many starts, too few completions

- poor speech. Big words for avoc. capl. Freedom lies & trouble,

- rich center feeds lean fringe

- agent of "imperialism"

An
New Outline

~~Title~~

Lynn Paper

Taxation to activate property and make jobs.

Intro: Need to sub. labor for land & capt.

1. ~~A.~~ Collapse of New Econ.

Problems assoc. w. unempl.

Time to begin again.

Preview argument, outline paper.

2. ~~We need to~~ Combine more labor w. capt. & land. ~~Get~~ Δ output & jobs, from same base of capt. & land, or less.

3. ~~How~~ How different factor mixes are now.

This shows that (2) can be done; and points to avenues for doing it.

A. Contrast jobs vs. output, B.C. & ~~western~~ U.S. &/or Canada.

Note how few jobs in "basic" indus. Cite James Jacobs.

Note overreliance on ^{ex. base} mult. arguments - most used where least valid?

There are such things, but surely, the greater the basic prop. to output

B. Contrast diff. indus & products

Include contrast of lives, or how long you tie up capt. Give simple ex. of normalizing w/o i.

D ~~Needs~~ Changes, ^{and how they might occur thru} ~~then~~ product substitn. of inputs, of products.

i.e., via elasticity of demand & of substitn. Offline of cost. is
even to show every maintained the mutability of cons. & products —
demand instead of requirements; instead of rigid complements;
retooling instead of strain and death.

Later $\rightarrow$ (How property taxes activate property for labor)

C. ~~A.~~ Contrast firms of different sizes.

The obstacle:
4. ~~a lust bias~~

It makes us spread out more, & use more capt., as in urban sprawl.

5. Why demand for capt. does not create jobs (v. p. 8, Value Invest.)

6. How to invest ~~to~~ ^{to} minimize jobs

7. The declining labor complement of capital & land.

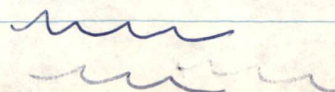
8. How to ~~allocate~~ invest to soak up unemployed.

9. Some good ^{tax} policies. How prop. taxes activate prop. for labor.
(or raise its value.)

10. Macro benefits & counterparts

11. Social & internat. benefits

End



7: Wilson Conf.
Copy to J. W.

From Eric Berndt



THE NEW QUESTIONS
ABOUT THE U.S. ECONOMY III

THE FAR-REACHING CONSEQUENCES OF HIGH-PRICED OIL

by Sanford Rose

INDUSTRY MAY HAVE TO USE MORE LABOR AND LESS CAPITAL—AND CHANGE ITS PRODUCT MIX.

Long before the Arabs announced their oil embargo, thoughtful Americans were concerned about the rising price of oil. In the wake of the embargo, the questions about oil are far more grim and have a far longer reach. Indeed, the questions now get to the most fundamental matters about the shape and direction of the U.S. economy during the rest of this decade.

What first appeared to be the grimest question of all—would we have enough oil?—now seems to be mostly disposed of; the answer would appear to be yes, provided we use all our available options. Meanwhile, however, the questions about the price of oil grow steadily more complex and difficult to answer. Which industries will be hurt by the rising prices (and which of them will benefit)? Will there be sharp reductions in productivity? Will capital spending be sharply curtailed? Will those rising prices lead, in fact, to a major rethinking by business of the relative worth of labor and capital?

These new questions have surfaced with such indecent speed that economists and policy makers have been unable to

react with any degree of consensus or much coherence. When the embargo was announced last October, there were visions of a far-flung economic calamity. The embargo was expected to deprive the U.S., directly and indirectly, of between two and three million of the approximately 18 million barrels of oil used in this country every day. It did not seem possible that the economy could suffer such shortages without plunging into a recession or a depression.

How to get one million barrels

It now seems clear, however, that the oil shortage will be much smaller than was first thought—perhaps as little as 500,000 to a million barrels a day. Conservation measures have eliminated a fair amount of wasteful energy use, while rising prices have both reduced demand and increased supplies, at times from the most unlikely sources. There are even some analysts who believe that, with crude prices approaching \$10 a barrel, the U.S. will soon be able to buy as much oil as it requires—from domestic as well as foreign sources.

Research associate: Alicia Moore

Our ability to avoid the kind of energy shortages that would cripple the economy this year does not depend upon abundant Middle Eastern oil. It would be nice to have—but even without any of it, we could probably still make do by mobilizing domestic energy reserves.

The potential for rapid expansion of domestic oil output is apparently vast. Last year the American Petroleum Institute, the oil industry's trade association, reported that the companies could boost domestic production of crude on a crash basis by about a million barrels a day within three months—that is, we could raise output from 9.3 million barrels a day at the end of 1973 to 10.3 million barrels by March 31, 1974. This expansion could be achieved, said the A.P.I., "with existing wells, well equipment, and surface facilities—plus work and changes that can be reasonably accomplished within the time period."

Even more important, the A.P.I. stated that a crash program would not threaten the future productive life of existing oil fields. It noted that production could be "controlled according to prudent and accepted engineering

Industries that will be helped

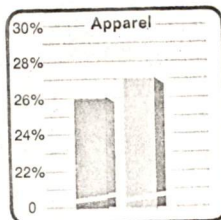
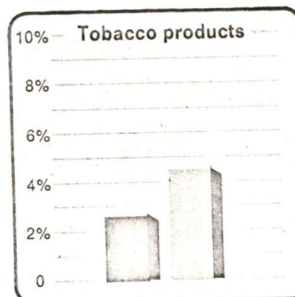
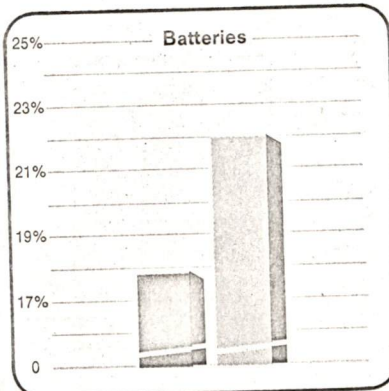
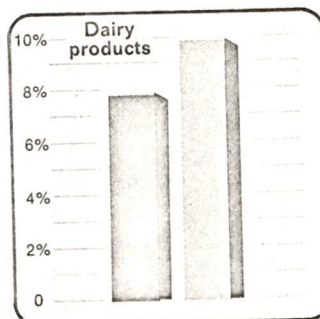
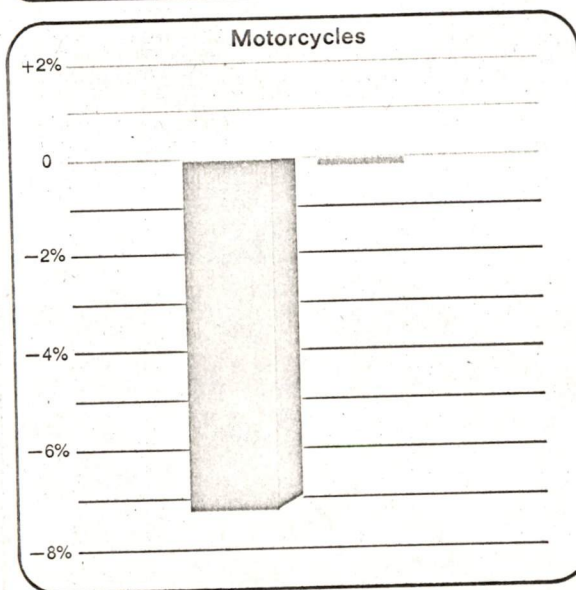
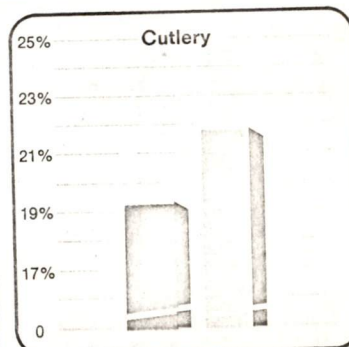
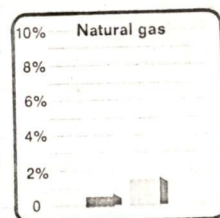
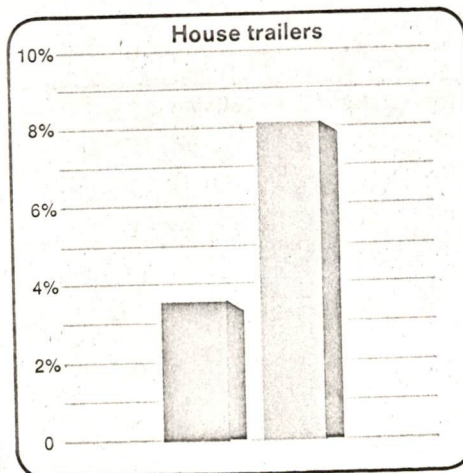
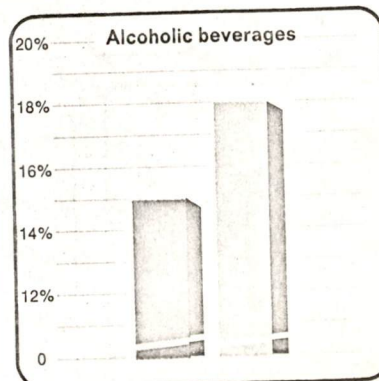
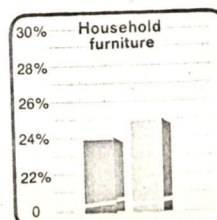
Assessing the impact of oil-price increases on the sales of various industries has become a favorite pastime of economists lately. The charts at the right, which are based on data prepared especially for *FORTUNE* by Chase Econometrics, Inc., a subsidiary of the Chase Manhattan Bank, show a few of the "winners"—industries expected to benefit from the higher prices. The size of the charts is proportional to the extent of the gain expected. (For a look at some losers, see the next page.)

Most of the winners win because they consume relatively small quantities of energy in the manufacturing process. In alcoholic beverages, for example, energy costs represent less than 1 cent per dollar of sales. Costs in the liquor business will rise less rapidly than costs in the more energy-intensive industries. With demand for alcoholic beverages acutely sensitive to price changes, consumers will presumably take advantage of the fall in the relative price of liquor and increase their purchases. Result: a gain in real spending that is 3 percent higher than what would be projected without the oil-price increase.

practices to prevent the significant reduction of [future] crude oil recovery."

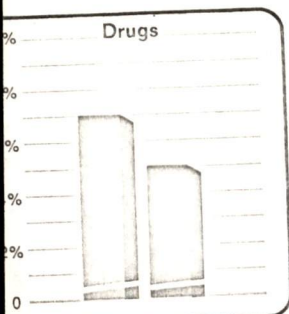
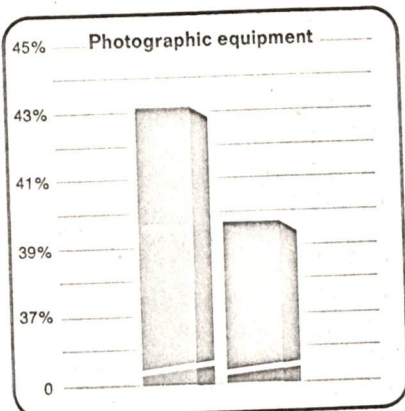
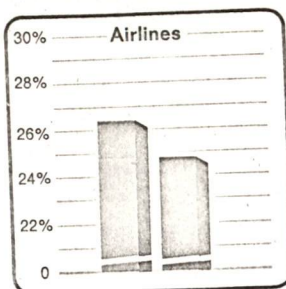
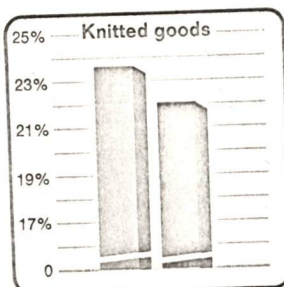
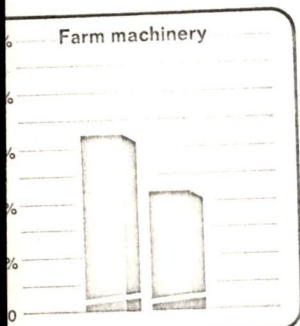
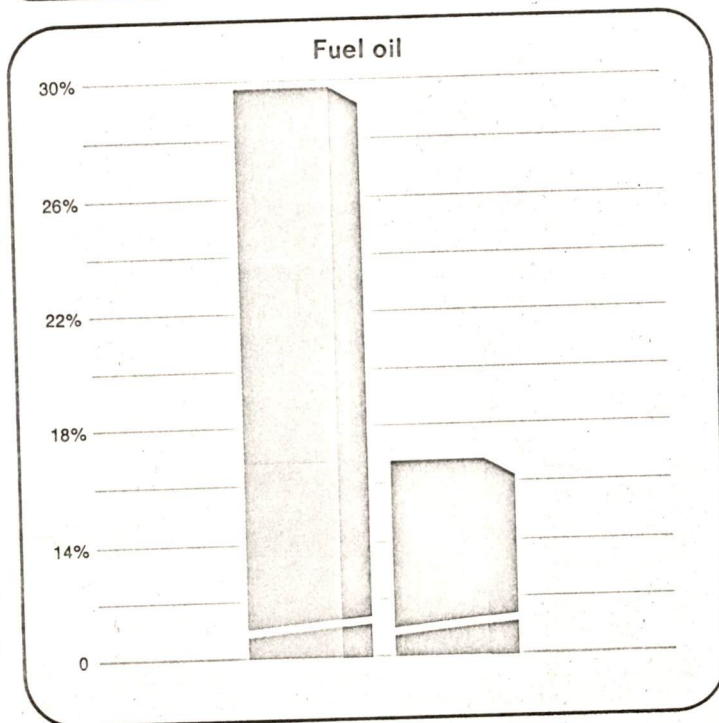
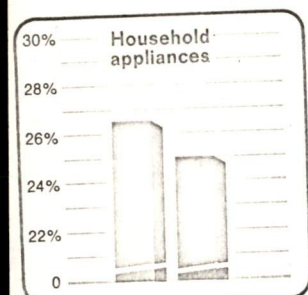
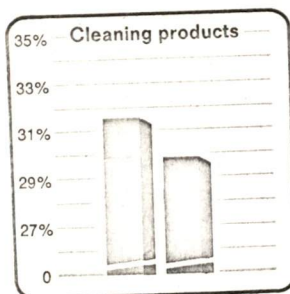
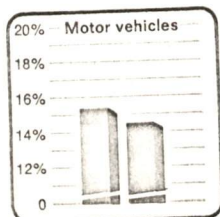
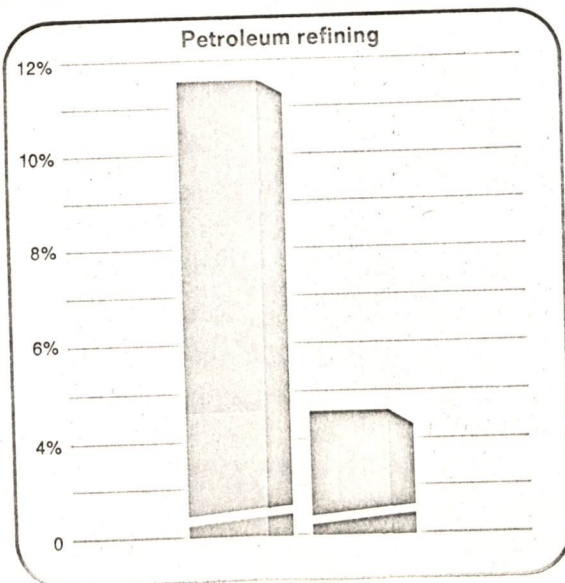
Unfortunately, a multitude of state regulations continue to limit the output of individual oil fields to a so-called maximum-efficiency rate. The ostensible purpose of these regulations is to conserve future oil supplies. In fact, the original purpose of the regulations, which were strongly supported by the industry, was to limit production and thereby support prices. But now that the industry is willing and eager to boost production, it is stuck with the regulations. Meanwhile, oil output languishes. Domestic crude output increased by only about 100,000 barrels a day in January.

Even if domestic oil supplies cannot be increased on the scale envisioned by the A.P.I. study, shortages of energy can still be averted by substituting coal for oil. Our dependence on imported oil has not been increasing at the steady, inexorable pace that most people have been led to believe. Imports of crude petroleum and natural gas—valued in constant 1971 dollars—increased by only \$264 million between 1965 and 1970. Then, in 1971 alone, they rose by \$489 million.



The bars here and on the next page represent percentage gains or losses in consumer spending for the products of various industries during 1971-75. All the expected spending changes have been calculated in constant 1971 dollars. The bars at the left assume no increase at all in the price of oil during the five years, those at the right are based on a price increase of 85 percent. Both projections assume adequate supplies of oil.

Industries that will be hurt



Less fortunate than the industries on the preceding page are the ten shown at the left. Petroleum refining, which would have had whopping sales gains without the price hikes, now ends up with only a small gain. Note that the sales projections are in constant dollars. In current, or inflated, dollars, petroleum refining will do quite well: it will be able to raise prices enough to more than offset the expected losses in physical volume.

Makers of photographic equipment will lose sales, not because the industry is so energy-intensive, but because demand for photographic products is quite sensitive to change in personal income. Rising oil prices will clearly slow the pace of income gains. Most of the other losers are in energy-intensive industries: detergents, for example, are derived from petrochemicals, as are some types of drugs and the packaging used to wrap them.

Similarly, coal production meandered trendlessly from 1965 to 1970, and then dropped by \$840 million in 1971. The link between these two developments was the pressure exerted by the Environmental Protection Agency, beginning in late 1970, to make utilities and industrial plants convert from coal to residual oil and middle distillates.

The coal is available

Undoubtedly, there are some environmental costs involved in allowing utilities and industrial plants to resume burning coal, particularly high-sulfur coal. But how great are these costs? And are they so great that it is worth running the risk of serious energy shortages? If they are not, and the EPA agrees they are not, industry and the utilities can shift back to coal, at least temporarily, in order to prevent large-scale economic dislocations. Most of those who burned coal just a few years ago are equipped to resume burning it, although in some cases it will take a little while to reassemble dismantled coal-handling equipment. And those who provided the coal just a few years ago can certainly provide it once again.

Since 1970, it is true, the "mix" of coal being mined has changed from high-sulfur to low-sulfur coal. Much of our high-sulfur coal has a higher heat content, i.e., measured in British thermal units, than does low-sulfur coal. If the coal-mining industry merely returned to

the same mix of production, and the same level of BTU output, reached in 1970, the U.S. would be well insulated from the effects of a complete cutoff of the two million barrels of Middle Eastern oil that entered the country on an average 1973 day.

A return to that 1970 level would enable the electric utilities to switch to coal and reduce their oil consumption by nearly 40 percent. A similar switch would enable manufacturing industries to reduce their consumption by 13 percent. Together, they would save about 1.3 million barrels a day. Even if we did not revert to the 1970 mix of output, but simply expanded coal production as fast as physically possible, we could save about 1.1 million barrels of oil per day within a matter of months.

The cost of the imports

It is clear, then, that some combination of increased oil and coal output can save the economy from a serious recession. But nothing can save us from the effects of an unacceptably high level of energy prices. As nearly as can be determined, oil prices have just about doubled within less than a year. The price per barrel of imported oil may soon fall. Even so, the average price of imported oil will still be higher than the average price of domestic oil.

Hence if imports increase, and Persian Gulf oil is freely available, the weighted average price of oil available in the U.S. will continue to go up. One large question, then, concerns the extent to which consumers will reduce purchases and the extent to which they will absorb the increased costs.

We do not know, with any degree of precision, how much buying will be cut back for any given increase in prices. Evidence of consumers' responses to previous changes in petroleum prices is almost completely useless. Consumer sensitivity to the minuscule price changes of the past tells us little about the reaction to today's outsize increases.

Nonetheless, economists have spent a great deal of time trying to estimate the price elasticity of demand at today's higher prices. The best guess is that the elasticity for gasoline is minus .2—which

means that, if gasoline prices double, demand for it can be expected to drop about 20 percent. The elasticity for home heating oil is probably a bit lower, since consumers have little choice except to buy at the higher prices: they cannot switch to other fuels without making large outlays for new equipment. By the same token, the elasticity for industrial fuel is probably higher—because of all those opportunities for using coal instead of oil.

Income not spent on oil products can, of course, be used to buy other goods, provided they are available. And many consumers are indeed planning to use the money they would have spent on gasoline for energy-saving home improvements. But consumers may also elect to save rather than spend this money; and if they turn bearish on the economy, as they now seem to be doing, savings may increase at the expense of current consumption. Then output and employment will suffer.

Some income will emigrate

An economy featuring high oil prices will be different in other ways too. Those consumers who must buy oil products regardless of price will naturally have less income for other purchases. By the same token, those who produce oil and oil products will have more income. Unfortunately, the transfer of income from energy consumers to energy producers is not especially healthy for the economy. Some of these producers are foreign, so that a certain amount of income will simply be withdrawn from the U.S. It is true that much of this income may return as effective demand for our exports, but this process would presumably take a while. As a result, total demand for goods and services in the U.S. will be crimped, at least in the short run.

Indeed, higher oil prices would be translated into reduced demand even if all our oil came from domestic sources. The reason is that domestic producers of oil would not spend their increased incomes in quite the same way as those whose purchasing power is being effectively reduced by price rises. Higher oil prices will raise wages and profits in the oil industry, while hurting the great

mass of consumers—i.e., the wage earners and profit recipients in all the other industries.

This transfer of income could be painful. The oil industry uses much less labor and more capital than do most other industries. And so the transferred income will benefit mainly profit recipients rather than wage earners. And the people who receive profits, being high-income types, tend to save more and spend less of their incremental income.

Thus higher oil prices imply more savings and less consumption. It is true that most of these savings will eventually be used to increase the nation's stock of capital goods—that is, productive equipment, buildings, and inventories. But once again, this spending won't happen immediately. It takes time to plan and execute capital projects. In the short run, savings will increase at the expense of consumption.

The speed with which the economy recovers from its present difficulties depends on what happens to the price of energy—of oil, gas, and coal—from now on. If prices can be quickly stabilized at the higher new levels, we will have suffered nothing more than a one-time decline in the growth of real income. Real G.N.P. this year will rise by about \$8 billion to \$12 billion less than it otherwise would have. But if the price of energy continues to rise, American industry will have to reshape its own consumption patterns in fundamental ways.

Too cheap to worry about

Industry has traditionally been a prodigal consumer of energy, because the stuff was simply too cheap to worry about. The price of oil, which accounts for about half of all the energy consumed in the U.S., increased by only 30 percent from 1948 to 1972. Since the general level of prices was rising by 74 percent during this period, the price of oil, measured in constant dollars, actually fell substantially.

Largely because oil was such a bargain, but also because federal regulation held down the price of gas, the total cost of energy purchased by U.S. manufacturers rose by only 5 percent (in current dollars) from 1958 to 1970. Meanwhile,

How to Save

the cost of nearly everything else—particularly labor—was rising rapidly. Thus manufacturers had every incentive to substitute energy for labor wherever possible. The manufacturing sector of the economy used 66 percent more energy in 1970 than in 1958. By contrast, the use of labor—i.e., measured in man-hours—increased by only 35 percent.

Because energy was so cheap, U.S. business never worried much about using it efficiently. Nonetheless, there has been a steady improvement in efficiency during the postwar period. In 1947 it required about 78,000 BTU's to produce \$1 of value added (the calculation was made using constant 1967 dollars). By 1971 it required only 57,000 BTU's to produce this output. There is no doubt that this decline will continue. But thus far, at least, it has been achieved largely as a byproduct of growing economies of scale—rather than by any conscious, broad-scale campaign to reduce national energy consumption, such as we are now witnessing.

In most industries, as output has grown, the energy required per unit of output has fallen. Thus the ratio of energy to output in the man-made-fiber sector of the chemical industry—one of the most energy-intensive in the economy—fell by about 2.4 percent a year in 1958 to 1967, mostly because the scale of operations increased.

An eye on the boilers

In the future, business will worry quite a bit about using energy efficiently. It can be expected to move consciously to reduce the energy-output ratio. Du Pont, which sells fuel-saving advice to large companies, estimates that an average heavy industrial user can save 3 to 5 percent of its energy bill almost immediately through improved industrial housekeeping—e.g., by cutting down on the use of standby boilers and pumps that are allowed to idle some considerable time before being put into use. An additional 4 to 10 percent can be saved by making capital investments. The investments would, for example, involve adding insulation to wires and pipes, or installing heat exchangers that will recycle waste steam and water.

Sometimes very small investments can result in quite substantial economies. Edgar Brightbill, a Du Pont scientist, cites the example of another chemical company that was persuaded by Du Pont to install an inexpensive flow meter on a steam-stripping column. Previously, the company had maintained the flow of steam to the column at a constant (and therefore excessive) level. The flow meter simply regulated the number of pounds of steam per hour according to what was actually needed. It cut the company's steam bill from \$100,000 to \$70,000.

Some rough calculations based on Du Pont's experience suggest that, if it is representative of U.S. industry, then savings of between 2.8 percent and 6 percent of national consumption of energy can be realized within the next five years. Those figures are equivalent to between one million and 2.1 million barrels of oil a day. Even larger savings might be made by major alterations of production processes. The chart on the facing page shows what is technically possible in five of the more energy-intensive industries by the end of the decade.

Changing the shape of demand

To the extent that energy-output ratios can be lowered, costs can be held down and consumption patterns need not change. But savings in industrial energy may not be enough. In fact, even when they are added to the savings that are possible in the household and transportation sectors of the economy, they may not be enough to stop prices from rising. And if energy prices continue to rise, so will the prices of intermediate and final products all across the economic landscape.

The impact of these price rises will vary considerably from one industry to another. Obviously, the heaviest consumers of energy will be under the greatest pressure to raise their own prices. Besides the energy-producing industries themselves—petroleum refining, coal mining, and the electric and gas utilities—some of the largest energy users in the economy are the aluminum, chemical, food-product, cement, and paper-product industries.

Five industries account for close to 40 percent of the energy consumed by U.S. manufacturers as a whole—and for about 16 percent of all the energy consumed by Americans. Steel, aluminum, cement, petroleum, and paper are the giant fuel guzzlers. In 1968 they used 8.5 quadrillion British thermal units. (A BTU is the amount of heat needed to raise a pound of water by 1 degree Fahrenheit.) If their energy consumption continues to grow at past rates, they could be using 13 quadrillion BTU's by 1980. But with some careful planning, these industries could continue to expand output at reasonable rates and still consume less energy in 1980 than they did in 1968—in fact, about 700 trillion BTU's less. There is no mystery involved in this economy; the technology needed to save the energy is already known.

The cement industry, for example, now uses about 8.8 million BTU's per ton of product. If the industry recycled more waste heat, cut down on convection and radiation losses, and repositioned some kiln burners, it would need only about 3.6 million BTU's per ton—a saving of 59 percent. And even with these savings, cement makers would still be far above the limits on fuel economy imposed by the laws of physics. Under ideal conditions, it would require less than a million BTU's to produce a ton of cement, less than 500,000 BTU's for a ton of petroleum, and less than 250,000 BTU's for a ton of paper.

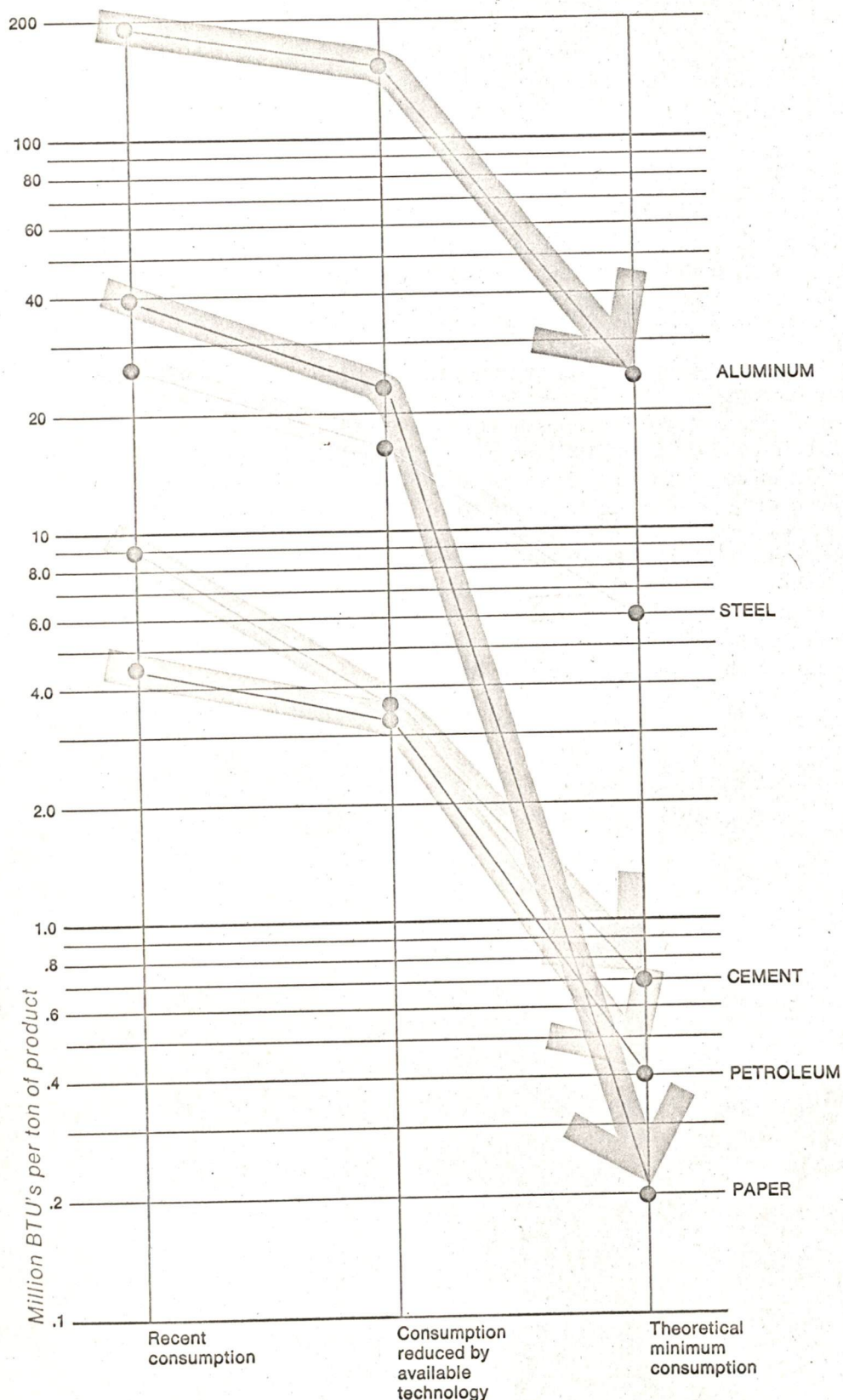
Petroleum refining is the most energy-intensive industry around, for it must use energy both as a raw material and as a fuel. Refiners spend a total of about 65 cents of every sales dollar on energy. Aluminum producers spend about 18 cents, plastics manufacturers about 15 cents, iron and steel producers about 12 cents, glassmakers 10 cents. Shoe manufacturers spend only 4 cents, makers of tobacco products and office equipment only 3 cents each.

Some industries are modest *direct* users of energy but large indirect users. For example, the fabric industry pays out only about 1.2 cents per sales dollar for the energy it uses in its own plants. But it buys large amounts of nylon, Dacron, and Orlon fibers from the chemical industry, and these fibers are petroleum-based. If we count all the energy that must be consumed throughout the economy in order to produce \$1 of fabric, the total comes to about 7 cents rather than 1.2 cents.

Fortunately, the impact of a rise in the cost of indirect energy becomes

on underpriced energy

700 Trillion BTU's



progressively diluted as we move to higher stages of fabrication. If, for example, the chemical industry spends 20 percent of each sales dollar on energy, and if the cost of crude oil represents one-half the total cost of providing that energy, then a doubling of oil prices would raise the cost of chemicals by 10 percent. In turn, if chemicals in the form of fibers account for 20 percent of the cost of producing fabrics, then fabric costs will rise by only 2 percent (.20 times .10). And if fabrics account for 30 percent of the cost of apparel, then apparel costs would rise by only 0.6 percent (.30 times .02).

Some industries will be able to pass energy-cost increases along to their customers without hurting their sales. Demand for the products of these industries is, in other words, price-inelastic. Consumers will resign themselves to temporary price rises because they consider the product essential and because substitutes are not readily available.

The long run is elastic

But there is a critical difference between short-run and long-run elasticities. Clearly, energy-intensive industries like petroleum refining, coal, and fertilizers have markets that are price-inelastic in the short run. For a while, at least, companies in these industries can preserve profit margins by raising prices.

In the longer run, however, the price elasticities change. Consumers alter their perception of what is necessary, and producers find less costly raw materials and intermediate products. Producers may substitute paperboard products for plastic film, and rayon acetate (which is derived from wood) for Orlon (derived from oil). Consumers will obviously buy fewer petroleum products, cars, and household appliances.

It is less obvious, but quite possible, that they may also substitute dairy products for meat products. The transportation and refrigeration of bulky animal carcasses require a great deal of energy per pound of usable protein. By contrast, cheese is a relatively compact and concentrated protein substance. As a result, it takes nearly 75 percent more energy to deliver a pound of meat

continued page 191

venturesome and decide to link energy savings with the solid-waste problem, by imposing heavy taxes on throwaway cans and bottles. Throwaways, particularly those made of aluminum, require much more energy to manufacture than do glass returnables. If all beer and soft-drink manufacturers were to abandon throwaways entirely in favor of returnables, the nation would save about 30 billion kilowatt-hours of electricity a year, which is equal to about one-half of 1 percent of total energy consumption. At the same time, the demand for labor would rise, since it would require many more man-hours at the retail level to handle the returnables. On balance some 30,000 new jobs would be created.

In a much oversimplified fashion, these examples illustrate one long-term consequence of rising energy prices: the number of job opportunities will increase more rapidly than would otherwise have been the case. And as the demand for labor rises, so will wages. Other things being equal, labor's share of na-

tional income will rise. The share going to property holders, dividend recipients, and bondholders will fall.

Note that this process will reverse the short-term trend. The first effect of a rise in energy prices will be to shift income away from labor and toward the owners of capital and natural resources. But after companies and consumers have had a chance to adjust to higher energy prices, by altering their patterns of demand, the money will flow in a different direction.

Bad news for capital goods

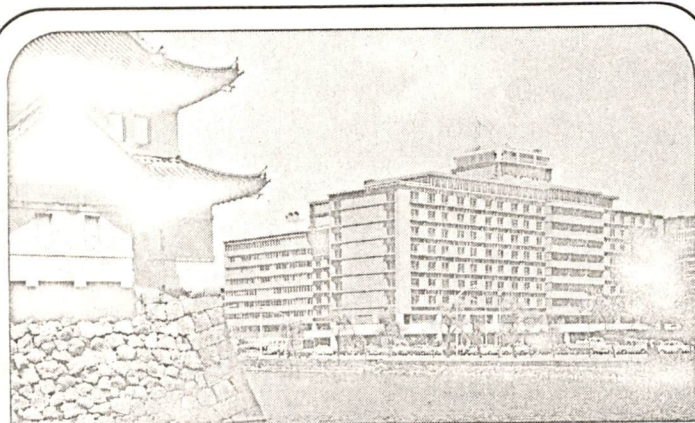
The impact of rising energy prices on the demand for capital goods could well be the exact opposite of the impact on labor. The greatest demand for capital goods obviously comes from industries that have the highest capital-output ratios—industries in which investments in plant and equipment have the highest payoffs in sales. But these industries, which include aluminum, chemical, and paper, are also among the biggest users

of energy. The more machinery one needs, the more BTU's one consumes.

The relationship between energy use and the demand for capital goods has been studied in some detail by Ernst Berndt, a professor of economics at the University of British Columbia, and by David Wood of the Federal Energy Office. Analyzing unpublished data for the postwar years, the two found that capital and energy are indeed highly complementary—that is, greater demand for one is invariably accompanied by a greater demand for the other. If the price of energy rises, energy consumption decreases and demand for capital goods falls. Berndt and Wood calculated that, from 1947 to 1971, every 1 percent increase in the price of energy reduced the demand for capital goods by .14 percent to .16 percent.

If the same relationship prevails in the future, a doubling of energy prices would cut off about 15 percent of all capital-goods demand. The key question is whether the same relationship would

continued page 196



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High-priced Oil

continued from page 111

protein to the consumer than it does to deliver a pound of cheese protein.

Higher energy costs, therefore, will have an across-the-board impact on the structure of demand. In turn, changes in the structure of demand, even marginal ones, will greatly influence the total demand for labor and capital goods for the rest of the decade.

A replacement for labor

Logically, energy and labor are substitutes for one another. As every beginning-science student is taught, energy is simply the capacity to do work. The more complex an industrial society becomes, the more it learns how to organize electrical, mechanical, thermal, or nuclear means of doing the work that men once did with their hands. Those industries that have been most successful in harnessing energy to the productive process require the least labor. The five most energy-intensive industries account for about two-thirds of all the energy consumed by manufacturers—but provide only about a quarter of all manufacturing jobs.

The inverse relationship between energy and labor can be confirmed by an analysis of an input-output table, which measures the volume of intermediate goods and services needed for a given amount of production. The latest table made available by the Department of Commerce contains sales data expressed in 1963 prices. Bruce Hannon, a professor of engineering at the University of Illinois, has refined these data in order to isolate the total energy and labor cost of specific products.

According to his findings, an extra \$100,000 worth of aluminum could be produced with about 38 billion more BTU's and five more people. By contrast, an extra \$100,000 worth of tobacco requires only five billion more BTU's but creates thirty-two new jobs. In other words, a shift of \$100,000 of final demand from aluminum to tobacco should reduce our energy consumption by 33 billion BTU's, while creating twenty-seven new jobs.

Thus higher energy prices would, in principle, favor tobacco consumption over aluminum consumption. It is admittedly not easy to think of situations in which the two are competitors. Yet consumers will ultimately find the trade-offs between them. For example, if the price of aluminum products increases because of a rise in the cost of energy needed to make them, consumers might spend less money to relax with soft drinks out of aluminum cans and more to relax with tobacco.

To forestall this process, soft-drink manufacturers might abandon aluminum in favor of steel cans. Steel is energy-intensive, but less so than aluminum. A shift from \$100,000 of aluminum to \$100,000 of steel reduces overall energy consumption by about 11 billion BTU's and creates two new jobs.

Costlier energy will not merely change the composition of the demand for goods, it will also accelerate the shift from goods to services. Nearly all services consume more modest amounts of energy than do goods. As a result, the price of most services will be falling in relation to the price of most goods. Demand for, say, entertainment services can be expected to benefit in any broad consumer shift from high-priced goods to lower-priced services.

Changes in public policy will presumably accommodate a shift toward industries and activities that require less energy and more labor. As the demand for motor-vehicle travel weakens because of rising gasoline prices, there will be increasing pressures to divert Highway

Trust Fund revenues to mass-transit facilities. Hannon has studied the impact of rechanneling an estimated \$5 billion in trust-fund revenues in 1975. He calculates that shifting all \$5 billion in the fund from highways to railroad construction would be immensely energy-saving and moderately job-creating.

Highway construction is one of our largest consumers of energy: asphalt is itself a petroleum product and cement manufacturing is highly energy-intensive. Thus, a \$5-billion highway-building program uses 220 trillion BTU's, whereas a \$5-billion railroad-building program would demand only 80 trillion BTU's. It would take 256,000 people, directly and indirectly, to build the highways, compared to 264,000 people for the railroads—a net gain of 8,000 jobs.

An investment in health

Suppose that, as part of a massive reordering of priorities, Congress decided to invest highway funds in national health programs rather than in mass transit. The energy savings would decrease in that case—but there would be even more new jobs. Medical services consume a fair amount of energy, e.g., in the form of electricity for lighting and for running small machines and air conditioners. But health care is also one of the most labor-intensive industries around. A \$5-billion health program would provide 423,000 jobs: 167,000 more than the highways and 159,000 more than the railroads.

Congress might become even more
continued page 192

A Farewell to Cheap Energy

Michael Elliott-Jones (left) and Michael Evans have become a major source of data on effects of higher energy prices (see charts on pages 107 and 108). Evans is president, Elliott-Jones director of industrial economics, of Chase Econometrics, Inc. Their data are based on a model of the economy prepared by Clopper Almon Jr., of the University of Maryland. Evans describes himself as a "lukewarm optimist." He says: "While I do not believe that long-term growth will be stunted by lack of energy, we have seen the last of cheap energy."



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High-priced Oil *continued*

indeed prevail. Can the events of a period of stable or falling energy prices tell us very much about a period in which prices are rising rapidly?

There is no doubt that all the past relationships favored efforts to substitute energy for labor. From 1947 to 1971 the proportion of total manufacturing costs spent on energy was relatively stable, averaging around 5 percent. Thus it did not pay companies to allocate very much capital for the purpose of saving energy. Instead, it made sense to use capital, in conjunction with cheap energy, to economize on labor, whose share of total manufacturing costs was rising, from about 25 percent in 1947 to about 29 percent in 1971. *I wonder.*

Now that relative prices are changing, managerial attitudes may also change. Capital and energy will become less complementary and more interchangeable.

Here again there will be a critical difference between the long run and the short run. In the short run, the demand for capital goods will probably increase despite—indeed, because of—higher energy prices. Energy producers will be buying more drilling and mining equipment. And industry in general will be buying a great deal of energy-saving capital equipment. Heat exchangers, temperature-control equipment, and more efficient kilns and furnaces will be very much in demand.

But, if energy prices continue rising, demand for the products of the energy-intensive industries will eventually weaken. This means that output will tend to increase at a slower rate in those areas of the economy that have traditionally bought the most capital goods. The increased demand for energy-saving equipment will only soften the blow.

The threat to efficiency

In the final analysis, rising energy prices will tend to lower the rate of productivity gain in the entire economy. This process will come about in two ways. First, changes in the structure of final demand will reduce the growth rate of the energy-intensive industries, which are the most capital-intensive and,

typically, the most efficient. In addition, these industries will increasingly be forced to curb their demand for *productive* capital goods (those that boost output) and increase their demand for essentially *nonproductive* capital goods (those that save energy).

By the same token, final demand will shift to those goods-producing industries that use a higher proportion of labor per unit of output. These industries are generally among the less efficient in the economy. Demand will also shift from goods to services, where productivity has been lower than in most goods-producing industries.

Waiting for a breakthrough

It is always possible, of course, that some major technological breakthroughs will neutralize the adverse impact of those rising energy prices on productivity. But unless they do, the economy will become somewhat less productive than it otherwise would have become, which means that U.S. living standards will rise less rapidly.

Since this scenario is not very appealing, a major effort will unquestionably be made over the course of the next five years to stabilize, or even reduce, the price of energy. Energy prices can be stabilized either by reducing demand or increasing supplies. There is a sizable potential for cutting down on energy use without greatly affecting output. The potential for increasing supplies is equally promising.

The U.S. has vast reserves of coal, abundant oil—both under land and offshore—and perhaps a sixty-year supply of natural gas at the present rate of consumption. The problem is not the dearth of energy resources, but the speed with which they can be produced and marketed. The conventional wisdom says that it will take many years to market enough energy to stabilize prices. But the wisdom *became* conventional when oil cost \$2 a barrel. In today's environment, that sort of wisdom may not count for very much.

END

The next article in this series, in April, will deal at length with the prospects for expanding energy supplies.

Outline

Intro. We appear to face black problems.

Surplus labor; scarce land & mtrls.

also scarce capt. (hi i; hsg. shortage)

Call on science to aid, but seems misdirected —

displaces labor; but not so good at Ag mtrls., or capt. Science keeps calling for more raw mtrls; and increasing our "need" for land, as by A TVs, earth-moving juggernauts, etc.

Fall back on easy explanations, but they leave holes.

— Δ pop. But it's Δ per cap.

— ~~overpopulation~~ cybernation fatalism. — yet we must shorten

— shortage of farm land — but farmers restrict output, &

~~con us into thinking they're collecting welfare~~ complain they can't sell what they produce.

Biggest hole in the easy explanations is that they are fatalistic &/or misanthropic.

Lead to no policy; or misanthropic ones; or retrogressive with demand, as some of our young take seriously.

Still Even astrology. "The fault, dear Brutus --- in ourselves." And the wonderful thing about finding fault in ~~ourselves~~ ^{ourselves} is, it's the one thing ~~for~~ we can do something about.

I. Problems spring from obsolete instincts ^{biol.} that put premium on ~~using~~ ^{using} more capt. & more land & less labor. This also effects growth ^{biases growth outwards, & to slow, sluggish capt.}

II. ~~We~~ We need to remove bias. Then free mkt. forces will soak up unemployed, use less land, raw mtrls, & capt. Growth w/o tears.

III. Some priorities in bias removal. New kinds of internal, intensive growth.

IV. Provincial role & national role. (Positive side to provincial growth)

~~1~~
2

I. The Problems derive from, result from instl. biases that put premium on using more land, more capt., & less labor.

"Instnl." refers to laws - tax law, prop'ty. law,
orgns. under the law - corpor. ^{incorp.} ~~action~~; unions; govt. agencies.
agreements or interactions among orgns - instl. structure
Regulation - utilities

check facts v. Hellmirell, re taxes.

A a tax e.g. {Using prop'ty. as tax shelter, not only distrib. gains wrong, but
also favours use of prop'ty. instead of labor.

~~Bad e.g. in
B.C. no little
prop't. timber~~

~~A~~ (B) 1. Timber, ^{2. wine} ^{part.} Labor cost of planting must be capt., so you
don't get write off for 80 yrs.

But int. & taxes are deductible as you go.

As to return on equity capt., implicitly expensed, all the
way. Automatically plowed back. So it is treated equally as well as cash int.

(B) 2. Agric. By end of life, value of tree is 99% int. & lost.

Livestock, be specific - Expense cost of apprec'g capt - not other. I.e. the longer you
wait for payback, the earlier you can write off (bes. other capt. begin payback immediately, it doesn't

3. Corp. gain - exempt, or lower rate.
wait so long for payback, on ave.)

Range cattle. Govt. range, underpriced, cheap grazing fees. They are
deductible anyway, expensable, when the resulting income is not taxable until sale. Then, breeding
herds get cap. gains? Calves sold to feeders, how treated?

- Cap. gains. Permanent improvements to land,
write off as current expense; later sell, reap cap. gain, until
recently not taxed at all in Canada; today taxed at lower
rate, & much later.

Range cattle, very land-using. Yet here in B.C. it is the
more labor-using alt., bes. Timber is so very very land & cap. using.

B

3. Imputed inc. of o-occ. homes, no inc. tax.

In high brackets, becomes ~~exp~~ important.

Home, services are cap. using. Esp. houses of rich, built not just to keep roof over head until things get better but as family seats, dynastic base, & even to apprec. for a while.

That which is tax exempt is the part of s.f. above cap. recovery. (If 100% mortgage forced, the part of payment rep. int., not repayment of loan.)

The longer a loan, the more of payment is interest.

The "heavier" the house, the s.f.

(Insert p. 3A, top.)

Over 80-100 yrs, most of s.f. is int. & rent.

Numbers.

[cf. poor ~~man~~ family in trailer, or old house w. high maint., frequent remodeling, etc. Cap. of short life.

In brief, the poor are sheltered by labor; the rich by capl. I

But then there is land. Service of undev. land, all free of inc. tax. So is cap. gain

also of res. land - helps explain boom. If a "farm", take tax losses.

This encourages people to use more land for direct cons. Larger lots, e.g. Urban sprawl, esp. in conjunction w. spec.

Then, you say, but sprawl requires ~~more~~ ^{longer} streets, lines for street services, ~~lines~~ and that employs labor

True, but it soaks up more than the ave. duty of capl. per job, & that is the point.

How do we borrow something if cap. using?

- bus produ. is ^{more} sensitive to ^{than to other costs.} i As housing is. Bus is everything.
- bus. lasts a long time.
- bus. most of its cost over time is interest
- bus. only a small part of supply is replaced each yr.
- bus. labor is employed in bulges
- bus. installment ~~debt~~ to retire ^{debt} ~~it~~ is not much greater than int. on principal. Give nos.
- ~~then~~ after gets subsidized ~~frug~~
- early payback is small - have to wait many years for benefit. Slow results

"Now let's run thru the rationale:"

Smith said "circ. capt. puts labor in motion".

Today, we say Investment employs labor. Φ Empl. depends on vol. of inv.

But most inv. by far, nearly all inv. is re inv. $I + s$
volume depends on sales.

Sales depend on having something salable. This requires that the last round of invs. produced things that ripen for sale quickly, that return capt. quickly. (Active vs. sluggish capt.)

Orthodox FMP presupposes that sales depend on consumer demand. If they lag, you pump in money, by recycling or creating.

But that ~~only~~ drives up prices, as we're finding. ($I + s$ may draw inv. into active capt.; then help out, but that is dubious, & inadequate.)

"Streets & lines" are heavy on capl., they have all the telltale ~~are~~ indicators (signs) listed on 3A

- require frgs (& get subsidies,
- ~~tax~~ local bonds exempt from Fed inc. tax
- gen. oblig. bonds underwritten by rest of city, bonds paid off by deductible taxes
- last a long time. ~~slow~~
- have to wait many yrs for benefits. More so than for housing

Slow results

- most cost is interest
- only small part of supply is replaced yearly
- labor employed in bulges

So by exempting this inc. we are diverting capl. to slow results.

4

Geog. Sem., Feb. 11, 1974

FESP

Intro.

a. New Dismal Science

b. Fear growth - local, national, world.

- actually, pop. growth is small next to Δ per cap. demands.

- A
- ✓ 1. electricity, 1950-70, 500% Δ , but only 35% Δ pop.
 - 2. indy. substs. cap. & energy for labor. Kendrick, 1899-1953, ydy. 1.3% Δ in cap./labor. Twice as much in 54 yrs.
Dep. Comm. 1948-71. much faster rate of substs. 2.5x as much in 23 yrs.
 - ✓ 3. aTVs etc. Recm. thus requires more land.
 - ✓ 4. Housing doubling. Nonsense about forcing all into apts. Trend has been other way.
 - ✓ 5. Lower urban density.

I. Incl. bias

Problem is incl. bias, forcing substitu. of capt. & res. for labor.

B

A. Forced, ^{or induced} use of capt. — some exs.

1. ~~a-f effect~~ Utility reg. & tax.

— (a) a-f effect.

Freeman of Tennessee says, you've got to keep expending or you'll depreciate yourself right out of business.

Lifetime costs a lot: \$5b. for Mackinac V. They also force exph.

— ~~2~~ (b) This dovetails w. tax pref. Early opig. losses are expensible. (And so is gas exph.)

— ~~3~~ (c) also dovetails w. rule of capture. Expanding pipeline grabs territory. Imperialism. They build too large, excess capex. to bolster future claims. (80 yr. life: 25 yr. contracts for gas) (Utah & Southern, 36" pipe)

— ~~4~~ (d) also dovetails w. tax subsidies to exph.

Note this forced use of capt. also uses too much land & energy, too soon.

~~1~~ I. Income tax treatment of property inc.

B

(a) Fast deprec.

Whenever you write off something faster than it really deprec., you lower effective tax rate.

This is common, so tax rate on prop. inc. is lower than on labor. This encourages bus. to add value using capt. — owned or borrowed — in pref. to labor — self or hired.

2-yr. write-off proposed last summer.
Mineral explor. gets 133%

(b.) Pref. to slower capl.

i. If cap. is produced & consumed in one yr., income
~~tax~~ & cost are reported simul., no gain.

~~Indeed, there is a loss, bcs. investor actually~~
He might gain at yr.-ends, but IRS, which
is so careless about some things, taxes him for inventory.

ii. If cap. is sold years after produced, then tax
write off shd. wait until income.

But in practise, write off sooner.

And the write-off is not keyed to actual
life. The slower the capl. is to be recovered, to amortize,
the greater the gain.

E.g., that if something lasts only 2 yrs.
anyway (I pay out) there is no preference in being allowed
to deprec. it in 2 yrs.

But if it lasts 10 yrs., there
is big gain.

iii. Even ~~full~~ write off perfectly synch'd w.
realiza. & tax. gives pref.



iv. If you wait very long & passively, get cap. gains, lower rate.

This often entails holding land & getting govt. to improve it. P.W.

P.W. are cap.-wings; & subsidized by low int. Exempt from property tax.

3. Use cheap credit as subsidy.

Favors use of cap.

Who ever heard of subsidizing by ~~use of~~ having govt. pay part of wages? Such programs are rare.

E.g. of U.Vic. stadium. Fave over 40 yrs.,
ca. ~~\$2,000~~ a day, if \$5m, 8%. Almost all int.
1,000

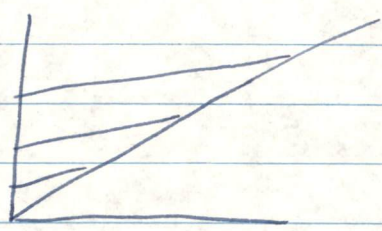
But they yell about \$20 ~~to~~ for ~~the~~ mgmt.
We are so aware of labor cost; so dense about int.

Or SFU. Bricks & mortar bias.

4. Internal financing.

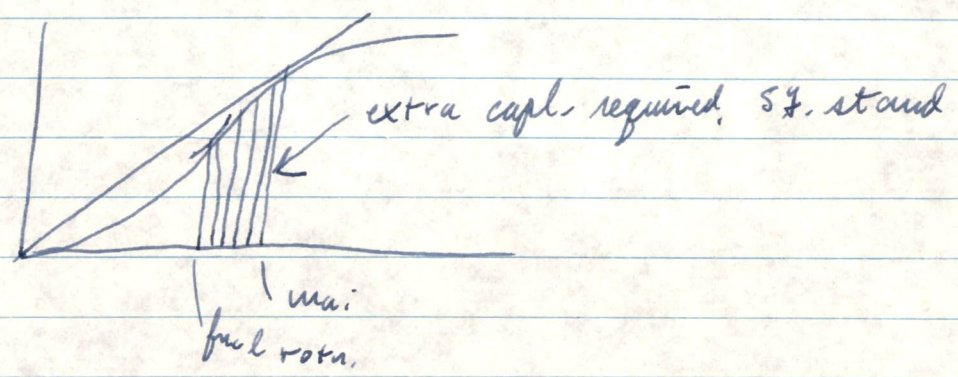
5. No imputed int. on crown lands.

Forests.



Lower i , makes longer trees look better.

Zero i makes ^{zero growth} ~~tree~~ look best. They get around this by maxing return to site, as who capl. free. Max, m.a.i.



B. Induced use of land. Some e.g.

1. Fear taxes on holding land. Most on using land.
So subseq. land for labor.

2. Zoning. Forced cons.

3. Mktg. bds., cartels.

Quotas given & land you hold (I have improved,
a capt.-bias too)

So you buy extra land, to I quota.

4. Subsidies to urban sprawl.

Decentralist bias, munic. services, & utilities.

5. Energy use. Block rate structures. Kitemat, etc.

6. Explan.

a. Tax write off

b. Free entry, w. rule of capture

c. Deplen. allowance

d. U.S. fm. tax credit

e. No tax on unrealized apprais. Deferred is denied.

f. Few prop. taxes

g. Low xptr. rates, vs. high rates on recycled intels.

Primary products subsidized. Remote places subsidized

h. Leverage of priv. over public inv.

C. Taxes on labor

1. Payroll taxes

2. Inc. taxes

If borne by worker, reduce incentive to work

If employer. hire.

Either way, reduce empl. Drive a wedge.

✓ Fate of England. Long famous for high tax rates
on labor, low on prop., 21% on cap. gains.

II. Solutions.

Remove bias. Then what opens up.

A. Hi farm yields.

Aquaculture, feed conv. ratio of $1\frac{1}{2} : 1$. Pays when
labor is cheap.

Berries, vegs. Lynn paper p. 11.

Tomatoes 100% grazing.

8

B. Smaller firms, more local ownership.

1. Udell on Wis.

2. Fortune data, p. 17 of Lynn paper

3. U.S. Farms, p. 15

C. Resources

2 day processing at home.

Use less? Maybe in long run, but in s.r. wd. cut a lot faster.

In mills, use labor to save on energy

D. Macro.

Δ gross inv. by speeding return & recycling of capl.

cent of total imports by developed nations from less developed areas), it has grown rapidly in recent years. In fact, if trade continues to expand at the present rate, imports from the developing nations are expected to reach \$10 billion by 1975.

The research suggests that trade policies permitting greater accessibility to the markets of developed nations are a prerequisite for growth in trade from the less developed nations.

Employee Compensation under the Income Tax

by C. HARRY KAHN

240 pages (approx.), Publication date: March, 1968

Wages and salaries, this study shows, have become the dominant form of income subject to the Federal income tax. In 1939, salaries and wages accounted for 66 per cent of total taxable income; by 1963, the figure had risen to 81 per cent.

Kahn points out that this increase stems from two factors: the rise in the share of wages in total income (from 71 to 75 per cent over the period) and, more importantly, the rise in the proportion of total wage and salary earnings that is reported on income tax returns (from 36 per cent in 1939 to 97 per cent in 1963). Moreover, contrary to the popular view that compulsory withholding of income tax is responsible for the marked rise in reporting of wages and salaries, Kahn's work suggests that most of the change occurred in the early years of World War II—before the introduction of withholding in 1943.

The book also examines special problems in the taxation of wages and salaries, such as taxes on the income of working wives, earned versus unearned income, excludable sick pay, and deferred compensation.

Executive Compensation in Large Industrial Corporations

by WILBUR G. LEWELLEN

480 pages (approx.), Publication date: Spring, 1968

This investigation covering the period 1940-63 provides a historical view of the shift in executive pay structure that has occurred in response to changes in our tax laws. It confirms the impression that salaries and bonuses subject to heavy taxation no longer comprise the major share of the corporate executive's total compensation.

However, despite this trend away from highly taxed forms of remuneration, Lewellen finds that overall compensation for corporate executives has barely kept up with changes in the price level since 1940. In fact, the economic position of the top echelon executives was found to be nearly the same in 1963 as in 1940.

By examining the pay package components of the five highest paid executives in 50 large manufacturing firms, Lewellen finds that items subject to

lower tax rates than salary and bonus payments have become increasingly important as a means of remuneration. Stock options, for example, have come to comprise one third of the total compensation. The use of deferred payments, profit sharing benefits, and pension values has also increased in proportion to the decreased reliance on direct cash payments.

Another disclosure is that the tax advantages of supplementary payments have been used to maintain the relative pay structure among the five highest paid executives studied in each firm. Through an increasing reliance on less heavily taxed supplements to salary and bonus at successively higher positions, gains in direct cash payments to lower-paid executives have been offset. On the whole the total compensation relationship has thereby been kept constant.

The Lewellen report is part of a larger National Bureau project concerned with the influence of federal tax policies on economic growth. In a preface to the work, Daniel M. Holland of MIT describes it as providing one of "the links in a chain that runs from taxation on one end to economic growth at the other via an effect on personal effort."

FORTHCOMING CONFERENCES

Plans for four conferences to be held under Bureau auspices in 1968 and early 1969 are well advanced. One will deal with education and income, another with public products, the third with technology and international trade, and the fourth with econometric models of cyclical behavior.

The Universities-National Bureau Conference on Technology and Competition in International Trade will be held at the Carnegie International Center in New York on October 11-12, 1968. The conference program is under the direction of Raymond Vernon of Harvard University. Five sessions are planned, beginning with a study of the technological factors in international trade. Several case studies in technological transfer will be presented. In addition, the conference will deal with the technological factor in trade and development, in the United Kingdom's international position, and in the theory of international trade.

The proposed program for the Conference on Education and Income, scheduled for November 15-16, 1968, consists of such topics as education and production functions, education and the distribution of income, determinants of growth in demand for education, and human capital in international economics. The program committee is headed by W. Lee Hansen of the University of Wisconsin.

A Conference on Production and Distribution of Public Products is scheduled for April 26-27, 1968 in Princeton, New Jersey. Chairman Julius Margolis of Stanford University and members of the planning committee have devised a program covering measurement and valuation of outputs, distribution of public outputs, the role of various government levels, and cost estimation.

Agenda

0. Morals re policy.

1. Show that it is a bias in income tax to expense interest & prop. tax (& rent, if you paid rent on ground) but capitalize payroll.

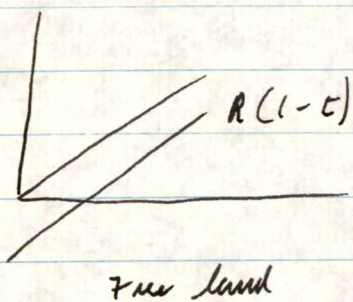
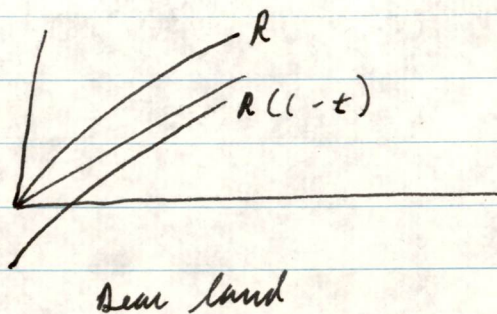
a. Payroll, rent, & interest all ^{alike} add value to tree, from date ~~of~~ incurred.

b. S never becomes part of receipts, is not embodied in product, is not taxed. So there is no reason to deduct land purchase, as Stubby wanted.

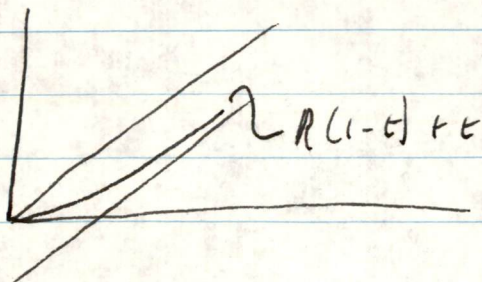
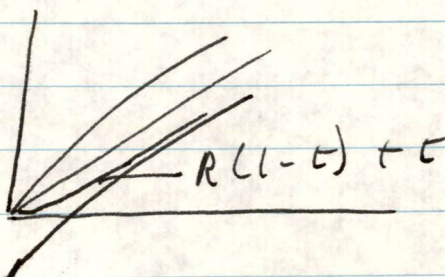
2. New formula for effect of prop. tax on LV, from new long notes.

3. TISTOC when land is an input, showing effect on τ .

Exercise:



Inc.



Reconciling Full Empl. & Env. Quality

Intro

Take as my theme --

Cowman & the Farmer Should be Friends.

Conservationist & Economist " "

Same as Cain & Abel should be brotherly?

Conservationists are increasingly aware, econs are on their side.
Forests now joined, effluent charge.

Fisheries? See overfishing, econs. think 'some damage
est. sent those boats out. But no ---

- remove 90% boats

- impose tenure

- max. sent by using less.

Water boardzoggles? ^{Hydro-imperialism?} Econ. all against. E.g. petition vs.

Cal. wtr. plan. (Competes w. Univ. for state funds. Reason
offer to trade Univ. for more water.)

Pumping wtr to W. T.S.

Scholarly books, studies

SST? Conservationists thought econs. all for it bcs. wanted to

create jobs. But econs. all vs. it. Day is past when anything
was better than nothing.

Spillovers? Ecos. are all for acknowledging them.

Ecos. a dismal science? **Carlisle vs. Senior vs. Ireland, 2PG & Neg. PG.**

Ecos. & conserva. shd. joke. Each opposes waste.

If there is a conflict, is w. ^{one.} macro ec. ~~ec.~~ Here, there was once an avowed "waste" school, ~~to a~~ -- anything to ~~ec.~~ employ men. And still are implicit waste schools.

- Iron Mt. school. War neeq. to full employment.

- Human Capital school. Man not usable in his natural form. Requires 30 yrs. of training first.

- Idolaters of GNP.

- Rogue R. study by Fishovsky. At Colo. St., still doing same thing.

This conflict, unless resolved, will get worse. Bos.

unemployment is persistently high, shows no signs of resolution.

Crime rate; idle housewives; ^{welfare costs;} long apprenticeship; early

I-1 { retirement; shorter hours; armed forces; weapons producers; etc.

Only a matter of time until a new Alvin Hansen arises, of whom it was said he silenced every critic w. two words "Full Employment".

Now, are short on capt.

✓ Newest twist, brought down i, but suddenly a balance of payments crisis - they'll go back up.

Are short on resources. Pressure on environment.

And long on labor.

This is predictable result of set of policies that have defined "efficiency" as min. labor per output; & encouraged

I-1 | max. cap. & resources per output. Require in ~~exp~~ complement of land & cap. per man, and require full empl., naturally use a lot of resources.

Obvious solution is reverse. Alter factor propns. to produce w. higher labor share, lower resource share, & lower capl. share.

To ~~7~~ 11.5-1 & 5-2, then p.8

II. How to change factor propns.

If labor share is accomplished by reducing life of capital.

C { Why not just by replacing machines by men? Bcs. machines are produced by men. The contribution of capl. is excess over labor cost --- & this excess is fun. of duration of life.

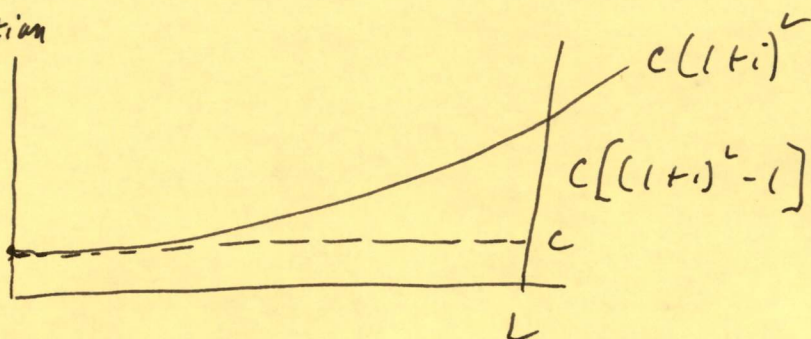
Why not just add more men to existing ops? Sharply dim. returns --- & calls for lower wages to implement. Some of this is in order, but it is smaller factor.

The elementary capital theory of staggering (See App. III, A)

To show:

1. Share of labor falls w. Life.
2. Shares in normalized staggered going concern are same as in single cycle.

1. By inspection



2. If stagger.

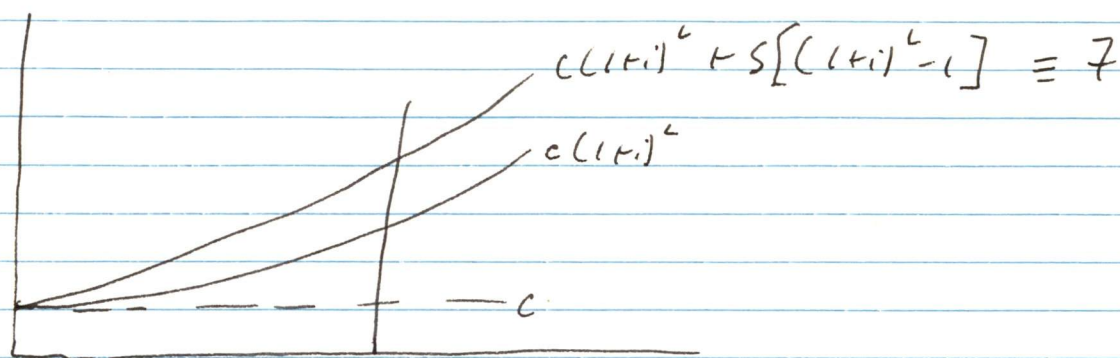
$$K = \sum_{n=0}^L [C(1+i)^n] = C \frac{1-i^{L+1}}{1-i} = C \frac{1-(1+i)^{L+1}}{1-1-i} = C \frac{(1+i)^{L+1} - 1}{i}$$

$$Ki = C[(1+i)^{L+1} - 1]$$

$$\text{Wage Bill} = C$$

Now cite App. I, staggering where land is included.

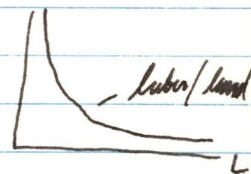
App. I shows staggered shares are again same as single cycle.



Single Cycle, labor to land ratio falls w. life.

Staggered model, same. Cite App. ~~III~~ I.

$$\frac{\text{Labor}}{\text{Land}} = \frac{c/7}{\frac{L \cdot S \cdot i}{7}} = \frac{c}{L \cdot S \cdot i} \quad \text{a hyperbolic drop}$$



Results of App. I.

- payroll per acre drops w. life
- payroll as share of product drops
- cap. gets focused on one site. [This might seem good for env., but I doubt generality of it.]

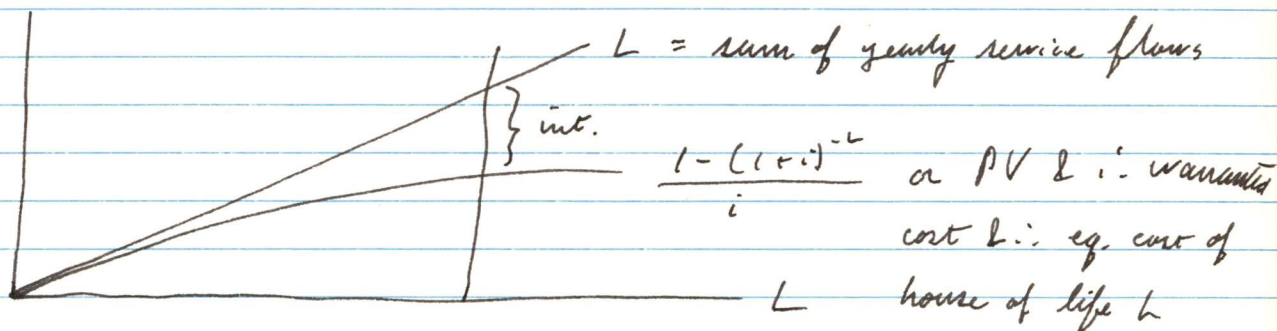
C

- 6 -

Housing Model (App. III, B)

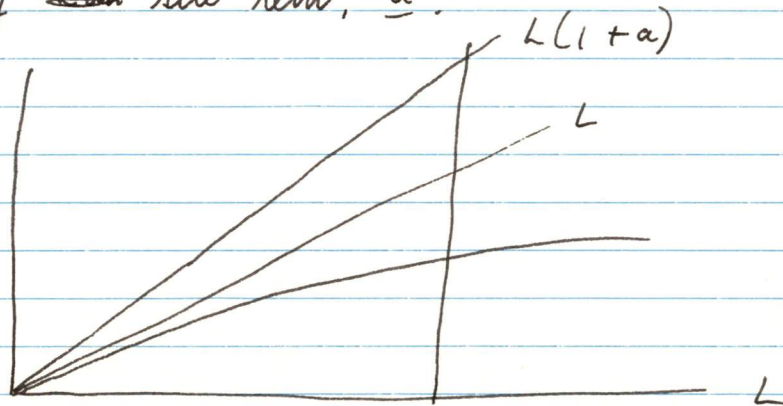
Widely believed con+ generalize from trees. Special case, eccentric Austrians.
But same principles hold. PIPD is math. bldg. block.
Single house.

Lasts L years. Yields service flow of \$1 per year.



App. III, B, shows same is true for staggered group of houses.

adding ~~the~~ site rent, a .



Here, share of land rent rises. No pile-up of capl.

B

- 7 -

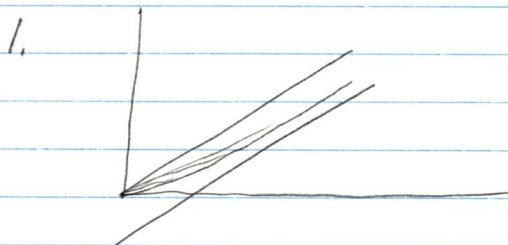
III. Instns. that bias for long life & resource use.

Broken-window fallacy. Planned obsolescence.

I'm not for them. I'm proposing constructive alternatives.

Not a war between micro & macro. Biases vs. labor are bad for both macro & micro reasons.

A. Tax^{Treatment} of timber



$$e^{r^L} = e^{i^L}(1 - \tau) + \tau$$

a case of Haig-Simons.

2. Some other biases

- a. Timber ^{partly} exempt from prop. tax. Shorter cap. not.
 a.c. Timber asset raised only after will put in place.
 b. Timber ~~land~~ sites used or use, not a.c. if higher.

c. Field & sev. taxes.

d. Inc. tax

i. Labor cap.; int. & prop. taxes expensed, -- & from ordy. inc.

ii. Cap. gains denied to shorter cycles. Cricket & Stallion.

iii. Vert. int. firms transfer profit to forestry by letting age.

e. Vertical intra. encouraged, to use forest as shelter for profits of
mills; etc.

Unpooling reserves magnifies aggreg. reserve requirements.

M.

p. 5-1

B. Tax Treatment of Land.

Reduces holding cost. Encourages subten. of land for
labor & capt. ^{shock wave effect} Every one overexpends onto next down — hence an env. &
wilderness.

1. Prop. assmt.

Land underassd. (Most assrs. use cost basis, let land go.)
George Aull.

Rising land cost. on use rather than value.

Consider motive of resource imperialists in
acquiring rising land. E.g. Kuntilla yesterday re
wilderness areas — take more than ec. use justifies, capture
now rather than buy in future. That means
are acquiring now for appren. Appren. is income.

Simple model expresses

$$V = \frac{a}{1+i} + a \frac{1+g}{(1+i)^2} + \dots + a \left(\frac{1+g}{1+i} \right)^{\infty} = \frac{a}{1+i} \frac{1}{1 - \frac{1+g}{1+i}} = \frac{a}{i-g}$$

$$V_i = a + Vg$$

Thus V is same as the accrued value current inc.

Regardless of assmt, tax on bldgs. motivates ("incent")
substn. of land for capt., causes sprawl: urban, rural,
mineral, forest, ~~water supply~~

2. Inc. tax.

See J&C paper, pp. 3-4

3. Excise taxes

They hit capt. for cycling, in course of invt. &
liqu. Land never cycles

Out line 5 points

Talk to N. Am. Society of Corp. Planners, Jan. 31, 1974, Vancouver

I. Pvt. planner meets payroll by scheduling paychecks

Cut cost to fit cloth

Cap / payroll ratio is paycheck pd. max. ~~Must not exhaust cash~~ Must recover some cash before next payroll comes due. Most people are tight in this constraint. & aware of it.

II. ^{Planning} Whole ec., same problem, same limit

III. Market does the planning. - where there is one.

IV. Invt. bias clogs what.

V. How to undo bias & meet next payroll.

Life is what happens while we are making other plans.

I. Pvt. planner must schedule payback, b.c. cap. is scarce.

With given capl., planner must schedule paybacks to meet payroll - or fold.

Cap/payroll ratio is outer limit of payback pd. 12 weeks - if Cap/payroll or $K/P = 100/20$, can go 5 weeks. Then better get back $1/5$ of capl. to meet 6th payroll. (Turnover = $\frac{1}{pd.} = \frac{1}{5/52 \text{ yrs.}} = \frac{52}{5} = 10^+$)

To meet payroll, one option is reduce payroll. But that limits volume, often undesirable. To maintain volume, w/o more capl., there is no choice: must maintain turnover. Stay out of slow moving invts.

Turn 100 weekly, vol. = \$5200
" " yrlly 100 [+ i: 100]

" every 100 yrs, vol. = \$1.

Cap. is a revolving fund. The faster it revolves, the less you need. The less you need, the less you have to ~~pay~~ sink, & the less interest carry's charge.

- hamburger stand, daily. \$36,500 on 100
- book business, 1 happens to be in. Produce one a year, sell ca. 20% yrlly, so cap. required for invy. is 5 yrs. production.
- at slow extreme, B.R. revolving fund, from 1902.

Shd. have ~~comp~~ just ~~begin~~ built 7th project -- but has yet to complete the 1st revolution. So each new project has required new capl. (taken from other uses. One pampered agency can do this - the whole ex. canit.)

At 10% int., when cap. = 10 yrs. produ., int. cost = all other costs. (Actually sooner, b.c. of compounding.) So slow payout means cap. is a large share of

all inputs, displayed by its getting large share of the product.

Don't do it unless you have capl., or can get it cheap - otherwise it swallows all.

Most planners are caught tight in constraint of limited capl.
Good thing, too, or we'd run out tomorrow. As they move upward
they dream of getting away from this limit. Plans grow grandiose,
integrated, comprehensive, masterly. "Make no little plans" - b.s.

They forget obsolescence; need for staying; need for comply. capl.,
& high cost. Sometimes get away w. it, but often fall
flat, have to bail out, - if they can. The bigger they are, the
harder - & if all bail at once, fail.

But many do get away w. it.

- mgrs. of big corps
- mgrs. of govt. agencies

Fine for them --- but not so fine for whole ec.

II. Planning the whole ec.

Capl. of whole ec. is a large revolving fund.

In one way has less flex. than individ. — if run out of capl. can't sell out, can't get more capl.

In other ways has more flex. — can trump up fictitious capl. by govt. borrowing. Can dilute payroll by raising prices.

Can that which is prudent in affairs of ~~the~~ individ. be folly in conduct of a nation?

Nation meets payroll by ~~delivering ripe goods to consumers~~, doing 2 things at once: — paying incomes in cash.

— delivering ripe goods to consume, so inc. is real.

These go together. Replacing ripe goods is what generates incomes. Most invt. is replacement, or in antic. of replant.

Thus income ^{flow} payment synchronized w. flow of goods, & ec. works.

~~For you, answer to A. Smith's question~~

But now we're in trouble. Why? Macro planners have forgotten 2d half of how nation meets payroll — deliver ripe goods. They've gotten hands on tools for Ag flow of cash, & assumed flow of goods wd. take care of itself. (First, just recycled money by govt. borrowing; now, LM too.) But spending is the easy half.

There is now a chronic shortfall of real replant, & saving to fund invt. enough to employ all. Bcs. nation's capl. turns too slow,

4

and volume = $K \times T$.

Rather than accel. real turnover, will leaving that
the same, or slower, and ~~solving~~ meeting problem by
recycling M faster — & ΔM .

Result: unempl. & infln.

III. How mkt. solves problem.

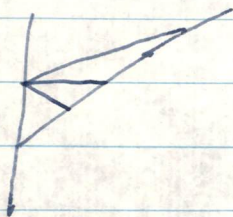
Ex. has thermostat. Self-regulating.

Yes, Va., there is an inv. bond.

Cycles are of very different length.

From one day
To 100 yrs.

New inv. is drawn powerfully into shorter cycles by small changes in relative costs.



If 1 yr. cycle, 95% labor, 5% drop in w.r. doubles return to capt.
If 100 yr. cycle, 99% int., 5% drop in w.r. has no effect on ret. to capt.

I can show math, but shd. be intuitive. Esp. the other way, if w.r. rises, 1 yr. cycle yields no int., but 100 yr. cycle, where 1 grows to 1024, no diff.

Thus unempl. pulls capt. into shorter cycles, or goods where you require less cap/payroll ratio, & soaks up unempl.

2 ways of perceiving.

Micro: subs. labor for cap.

Macro: increases replacement demand

IV. What's wrong? Instl. bias clogs the market.

Some exs.

A. Tax structure

Blue collar job never called a tax shelter. Payroll tax, loss of welfare, union dues, insurance, --- levies prop. to payroll, on worker or employer.

Re capt., bias to longevity. Taxes deferred to retirement.
Converting ordy. inc. to cap. gains. Bldg. up agric. capt.
& expensing it, - but deferring taxes.

B. ~~Using~~ cheap credit as a subsidy. Biases to use capt.

a. Forced cons; zoning, Bldg. codes, subdivision control

b. Regulatory bias, A-f effects.

Subsidizing premature extensions

- area-wide pricing

- rule of capture

- expense losses of early capture

c. ~~For~~ Corp. plantbacks, to convert ordy. inc. to gains
& for input, aggrandizement.

d. Use cheap credit as subsidy.

e. Infln.

C. Capt. in hands of public agencies, sheltered from interest costs

Hydro
Forest

IV. What to do?

Give up idea of F.M. as penance.
Remove biases.

Planning to meet next payroll.

Notes prelim. to talk of Jan. 31, 1974

Cap. is revolving fund. Recover, recycle.

Pvt. business, rule is:

$\frac{\text{Cap.}}{\text{Payroll}} = \text{No. of payroll pds. you can wait to recover cap.}$

Remember to get more, too, for interest, rent, utilities.
For long invts., int. & rent > payroll.

So, if cap. = payroll, you can go for only one pd.

Call it a "week".

Then with \$100, you can pay \$100, must recover in one week —
& do \$5200 volume!

(Ideally, better, too, get week's credit from employees & suppliers. But ~~we~~ assume that away.)

If cap. = 100

Payroll = 50

In 2 weeks you need 50 for 3rd payroll.

On Sat. of 1st week, advance capl.

On Mon. of 2nd week, better begin recovering. To meet 2nd payroll.

If 1st payroll eats up all capl., better get it all back in time for 2d.

Indiv. can liquidate unripe capl, sale or bank.

Economy equt. Zero sum game — sell to ourselves. ~~Only~~

(Macro differs from micro in these 0-sum games)

E. can only lig by delivering ripe goods.

Not by selling green land, trees, cattle, minerals

- 2 -

2

If cap. carries you for a week, then pd. must be a week,
or $1/52$ yr. And turnover is recip, or $52 \times$ a yr. $Vol. = K \times T.$

If pd. is long, intent becomes ~~greater~~ large, & greater than payroll.

So as period lengthens, cap. required per unit payroll rises faster than $\propto$ period.

$$\frac{K}{P} = \frac{1}{52}$$

If turnover is 52, then volume = $52 K$. [$+ K_i$, negligible]

" " " 1 " " = K [$+ K_i$, small]

" " " $1/50$,

Can that which is prudent in ~~pub~~ conduct of pub. affairs be folly in the affairs of the nation?

For yrs., answer has been yes. Nations ~~now~~ meets payroll by gross invt. -- recovery, mainly. If falls short, can make up by recycling M faster -- by ΔG .

But this faith to recycle goods, stuck in long pipelines.

Ratio of cap / labor, highly variable

B.C. has some hi ones. Timber & hydro

"Growth". Can grow w/o using, chewing up more res, & w/o using more capl.

Unit. exp. is cap-using. Roubt, clams; forced decumulation of forest; slow cutting cycles.

Fruit peddler does 5200 vol. on 100 capl.

Veg. grower does 100 vol. on 100 capl.

Forester, ~~does~~ on 100 yr. cycle, does \$1 vol on 100 cap? 190?

No, less, bcs. to make his capl. turn in 100 yrs he keeps adding capl. to it. By end of 100 yrs, his \$100 has grown to -- at 7.2% --- [2, 4, 8, 16, 32, 64, 128, 256, 512, 1024] ~~2048, 4096~~ to \$102,400! Any \$100,000

His volume per year is \$1,000, which sounds large, but is only 1% of his capl. at end of cycle. That overinflates, and overstates his capl. requirement ($K = \frac{e^{ni} - 1}{i}$, etc.)

but the point is the forester gets low volume per unit capl. And a fortiori very low empl. per unit capl.

To meet nat. payroll, nat. capl. must revolve.

Money comes back to be reinvested; & reinv. is matched by ripe goods. Recycling M is only half -- the easy half. Must be matched by cycling of capl.

(Socialism is just a smart word to frighten children
& exercise radio news jockeys.)

FMP, in trouble w. highway juggernaut
& milky - ind. complex. Recycle M (or print it) &
avoid ripe goods. Lengthen pipelines. Overcoming the
problem.

"In modern indy, research --"

In B.C. it's been expln, northward the course of empire, dams,
highways, forests.

That has been our religion. It has gotten us into the
mess today. Following the ec. crisis will come
intellect & religion crisis.

We admin. forests to soak up capl. not release it.
Make it twice as exp - using as needs to be

We have infln. bcs. we engineered it so - bent our
efforts to Δ demand, & deferring supply. Raised 2 generations
on Samuelson.

Fear of "overheating". Demand w/o supply.
No problem when create empl. near end of pipeline, for
quick recovery.

To use less capt:

a. Fill in blanks in infrastr. grids we already have.
Use land intenser.

b. Change interest on capt. hogs. - forests, p.u., large corpors.
w. internal frag; expln, etc.

c. Small business.

Faster replnt. Not same as planned obsolesc.
But replace old plant & eq. by new more often. There's
plenty of obsolesc. w/o planning it.

all plants geared to cheap energy, & polluting env.
all gas-guzzling cars.

d. Remove payroll tax, & all fictitious payroll costs.

Thermometers. Yes, Va., there is an invisible hand.
Higher wages slow down replnt. Ricardo effect.

e. Reform inc. tax - tax accruals.

Key depenn. to real life.

Remove favors to long life, cap-using indivs.

f. Fight a-f effects in utilities.

Premature preemptive invs.

Full empl. on small planet

Environment - stop poll. by means other than capt. req.

Energy - cap. use is energy use. Industry - Buredo. Hiways & cars.
Primary metals.

Zoning etc. - remove cap. requirements for admission.
by paying social dividend.

Sequence:

- a. Generate inc. w/o ripe products, by bldg. pyramids
- b. Cap. not recovered, inv. falls & bursts.
- c. Feds. recycle M to solve. But no ΔT to use the M .
- d. Prices rise.

Water capture.

Subsidy to farm land dev., inc. tax. Gross.

Freezing capt. generates inc. but no ripe goods; (ΔV , but no ΔT)

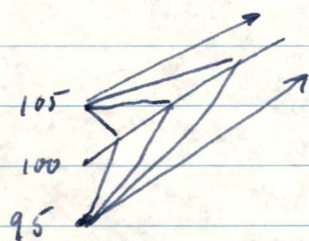
P.W. programs of immed. gratif. deferred supply impact, deferred payout. Unbalanced programs, ~~to~~ where pro. improvement lags p.w. "Double deferred payout" Helped maybe by limiting entry to mkts, as agr. does. Deferring retribution to competitive suppliers, is deferred payout to economy.

Various biases require hi complement of cap/mon.

Then another bias is to full empl, at Fed. level. — by ΔMV etc.
As:

- We get ΔMV , & infln.
- Hi demands for capl.
- (c. We also demand much land & int'l per man.)

→ See Pittsburgh talks, that went best



Can express this orally.

When labor is 95% all costs, wage rate counts
v.v.

Logrolling. Too many starts, too few completions. Need full funding.

Too much cons. Δ net ripe values is ^{current} inc. to indiv, but
not to society -- not current inc. anyway. Indiv. banks it,
living hi off the old Homestead.

S&Ls in crunch of '66. Locked into long assets;
deposition credit withdrawn, as i. rose. (Were bailed out)

Who are depositor of whole system? Owners of capl.
Owners of long capl. can't withdraw it.
Thus can't reinv. at higher int. Reduced flex.

Instrs. force capl. into longer forms. ~~&~~ When can't
meet int. payroll, doesn't mean ec. goes bankrupt —
means demand for labor falls. Capl. falls. Etc.

Cap. is a storehouse, w. deposits & withdrawals.
"Payout pd." is lag betw. deposit & withdrawal.

Capl
 Payroll ratio is no. of weeks that you can go w/o payout.

Payout pd. must not exceed Cap/payroll ratio.
 (and payroll ~~includes~~ is short for all ~~the~~ cash outflows)

"Cash flow crisis" of new bldgs.

On long invts, payout of orig. capl. is much later than simple-minded "break-even pt." that ignores int. E.g. on new bldg., "break-even" in 1 yr., but its mostly int.

Principal comes back at end of life, just as on mortgage ann-u. (That's why they call it "income property.")

Inc. is for consuming. You may choose to save some, but most people don't, so credit counts on it.

Deposits of capl. are discretionary; withdrawals are not.
 Manner of deposit determines rate of withdrawal.

Flow of cash is not what goes back into payroll, but flow of recoveries - cash above income. This becomes the flow of income-creating invt. This is what we must maintain.

Cons. doesn't create inc. That is master fallacy.
 Cons. removes goods from shelves. Replacing the goods creates inc.

Capl. advances subsistence.

Replmt. demand is most demand

Bogey used to be, supply won't create own demand.

Now, bogey is demand won't create own supply. "Overheating"

W. replacement demand, it's the ripening of supply that creates demand, so they are balanced

When payout is ~~some~~ fast, demand creates its own supply. - no over-heating.

Payout pd. is cap. recycling pd. Turnover is recycling freq.

Value of capl. to labor depends on how active it is.

Each time it turns it combines w. labor. "sets labor in motion", Mill said.

Kendrick showed Δ Capl per unit labor; also U.S.D.C.

Problem: surplus labor, scarce capl, land, & res.

Goal: sub. labor for capl. & land & res.

Obstacle: assum. of fixed props.

Soln: mix is sensitive to prices, & instncl. bias.

Davis, p. 10

Some Biases to use capl.

1. Forced cons: zoning, codes
2. P.W. actg.; reg. bias, a-f effects
Postage stamp pricing; imperialism; expensing land-grabbing losses.
3. Drawbacks by corpor.
Aggrav. aggrand.
Inc. tax bias
4. Subsidy by low i
5. Lower inc. tax rates on cap. than labor, esp. by related to long life.
6. Inflation.

If houses last 50 yrs, replace 2% a year.
" " " 100 " " 1% " "

~~Use land intens. Bldg. of given value, & shorter life~~

50 minutes

Vanc. Inst., Feb. 16, 1974

1

Growth, jobs. (~~to~~ scarcity) on a small planet

I speak only as priv. individ.

Intro Thank each of you for giving me yr. time. It's quite a responsibility.

Goal of talk is to survey how to combine limited res. of the earth w. more people, to soak up unempl.

Milton prayed "What in me is dark,

illumine, what is low raise & support

That to the height of this great argument I may assert eternal Providence

And justify --- " Today, rather, hope I may ^{finish by 9:05 approx.} not make a fool of myself

1.

A. New eos. has become new dismal science.

We face black pit of problems, summarized in dilemma of infln. w. unempl.

New eos. taught the gen. now in command that crisis happens. There they stand, steering the ship, bankrupt of ideas.

Ottawa follows Wash. & Wash. follows Pavlovian reflexes learned in grad. school 30 yrs. ago.

Recycle M, only way to soak up unempl. Most macroeos. is pedantic embroidery of & circumlocution around that theme, - ritualistic.

New eos. was positive & opt. Now negative, scolding, admonishing - public must learn to face hard choices. Offers not bread, but a stone.

Assoc. problems:

Iron Mt. Effect - war to cure unempl.

Crime, welfare, society divided, night mare society of kidnappings & countermeasures.

Shortages - & paradox of shortages coupled w. unempl. The eternal qn - why can't those idle men go to work to meet those shortages?

Field day for fatalists & escapists

Neo-Luddites, inevitable superabundance. ^{Technological} Determinists, like Marx.

Malthusians, " scarcity

Nihilists, now exorcists

2

No need to despair. Old ideas had to break down, but they were superficial. This gives oppy. to replace w. better ideas, as we shld. have done from long ago.

Time to begin again

B. Growth

Boomers have assoc. empl. w. "growth".

Malthusians say stop "growth".

But growth of what? No one says. It's a false issue.
We don't have to divide into growth vs. no-growth.
Can grow in diff. ways. ~~see~~

Now we have idle labor, but expensive capt & land & primary products.

So need to combine each man w. less land & capt. Change the mix. The very thing a flexible ec. shld. be able to do.
Just as we cd. retool for war in 1942 quickly, given the urgent incentive, so now we can retool for jobs.

As ecst. wd. say, need to subst. labor for capt. & land.
I prefer, combine land & capt. w. more labor. Thus humanity can grow, w/o chewing up or fencing off so much of the earth.

Goal of this talk, survey means of using more labor w. land;
or less land & capt. per man - in produ. & cons.

Then a demand for labor w/o nearly Δ s, & perhaps reducing, need for land, intels, & capt.

This involves some things that are obvious $\rightarrow$ more men/acre, more labor per log.

And one thing that is less obvious, but equally important, & I return to it again & again:

— you combine more labor w. a given capt. by turning K faster.

Newspaper, hold a day's inv.

Weekly mag., weeks

Popular book, yr's inv.

Scholarly .. 5 ~~yr's~~ yr's inv. (or ave.)

Ma Bell

Until cash flow balances out loans, you constantly need more money. Are a sink of capt. Reach an eq. where you

hold a stock of capt. that is const. relative to flow in & out.

The longer before payback, the larger that stock is -- & the more of yr. cash flow goes to pay int. If pd. is 5 yrs. or so, half yr. receipts go for int. — you are capt. intensive.

Every inv. creates jobs = itself, the first time. But for sustained input, cap. must keep combining & recombining w. labor by recovery & reinv. Active capt. has his valence —

combines w. much labor. Sluggish capt. the reverse.

2

A. Where are jobs found now?

	(1961)	
In expln?	1.4%	B.C. labour force in "mining", including expln.
Forestry?	3.7%	some better.
Mfg.	20%	
"Services"	61%	
	Personal Services	21%
	Trade	17%

The nearer you get to consumer, generally, the more labor-intensive

We shd. put capt. where the jobs are -- where the job-creating efficiency of capt. & land is a max. Active capt.; intensive land use.

Mfg. not homog., either. Herman Kemperman of Castlegar, a Sawmill & Woodroom operations analyst, says
Labor Share in Cash Flow

Pulpmill	.12
Sawmill	.28
Sawmill & Shinglemill	.39

Yet we foster expln. & pulp mills bcs. they create jobs! It seems that that special pleading based on job-creating is used most where least true.

5

B. Are cap. & land reqts. per job the same?
Warren & Swamy, & N. Tur. say so. a fraud.
No, diff. as can be.

Calif. ag., berries & tomatoes yield \$1500/acre, 100 times more than dryland grazing. Do they use heavy iron? No, are heavy on labor. Water users gross low: ind. pasture, \$78; rice, \$168; alf., \$144. Repeat in Okanagan.

Mich. indy, I ranked by intensity, men per \$ value.
The most intense used 10% of labor — so did least intense.
So where the diff? In value of r.e. plant.

Least intense had 62% of value; most intense had 1%.
62 x as much plant value per man

C. But this brought out another point. the firms
~~some~~ which are less effic. in creating jobs are bigger, much bigger.

So I massaged data more, got computer to rerank them, stand on head, re-cycle in a dozen ways, & always the same message. The message was in the facts, not in the massage.

Other data, same finding — Fortune 500.
U.S. farms.

Wd. repeat studies in B.C.
pattern beginning to take shape.

Meantime, to encourage empl., encourage the things humble people do: small firms, labor-using. Vegetables. Avoid status & snob appeal things. Wasteful things. Land grabbing. & pie in the sky.

3. Instl. bias

By perverse instinct, all the bias of instns. pushes wrong way.

The fault, dear Brutus --

The best place to find faults is

in ourselves.

Wonderful. We can do something about it.

Needn't be passive pawns of primordial powers, as Spino might have said.

We subsidize most where job-creating eff. of capt. is least, and in ways such as to make it lesser yet, to deactivate capt., keep wealth inert, sluggish, and turned in, (over)

Look at a few things we do wrong - a very few, from a long list.

A. Land

1. Underuse best land

B

a. Taxes. Light taxes on holding land; heavy taxes on ^{many} ~~every~~ things you do to use land.

Prop. tax, underassmt.

Inc. tax, exempt

imputed inc.

actual

Even realized gain, are a dozen ways to defer in U.S. Also probly in Canada, b/c. laws are genly. similar - but study needed

Holding costs deductible? Not as bad as in U.S. But the ~~maybe they~~

cost of equity capt. is "implicitly expensed." I.e. if yr. money were growing in a bank, pay tax each yr. on int. But if growing in a

piece of land, at comp. int., no tax until realize. Same as if received, counted as inc., but wrote off as expense. Is another way of perceiving ~~exception~~ why it is a

endogenous, incertuous, introvert
narcissistic, inbred, torpid, minimizing its combining
w. labor.

[7]
If we do tax ~~in~~ capt. we shd. tax it for standing still, (on the propy. tax does) and not for ~~propy.~~ cycling and employing labor as the income and sales taxes do.

Tax privilege not to pay on actual.

Sales tax? Not on rent; not cap. gain.

b. Zoning. Forced cons.

c. Crown ^{land} policy

Hold crown timber for pvt. operators, in TFL.

Crown bears holding costs, saves timber for delictation of favored firm at leisure.

Old temp. tenures, avoid cutting, b/c then land reverts to crown. So hold that idle, tap higher up valley.

"Principle of cfr. disadvantage" at work

also, simul. remit propy. taxes on fee simple land, & OTTs.

Are many more, but that given flavor.

So buy & hold much land per person; use slowly. Realize of

~~Aha!~~ ~~You say~~ ^{more} & discourage more

inc., the thing we tax, is precisely what employs labor. If we do tax capt. it shd. be for standing still & growing on itself, not for combining w. labor.

Aha! You say, but just buying land, just reshuffling deeds, no real social invt. there.

But there is. Take urban land. Lowers density, causes sprawl.

Requires more infrastructure, public capt. Longer lines, streets. There is the capt. request.

Density now so low, over half the cost of sewer service is in the lines — not the treatment plant, not the laterals, or house hook-ups. Same for water.

Aha! You repeat, but that makes jobs ^{its frontier expansion.} True, but not as many jobs as other uses of the capt. wd. and that is the point.

P.W. are very cap.-using. The job-creating eff. of capt. in p.w. is very low.

How do we know if something is cap.-using? Labor produces capt., so what's the diff? The diff. is, if benefits are deferred, or strung out, then the object has to yield a large surplus over cost to pay int. ~~to~~ If benefits are much deferred at all, most of Value-added ~~is~~ has to go to pay interest.

a Tree, e.g. Money doubles every 10 yrs, so if ~~lasts~~ takes 100 yrs, then for every \$1 of cost, need $2^{10} = \$1024$ of stumpage to yield 7.2%. There is subtn.

a machine, on other hand, may only appear to displace labor, bcs. it is stored up labor itself. Only yields much to the banker if it lasts a long time.

Criteria for cap.-using things.

1. Deferred payout
2. Most cost is interest
3. Prodn. is sensitive to i - durable goods, housing
4. Small unit replaced each yr. - e.g. 1% of forest
5. Labor employed in bulges - like dams.
6. Incentive to retire debt is not much higher than int. on debt.
7. Owners ^{or beneficiaries} demand special shelter from int. & property taxes.

P.W. have those qualities: They are a sink of capt. P.W. vs unempl. is a ^{forever} boomerang policy. ~~First~~ First round makes jobs, but freezes capt. so can't recycle & recombine w. labor. This brings me to another bias - re p.w.
 The cards are stacked for them.

- no prop. tax on capt.
- funded by public bonds, borrow credit ratings of treasury.
- extended insur. lines are underwritten by rich Territory (some of priv. utilities, too)
- internally funded, low i. E.g. Hydro use of pension funds, but that's mild cfd. to Fed. money.

(Ben/cost anal. often a way of sprinkling holy water on foregone conclusion by using low i, or 0.) (I hope we will do a good one)

- often, no acctg. at all, just build.
- logrolling pressure, bcs. one adding value to priv. lands & owners bring pressure. "So N. Am. system of - - -"

- partial funding, to satisfy many MLAs or MPs at once. Result: N. Am. is the half-finished continent.

Too many starts; too few completions.

- large needs for associated capt. Lags in providing it.
- Not syndicated, altho complementary.

- trunks ahead of feeders
- public leads priv.

- agent of imperialism, grabbing trade territory.
 Esp. time of priv. utilities.

- temptation to subst. overcapacity for pricing & rationing which may lose votes. Clair Engle.

Result is seen on Univ. Campus — bricks & mortar bias. Vast grounds, ~~locks on~~ ~~underused~~ underused bldgs, & underpaid personnel.

U. Vic. stadium. Locked most of time. Bis. ~~\$~~ can't afford a student caretaker.

\$2m cost? Face over 40 yrs., 9% = \$550/day, ^{3/4} is interest. ~~Rising day rates~~. Paid vacations, as sure as the sun comes up — well, surer than that, on rising days too.

Hon. Curtis inquiring into salaries.

Public is so lavish of capl, so tight w. personnel. Cap. costs are invisible, impersonal. We don't give them cheap capl. — it is dear. But we give them dear capl. cheap, & they treat it so.

So, how to sink capl. ~~or~~ to create fewest jobs?

- heavy constn. Dams, highways.

- bldg. ahead of demand

- cartels, which prorate output & excess capacity

- exploring for minerals way ahead of need

- underwriting submrgd. pipelines

- holding back virgin timber

- doubling length of logging roads by patch cutting

- taking virgin timber while holding back good

- hot-house "regional devt.", forced decentralization.

and producing energy uses capl. - block rates for power. Berndt study, energy goes w. capl.

- give timber ~~or~~ on condition of bldg pulp mill

("work commitment bidding")

The very things we subsidize, public & priv.

(? omit subsidy to priv. capl.)

4. Result is accelerating rise of cap. & land per job.

Fear of growth misdirected, vs pop.

1950-70, pop. Δ 35%; electr. power Δ 500%. It's not no. of people, but accord. complement of cap. & resource require. that are rising.

Kendrick, 1898-1953, 100% Δ in cap/labor in 54 yrs.
Comm. 1948-71, 150% Δ 23 yrs.

Rate of Δ 3-4 times higher.

And they left out infrastructure, etc.

And Δ g. res. demands - ATVs etc.

And housing. Nonsense re nation of tenants. Trend the other way. Undoubling, lower density.

Not same as Δ effie. Cap. & land have cost, too.
New emph. on energy-effie. Opns. w. highest labor-eff-
have low energy-effie.

Chem. refining - ~~40~~ kWh per \$ value added
vs. ^{under 10} ~~10-20~~ in fabricating, or running a home, or woodworking plant.

Science & techn. respond to prices.

Not inevitable. Result of growing instl. bias.

E.g. income tax. Share ~~paid by~~ ^{of} labor ~~grew~~
in taxable inc. in U.S. grew, 1939-63, from 66% - 81%.
Inc. tax has become a payroll tax.

There is also a payroll tax as such; & wages are taxed again on retail purchases.

Cap. in p.w. also a growing share.

And capt. of big multinat. corps. We know what
brand plant ec. means in B.C. Udell found some in Wis.

Factor mix is in fact sensitive & responsive to price.
If labor is 95%, & remove payroll tax, double return to capt.

If capt. is 95%, & slap on prop. tax, cap.-using
opn. becomes unfeasible -- as forest firms keep saying.

5. E.g. of good invts, hi eff. of cap. in making jobs.

Vegs, berries, poultry. Things humble people do, immigrants
do.

Small bus.

Small homes, remodeling for quick results.

Sawmills, woodshops -- things where labor adds the value.

Opposite of p.10 list.

6. Good policies. (a few)

A. Taxes

Inc. tax. Remove all shelter for prop. inc. Lower rate on ~~earned~~ wage & salary inc.

Simul, make less progressive, & incentives to work.

Prop. tax. Use more. Accept the fact it will drive ^{cap.} out of cap. using things — if we want to tax cap. at all,)
But put it heavier on land. (tax it for standing ~~still~~ still, not for activating labor.)

Sales tax. Reduce. It taxes cap. for recycling.

Reflect on the ~~observed~~ fate of England, which has done just the reverse of what I recommend, & look where they are now.

B. P. w.

Apply what i test. Demand quick payouts.

Reverse the bad things listed above, p. 9

C. Resources.

Operate w. smaller inventories. They swallow cap.

Stop subsidizing. Let price rise, to level what decrees. Won't hurt empl. much.

E.g. water. Seen water, farms get more/acre, not less.

7. Macro benefits & counterpoints

~~thing~~

Raising the job-creating eff. of capt. means more recovery & reinvestment.

Most inv. is reinv. Reinv. comes from invs. that come back fast. Depends not just on Δ of capt., but turnover.

Thus, Δ aggr. demand for labor.

There is only so much stock of capt.; but any amt

of flow of capt., bcs. can ΔT indefly.

Recycling M is too easy. Appears to Δ invt., but fails to convey real goods to labor — to advance subsistence.

Recycling real capt. faster, Δ gross invt. is real — Δ spending matches Δ ripe goods.

8. Other benefits

Stop pressing on limits of earth, & other nations
Enjoy benefits of growth w/o so many env. costs, by
using less inputs.

Encourage home ownership

Unify society, avoid nightmare of class warfare.
Capt. becomes more complementary to labor, combines w. labor
more, instead of being withdrawn, as now.

9. Do this, no need to despair. Can ~~create full emp.~~ ^{employ everyone}
on small planet. Can begin ~~at home~~ right here in B.C.

Stuart

January 16, 1974

Dr. Duane Chapman
Department of Agricultural Economics
Cornell University
Ithaca, New York 14850

Dear Duane:

There was a typographical omission and displacement in Table 3 of the paper which I presented at the AEA meetings. Please be sure that it is corrected prior to publication. Beginning with SIC industry 3312 and going to 3391, the table should read as follows:

3312	Blast Furnaces and steel mills	3.91	30.55
3313	Electrometallurgical products	40.64	105.98
3315	Steel wire and related prod.	2.26	9.46
3316	Cold finishing of steel shapes	2.82	10.41
3317	Steel pipe and tubes	1.42	5.11
3321	Gray iron foundries	1.82	18.09
3322	Malleable iron foundries	2.63	21.79
3323	Steel foundries	2.82	14.39
3331	Primary copper	3.27	49.96
3332	Primary lead	2.35	59.40
3333	Primary zink	12.49	145.06
3334	Primary aluminum	51.68	133.47
3339	Primary nonferrous metals n.c.c.	17.89	37.81
3341	Secondary nonferrous metals	1.35	18.83
3351	Copper rolling and drawing	2.39	12.58
3352	Aluminum rolling and drawing	4.11	20.89
3356	Rolling and drawing n.c.c.	2.74	12.73
3357	Nonferrous wire drawing etc.	1.42	5.36
3361	Aluminum castings	1.45	12.76
3362	Brass, bronze, copper castings	1.11	9.24
3369	Nonferrous castings	1.30	7.59
3391	Iron and steel forgings	1.23	25.56

Sorry for the inconvenience.

Regards,

John

Wilson

JWW:mv

Some of These are ~~at~~ one notch off - J.W. is sending corrected list.

Energy efficiency, from U.S. '67 Census of Mfrs.
re some B.C. products.

In kwh (and kwh equivalents for all fuels used for heat & power)
per dollar of value-added by mfg.

		Rank
<u>High</u>	Logging camps & contractors	19.4
	the Pulp mills	66.9
	Paper mills	63.2
	Saw mills	12.0
	Petrol. refining	83.1
	Paving mixtures	54.9
	Cement, hydraulic	169.3
	Brick	119.7
	Lime	230.4
	Primary aluminum	148.1 133.5
	(Aluminum rolling & drawing)	20.9 12.6 (low)
	Beet sugar	101.2
<u>Low</u>	Fluid milk	8.0
	Frozen fruits & veg.	8.2
	Cookies & crackers	1.1
	Yarn mills	8.3
	Wool weaving, mills	14.8
	Millwork plants	2.8
	Wood furniture	3.6
	Book printing	2.0

Shares of electricity consumption

Resid: $\frac{1}{3}$

Nonresid: $\frac{2}{3}$

Growth of elect. use, "typical Am. home."

1950 2,000 kWh

1970 7,000 kWh.

$\frac{3}{4}$ of growth was due to Δ demand per household;
only $\frac{1}{4}$ due to Δ no. of households.

But no. of households per cap. must have Δ too, too.

U.S. pop. Δ by 35%, while resid. elect. cons. rose by 500%.

Only 35% of this Δ is due to Δ pop, or $\frac{35}{500} = 7\%$.

Major domestic uses are space heating, water heating, & air condit.

If a home uses 7,000 kWh, we can cf. this vs.
mfg. by estg. yearly rental value. Say \$3,000/yr.? No,
\$2,000/yr.

$\frac{7,000 \text{ kWh}}{\$2,000} = 3.5 \text{ kWh per \$ of value-added. That's}$

very low cf. to mfg. But the mfg. figures are for all
energy, so say 7.0 kWh for homes. (I maybe more,
but space heating is the big thing, & mostly non-electric.)

So resid. energy use is moderate, not sensationally low.

Excellent source mtl. for talk.
Wed. 12-8-71

Theme. Full employment is attainable, and consistent with clean environment reflecting consumer sovereignty, other $P = MC$ like congestion charges, and reduced extractions of primary products if necessary.

I. Full employment is attainable

A. Bankruptcy of present leadership (intellectual)

Insert next 3 pp.

1. Chronic unemployment
 2. Infln.
 3. Abandonment of free mkt; resort to controls,
 4. Inability to find substitutes for territorial expansion, at every level, to maintain growth & empl. Thus involving both environment and foreign nations.
 - ✓ 5. Stupid remarks (Pitt). New dismal science. ~~Not doubts~~
 6. Misuse of land, capital. New dismal science. Mass surplus?
-
1. Chronic unemployment.

Worse than pointed. Politicization of BLS is only a wart on the pickle.

Non fulfillment of human beings, a more general malady. Anxiety about keeping job. Doing someone else's will. Grasping for security, suppressing creativity. Selling out ideals for money.

~~Crisis~~

~~Idle hours~~

Long apprenticeship - ~~not~~ man in his natural state

✓ not fit to survive. Must absorb human capital until
mid life - time to think about early retirement.

~~Generation gap results~~

~~Military empl.~~

~~Boondoggles~~

See Pitt talks

~~Growth of Welfare~~

~~Underempl. (including commutators)~~

Important Why minerals are really high-cost today.

3a

Must qualify minerals picture. RfZ studies show declining terms of trade for most primary products. But this is misleading.

a. We now use more units primary product per function. Transportation, falling density. Forced cons. of gas, as result.

b. Full social costs of primary products not felt by producer.

— tax subsidies to exploration.

— 8 other biases to explore

— regulatory bias in xptn, inner subsidies outer; 8 primary products get lowest rates

— environment,

— military.

"We" are now world's biggest importer, and absentee owner of minerals. a mercantilist nation.

Large share of ntlg. budget shld. be allocated to protecting "our" overseas minerals.

This may be highest cost of all. We are forced into imperialism.

∴ we shld seek ways to sub. labor for land & capt.

2. Inflation.

all the soph. models & rationalizations of
man get back to one basic: when in doubt, create
money & spend. Real activity is infinitely malleable
and responds to the touch of demand. Control
spending, control all, and w/o trouble with details.

When activity fails to respond, or get wrong
activities, leaving unemployed, leaders are baffled.

They start talk of walking tightropes. But when you're falling

Quoted from Pitt

✓ off in both directions simultaneously, there's no more mileage in that
tightrope. Need a new act.

This has nothing to do w. environment. They failed even
w/o the environment problem. Now their main contrib. is to
waggle fingers & say don't shake the wire. But they have
little basis for knowing effects. It may be themselves
rather than the ec. They want to keep on the wire.

3. Resort to ^{political} controls, compulsion

Betrays failure to make ec. work — and by now, public has forgotten that is what we were promised, or even that is what we wanted.

✓ The very men who preached free mkt. now
✓ preside over its end — weeping like the Walnut &
the Carpenter as they go.

4. Inability to find subs. for territorial expansions.

at urban level, subsidies to highways, sprawl

at continental level, fed. p.w., constant invasion of wild lands

Highways; p.w., regulating bias; water works; extending oil & gas lines;

At ^{inter} nat. level. most dangerous of all, ~~imperialism~~ neo-mercantilism.

Import primary products. Own them. Protect w. the sword -- employing men in the process. A dangerous game.

✓ { U.S.
we Instead of being world's safety valve. importing men, now restrict immigration and grab the world's minerals, acting as chief provocateur.

To avoid incineration, or just move Viet Nams, need to release our aggressions at home. Canada can show U.S. how.

✓ Macro as today retains large heritages from Waste school & manifest destiny school & growth school.

✓ Need to purge those: find policies for prosperity not depending on waste, expansion, or controlled entirely by growth.

B. How a free market attains full employment: micro

1. Variable proportions. Land & labor.

Lower w.r., apply more labor. As usually presented, looks pretty dull & limited, requiring large drops of w.r. to achieve small & empl., more redistrib. than allocative, a tool of kept costs, of no interest to labor.

Fallacy of fixed propus. prevails. Reflects lack of imagination & obscur.

Cal. ag., same land can grow \$50./yr. cany's animal units; or \$5,000/yr., 100x as much, in citrus or olives, more in tomatoes.

The difference is i.g. $\equiv \frac{\text{non-land inputs}}{\text{Output}}$

For pasture i.g. $= \frac{25}{50} = \frac{1}{2}$

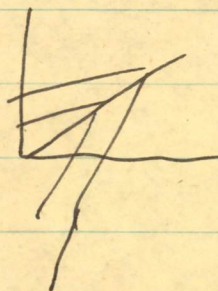
For citrus, i.g. $= \frac{4500}{5000} = .90$

Citrus yields more rent, but rent is highly leveraged. Very sensitive to w.r., but equally to taxes etc., that make entre. perceive labor as dearer, or land as cheaper, or output brings less (excise tax).

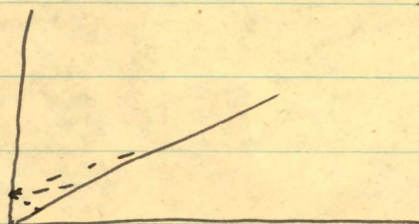
A very small acreage yields most of Cal's. output.
(And it's not where the water goes, either.)

Indy. data: Milw.; Fortune
Rank by $\overline{EMP/LAV}$, top 10% have 22% $\overline{EMP}$ & 29% $\overline{LAV}$.
~~How taxes intervene~~ (Prelim.)

2. Variable props: Cap. & labor.
General. If labor is 95%, small drop of w.r. draws in investors.



Effect of i , on durability



Effect of w , on durability.

Refer to handout.

3. Inst'l. bias

Entrep. perceives labor as dear, land & cap. as cheap.
Requires excessive adjustments to get employed.

Cases of tax bias. Refer to handout

4. Why cap. theory approach is neg. in U.S. ec. Today.

In Venezuela, Guatemala, etc., relation is direct, we create unempl. by pushing labor off land. .001% own 99%, and don't use it, it's pretty clear.

In U.S., more complex. We reach out for subur. lands by extending p.w. Artif. scarcity & artif. abundance. Land not an absolute constraint. Barnett & Morse. But relation of labor to capl. is central.

C. ~~Inst. bias~~ Free Mkt. can attain full empl.: macro,

Distinction of C & I now seen as arbitrary.
Gross inv. is the inc. creat'g exp. As J.S. Mill said.

G.I. is mainly replacement. Recovery of capl. provides funds to reinvest: motive to reinvest; and goods for cons. to buy, stopping infln.

Mult. thinking made net I the judo expert.
This, plus old frontier imperialism, made "growth" important, central. But implied changes in R were automatic.

Instead, R is indep., and sufficient. ΔK is nice, but incidental. We can do nicely with whatever land and capital we have, and whatever other constraints.

No tightrope, but an equilibrating mech. that adapts to effl. changes, clear primary products, any constraint.

D. Instl. bias

1. Taxes - refer to haulout

C. Urban

1. Zoning. Forced land cons.

Reading bad, each man kills ---
1 way, & boomerang. Low zoning (& other forced

land cons.) often supported in name of cons.

Re extractive res., we react more rationally: ~~are~~ to conserve, use less, get more per unit, find subs. Re land surface, react perversely.

But they force cities to spread out.

Neg. cont. does not contain. Defeats itself.

2. Tax's blz.

3. Subsidizing autos. Most res. are used by xptn. Cars, oil, parking, highways, steel, cement

4. Bias vs. mass system. a) ~~Density not rewarded by lower rates.~~
b) No mass transit on C.I.A.s c) No pricing & subsidy not practised d) Mass system taxed

5. Bias within mass system vs. center, for fringes & extensions. Territorial Imperialism again. Density not rewarded.

This last is more than urban. Characterizes our entire xptn. network, all kinds. Surplus-yielding core carries premarital, subjugated, imperialistic fringe. E.g. oil, ^{collection} pipelines; utility rates; highway finance; postal service; air lines; rail rates, etc.

Shock waves -- clear out to wilderness.

D. Mineral

1. allowable system

Restrict use of better minerals; force resource to margins.

E.g. drilling in gulf.

Forced capl. input. 4 wells to do the work of one. Not really make work, but As capl. complement - see App. II.

2. Prop. tax assmt.

Lower assmt. on larger holdings, but one to be used slower. ^{2 timber.}

Larger owners have better minerals. (Also regressive)

No assmt. on non producing wells. So expln. creates a capl. value, not fixed.

Max. titillating effects.

3. Import restrictions

On world basis, prevents use of best, forces resource to marginal.

Drive to autarky. Every nation must have own reserves. (And every firm inside every nation - vert. intn. is $\neq$ autarky of firms, & autarky is vert. intn. of nations)

Magnifies aggreg. res. requests.

4. Biases to premature exploration

a. Supported price, artificial scarcity

b. Expensing expln.

c. No tax on accord

~~d. Other~~

d. Finders keepers - like open access. On public lands there is open access.

e. Other - see p. 341, & 391-97, for detail.

Expln. is highly cap. intensive. Not make work app. II. Mere spending is not make-work.

5. Bias vs. recycling

Recycling is labor-using; quick results

Big new field - much interest.

No deple. allowance; no expensing of cap. outlays;

no rule of capture; no exemption of accrual from tax;

no underassent; no cap. gains treatment; no creation of mbt.

power by preempting minerals; no plowback of profits to aggrandize

ingent. & avoid personal inc. tax; no leverage of prt. over public inv.

6. Bias to forced consumption. The oil-auto-highway lobby runs Am. Anti-discrimination laws. Bias vs. mass transit, elevators, & non-transit.

Ways across Pacific. Enormous fuel use

E. Agric.

1. Soil Bank & successor names. Remove land in good areas; force recourse to worse. Tobacco program --- quotas allocated by city, can't migrate.

2. "Efficiency" defined & conceived wholly, uncritically on max. A/P of labor. I.e. set MP land = 0. This indeed reflects position of some of wealthiest owners — annual A + tax shelter effect h.c.
Reflects a way of thinking that persuades instns.

Among other things we subst. for labor are poisons. Poisons, in turn, make farm homes less desirable.

3. Highest supports to land-using crops. So land outside the city program is held back, waiting for opp. to jump in when is a chance.

4. ~~and~~ No taxes on larger farms

Regressive assmt. prop. tax.

No inc. tax. Shelter non farm inc, many ways.

The accrual ~~is~~ also offsets h.c. of land — for the wealthy who can wait.

5. Subsidy to invading ungrd. land.

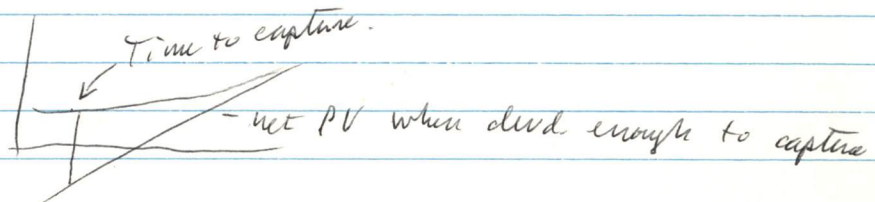
F. Water

Hydro-imperialism.

Rule of capture run wild. Positive incentive to use with --- a negative price.

cfv. disadvantage

Presumptive dev't. to capture.



Idea of prescriptive vt. common in many fields: Pac. airline routes; TV channels; utility service areas; franchised dealerships; zoning; etc.

G. Effluents

No constraint on emissions.

Positive incentives to pollute

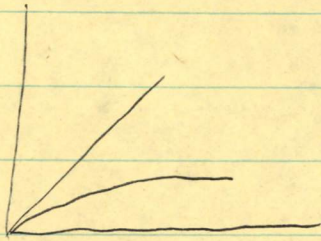
1. To ext. vt. to pollute in future
2. To drive down selling prices surrounding land

I. War, International Imperialism.

Necessarily follows from sum of land-grabbing, land needing instns.

And then uses resources. Our circular philosophy. Need resources for war, & need war for resources.

Same w. xptn. Spread out to cover land, & then xptn. eats up the land.



Letting a bldg. last longer gets more service from the orig. mtlb. Thus reduces demand for extractive res. But:
b. The econ. aim is not long life, but slow results. Long life achieved free is great.

a. Get less service from site; & hence mtlb. of infra structure.

b. Require heavier mtlb. initially

c. Get less service from recyclable mtlb. (such as they are.)
~~except that~~ Remodeling recycles mtlb. of orig. bldg.

d. You really aren't getting any net service from the mtlb. Are getting a disservice, by holding site from best use. Requires more mtlb. used in xptn.

e. Mtlb. are produced by labor, too. If you take steps to a labor share up & down the line, faster ~~subst.~~ removal means more demand for labor. E.g. subst. labor for logs in mills.

d, (again). Orig. mtlb. may be worn out. Lead poisoning, rats, allergies. Obsolete.

Analogy of auto generator chassis, & movable parts. When you service & overhaul generator, lose some mtlb. But are recycling chassis.

By recycling a site you save cost of duplicating it for out, at much greater cost.

RESOURCES FOR THE FUTURE, INC.

Inter-Office Memorandum

To: TRED

Date: 1/29/73

From: Mason Gaffney

Subject: 1974 or later Conference

At our recent O'Hare meeting I was asked to submit an outline of the topic I have been trying to develop. Here is one, surveying the full range of what I have in mind. A conference could only cover parts of it, but this is a unifying framework that would tie it together and from which individual topics could be carved out, and from which you can decide if you are interested in the topic.

I begin with a premise that macro policy today is at an impasse. Its thinking is sterile, locked into trite patterns developed decades ago and degenerating into sophomoric quarrels and trivialities in practice. Macro policy has overloaded monetary and fiscal tools which no longer even offer us a choice between unemployment and inflation, but give us both, making the new economics into the new dismal science. Free market solutions have been blocked out of minds in a marathon spasm against the misleading rhetoric of Herbert Hoover, and not really examined on their merits.

Topics

I. Market mechanisms for homing on full employment.

A. Micro.

1. Variability of factor mixes.

a. Data: comparing industries and firms.

b. Relation to concentration of ownership: regressive use of land.

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Page Two

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2. Sensitivity of mixes to changes in factor prices.
3. Mechanics and theory of factor proportions.
 - a. Rapid turnover and replacement substitute labor for capital, à la Wicksell. They also substitute labor for land.
 - b. High output/land ratio, (or "intensity"), substitutes labor for land.
 - c. What determines replacement and intensity and hence factor proportion?
4. Territorial expansion, public works, and factor mix: how thin settlement causes overallocation to capital--intensive linkage sector (transportation and utilities).

B. Macro.

1. Are natural resources a limit on employment? Is "growth" necessary?
Growth of what?
2. Replacement in macro-economics.
 - a. Replacement as part of investment demand.
 - b. Replacement as an autonomous factor.
 - c. Neglect of replacement in present thinking.
 - d. Is replacement demand a thermostat for equilibrating on full employment?

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Inter-Office Memorandum

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Page Three

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II. Institutional biases against labor-using factor mixes, and/or for land and capital-using mixes.

A. Tax policy.

1. Income, payroll, property, excise.

B. Distribution and wealth effects.

1. Original and continuing unequal division of public lands, resulting concentration, coupled with regressive use of land and capital.

C. Forced land-consumption and capital--consumption, and/or under-use of land and capital.

1. Zoning, subdivision control, building codes, urban "removal" policies, public holding of excess land, regulatory bias.

2. Farm programs--soil bank, etc.

3. Mineral programs: allowables, prorates, quotas, etc.

4. Cartel organization of industry, with excess capacity.

5. Non-control of effluents. (Thus consuming neighbor's land instead of using labor.)

6. Water law, underuse of better waters.

7. Administration of public lands, e.g., national forests.

8. Low-interest loans as subsidy tool.

9. Exemptions from property tax as subsidy tool--bricks and mortar bias.

10. Public works.

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Inter-Office Memorandum

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Page Four

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D. Regulatory bias.

1. Overpricing rich surplus yielding part of mass system, underusing capital.
2. Subsidizing lean, deficit making, capital-using premature parts of mass system. (This is blocked where costly individual apparatus like wells and septic tanks are in the way, but runs wild with phones, etc.)
3. Overall bias in favor of costly individual apparatus compared to cheaper mass systems.

(And see below)

E. Territorial expansion.

1. Inflated, capital-using intersite linkage sector.
2. Regulatory bias again: uniform area pricing, rate base maintenance, imperialism, tax avoidance through premature investment, management aggrandizement, value-of-service rate making.
3. Public works: tendency to substitute overcapacity for pricing; logrolling; partial funding and slow completion; avoiding competition, taking on submarginal ventures; bureaucracy; professional aggrandizement of engineers, lawyers, unions, contractors; payoff in higher land values, and resulting biases to premature starts and overcommitment; linear bias to roads, to shift cost to higher level of government.

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Inter-Office Memorandum

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Page Five

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F. Lags and imbalances.

1. Poor synchronization of public programs, and regulated utilities.
2. Lag of private complements behind public works, due to land speculation and bad capital markets.
3. Lag of feeders behind trunks.

G. Inflation of military budget.

1. Is it land-using, capital-using, or labor-using?

H. The Rule of Capture.

1. Causes premature invasion of marginal land, and is extremely capital-using because of slow payout.
2. Applied to water, minerals, capturing zoning, customary rights to pollute, air routes, radio frequencies, etc. ad inf.
3. Premature research and the patent system. (Coupled with other biases towards research.)

III. Inadequacy of territorial expansion as means to achieve full employment.

A. Limits on capital.

1. Bad tradition of public works to stimulate employment.
2. It works only so long as we can bring limitless capital into the system.

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Inter-Office Memorandum

To: TRED

Page Six

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3. It ties up capital, slows payout and replacement demand. This causes political pressure for factitious demand, i.e., federal deficits financed by new money, resulting in inflation because the demand is not matched by ripe goods ready for consumers.
4. Jeopardy of a trap, stumbling into a feedback loop where shortage of disposable capital is self-reinforcing rather than self-correcting. Historical survey, major crises following major periods of premature freezing of capital into territorial expansion (broadly construed, including urban expansion, hydro-imperialism, etc.)
5. Military budget: part of the capital sunk in expansion, like other public works?

B. Limits of the Earth.

1. Claims of other cities and countries. Political limits precede Malthusian ones. Territorial rivalry leads to war, wasting more resources.
2. The environment.
 - a. Major causes of pollution are:
 - 1) Transportation.
 - 2) Extraction and primary processing.
 - 3) Non-control of effluents.
 - 4) Inflated costs of collection due to sprawl.
 - 5) Premature invasion of open land and wilderness due to sprawl.

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Page Seven

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IV. Full employment of labor through full use of better land, and of capital via free markets and limited government.

- A. Taxation, removing biases from.
- B. Distribution of income and wealth. Stimulating small business which is more labor-using.
- C. Eliminating forced land consumption.
- D. Removing regulatory bias.
- E. Containing territorial expansion.

Addendum

In 1879 George said the waste in making labor stand idle was as great as that of destroying great cities. He said there was no limit in a truly free economy on how much work there could be, other than the desire of men to secure the rewards of work. He suggested policies for breaching artificial limits on employment. This theme brought him great popular support.

In 1936 Keynes said there was no social cost incurred when idle labor went to work. He said there was no limit in a properly directed economy on how much work there could be, short of full employment. He suggested policies for overcoming the impasse he saw limiting employment. This theme brought him great popular support.

I invite your attention to the parallel. Today leading economists tell us to forget about full employment; it is prevented by inflation. It is another iron law, another wages-fund theory, another doctrine of inevitable suffering. Whoever finds a way out will find the theme bringing great popular support.