



Tax Policy and Capital Formation: Some Basic Propositions and Their Implications

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"TAX POLICY AND CAPITAL FORMATION"

SOME BASIC PROPOSITIONS AND THEIR IMPLICATIONS

Working paper by Mason Gaffney

The following propositions are advanced as basic to the subject of tax policy and capital formation. Before they are woven into a tight thesis, commentary and criticism are solicited.

1. Land and capital are mutually exclusive categories.

Between them they include all assets with intrinsic value. Some of each is needed for all production (each is "limitational"), so both are always relevant.

As to formation, land (by definition) is what is given by nature. It is only capital that can and must be formed by man, by producing in excess of consuming. Propositions relevant to capital formation must always distinguish land from capital.

Capital formation involves spurts of sacrifice, self-restraint, self-discipline, and self-control. Capital maintenance, and avoiding dissaving, calls for *continuous* self-restraint, generation after generation, and throughout life cycles, not to "eat the seed corn." Land cannot be consumed, but capital must be maintained and replaced.

Implications:

Capital formation is not aided by, and may be deterred by raising returns to land. All relevant analysis must carefully distinguish the two.

2. Land and capital are not mutually convertible.¹

(Substitution is another matter, considered later.) Capital is convertible into any other kind of capital each time it turns over. Land is not convertible into other land.

Implications:

A. Tax rates between land and capital need not be uniform: neither property tax nor income tax rates. Such non-uniformity does not distort allocation.

B. Non-uniform tax rates on different lands do not distort allocation, unless they are contingent on "use," or ownership. As to "use," it refers to inputs other than land. As to

¹The important case of exhaustible resources is not considered here. It is a subject in itself.

ownership, that is indeed bound to cause overpreemption of land by the favored owner. Non-uniformity among jurisdictions is not an allocative problem. Uniform rates may be desirable on other grounds, but not this one. Land cannot move to the lower-tax jurisdiction.²

3. A rise of real interest rates (i.r.s.) destroys part of the real value of existing capital, in increasing measure of its putative longevity.³

This is an economic loss, a loss that is just as real as physical destruction. The cash flow from durable capital will, after a rise of i.r.s., be divided more in favor of interest, less in favor of Capital Consumption Allowances (CCAs).⁴ The basic mathematics of finance is available, and is quite precise and consistent.

Conversely, a fall of real i.r.s. adds to the real value of existing capital, having the same effect as creating capital.

(Both those effects are muted by countervailing effects on ground rents and land prices. This refinement is not pursued here, but that does not mean it is unimportant.)

Implications:

The response to a shortness of available (soft) capital is economically to destroy part of durable (hard) capital. This raises the possibility of *a macroeconomic "glitch"* (a perverse episode of harmful "positive feedback," often called a "vicious spiral"). This effect, variously described and with varying emphases, has been noted by Ricardo, Jevons, Böhm-Bawerk, Wicksell, Spiethoff, Hayek, and others. Ricardo's Chapter 1, "On Value," and Chapter 31, "On Machinery," are good introductions. They are nominally well-known, and at the same time treated as nonexistent: a feat of compartment-mindedness that seems to characterize much economic writing. As Lionel Robbins points out, micro theory after 1870 became one of acapitalistic production.⁵ Capital theory simply disappears from the picture.⁶

²It is recognized that land taxes may affect land use via wealth and income effects. Also, taxes may be used to finance public works that affect land use. These points are acknowledged as important, but finessed here.

³"Longevity" here means economic life, in the full economic sense. It should not be confused with physical carcass life. The "full economic sense" means the duration and time distribution of cash or service flows, properly adjusted for the time value of money.

⁴The appropriate accounting adjustment on the asset side is called "marking to market value." The loss of value occurs whether or not it is formally recognized on the books.

⁵Introduction to the English translation of Wicksell's *Lectures* (p. xiv).

⁶An attempt to reintegrate capital theory with micro and macro theory has been made by the writer, 1976, "Toward Full Employment with Limited Land and Capital." In Arthur Lynn, Jr. (ed.), *Property Taxation, Land Use and Public Policy*. Madison: Univ. of Wisconsin Press, pp. 99-166. Also in "Capital Requirements for Economic Growth." Joint Economic Committee, Congress of the United States, *U.S. Economic Growth from 1976 to 1986: Prospects, Problems and Patterns*. Vol. 8, pp. 56-75.

4. The property tax rate on capital items affects their value just as would a rise in the (real) i.r.s. of the same percentage.

A rise in the rate thus destroys existing real capital; a fall in the rate creates real capital.

5. A rise in i.r.s lowers market prices of land by a much larger factor than it lowers prices of existing capital, because the value of land derives from more remote future prospects, overall.

Land prices, accordingly, are hypersensitive to i.r.s.⁷ Likewise, market prices of land are more sensitive to property tax rates than are market prices of items of capital.

6. Changes in the market price of land, when caused by inverse changes in i.r.s, do not represent changes in social wealth.

In this respect they differ from changes in the market price, or DCF, of depreciable capital. Many potentially useful analyses of our subject are deeply flawed by failure to hew to this difference. See David F. Bradford, 1990, "What is National Saving?" in Walker, Bloomfield, and Thorning, *The U.S. Savings Challenge*. Boulder: Westview Press, at p. 47. Here, Bradford seems to include land price increments as part of national saving, implying they constitute an increase of national wealth. This is a particularly frustrating case because Bradford has taken pains to treat land separately: he is so near, but still so far from getting it right.

Land prices are also sensitive to changes in expected growth rates of net income, both real and inflationary. These changes, likewise, do not represent changes in social wealth.

The third major factor determining land prices is the current net income (cash or service flow). This may rise for purely distributive causes, e.g., a fall of the interest charge on financing a new building,⁸ or a fall in wage rates. These changes, again, do not represent changes in social wealth.

In both works, the effort was to use capital theory as a bridge to unify micro and macro theory.

⁷"I.r.s." is used here to subsume all the conditions of availability of loans, or equity funds. It is recognized that selective credit controls may cause i.r.s. relevant to land purchase to move differently from other i.r.s. Short rates may be more volatile than long, but the application of credit rationing to land-based loans is more volatile than to self-liquidating loans.

⁸This is separate from the cap rate applied to the net income of land to find the selling price. Land prices are doubly sensitive to the i.r. for this reason alone.

Last, the service flow of land may rise because the land actually becomes more productive, e.g., from the spillover benefits of surrounding urban growth. This *may* represent a rise of real social wealth—I leave the question moot. The main point here is that ***most changes in land prices do not represent changes of real social wealth.***

Implications:

A. Land is dangerous to use as debt collateral, because its price is so highly sensitive to i.r. changes. It is *even more dangerous to let it become the collateral backing demand deposits.*

Item: In Norway, Sweden, Denmark, and Finland, land values have fallen, and banks are in deep trouble. Governments are bailing them out. (What common force makes land value drop at the same time, around the world?)

Item: In Southern California, land values have dropped sharply since 1989, in varying percentages depending on locale. Speculative outlying acreage has dropped over 50%; sales are stagnant; lenders are hurting.

Item: In Japan, Kichinosuke Sasaki, a heavily indebted developer, estimates a 50% drop of land and stock prices, from peak. In 1990, the Finance Ministry ordered banks to stop lending for real estate transactions. At the same time, the Bank of Japan raised i.r.s.

B. Selective controls on credit extended by commercial banks may be used to prevent collateralizing land values. Another method would be to make mortgages taxable property, as provided for, for example, in the 1879 California Constitution. Such a provision is enforceable because mortgages (or deeds of trust) are always publicly recorded, along with land titles themselves. ***Such a provision would also ease the political case for raising property taxes,*** which otherwise fall solely on equity holders, and appear to exempt lenders (except as they erode collateral security).

Why are banks not lending much in early 1993? Interest rates (at least short-term rates) are low, but collateral requirements are very high. There are 3 problems, at least. 1) Banks are leery of any real estate collateral now; 2) They lack the needed *capital*. (They also may lack reserves—data needed). Both of those result from their recent *losses*; 3) Real interest rates are higher than they look when we factor falling land prices into the c.o.l. index used to deflate nominal i.r.s. into real i.r.s. This is a variation on Keynes' perception of a liquidity trap. By "variation" I mean it is the same phenomenon, only differently perceived and expressed.

Sequence. Land boom fizzles. Banks take losses. Their reserves and surpluses (capital) dwindle. They stop making loans and investments. By a process of positive feedback ("vicious spiral") this stoppage aggravates its own cause, viz. the fall of land prices.

7. A rise of i.r.s. tends to raise savings rates via a strong wealth (or portfolio) effect.

It lowers the current market price of land, especially. To a lesser extent it lowers the prices of items of durable capital.

There is a diminishing marginal utility of total wealth held (for retirement, for business use, for consumer capital, etc.). The fall of asset prices as a store of value thus tends to raise savings rates.

At the same time, a rise of the Marginal Rate of Return (MROR) on new investing raises the reward of saving as vs. consuming income. This is a substitution effect, conceded by all. The traditional counter-argument has been that there is a countervailing income effect: higher income from given sums invested tends to weaken the impulse to save. This counter-argument in turn, however, is offset and more than outweighed by the wealth effect recited above. The wealth effect reinforces the substitution effect, making saving respond positively to i.r.s. hikes.

Conversely, a fall of i.r.s. raises the market price of land, swelling portfolio values, weakening the incentive to save. In the extreme, if there is no reward for saving (i.r. = 0), and no property tax on land values, land prices would rise infinitely high. This, along with associated absurdities, would end all saving. These *reductios ad absurdum* clearly indicate that savings rates must be positively related to savings rates.⁹

8. A rise of property tax rates on the land value base raises savings rates via the same wealth (portfolio) effect.

Hikes in other kinds of taxes might have wealth effects, too, but there are two differences: 1) The wealth effects are weaker¹⁰; 2) There are undesirable substitution effects, lowering the MRORAT. The land value tax stands alone in having the pro-saving wealth effect, coupled with the absence of marginal disincentive effects.

Implications:

A. To raise savings rates, raise the tax on land values.

B. Doubly to assure raising savings rates, couple such taxation with use of the proceeds to pay off public debt.

Creating government capital directly will, unless the capital is wasted, probably raise land values by more than the value of the government outlay, thus having no net positive effect in encouragement of private saving. However, government spending on welfare or social dividends

⁹At zero interest, everyone could borrow infinitely to consume infinitely, and repay all debts infinitely at no cost. Saving would become negative, with no constraint whatever on consuming. In fact, no one would even have to work, when all could borrow and refinance indefinitely without cost. The notion, often seriously advanced, that interest is not needed to promote net saving is indeed absurd.

¹⁰This applies to individual items of capital. On the other hand, if the tax on capital is shifted to land, and we consider the infinite chain of future buildings, the wealth effects are equally strong. I leave this moot.

or wage supplements should have the net effect of lowering land price as a private store of value, thus fostering higher savings.

9. Most of what is called "income," both colloquially and by economists, is wages and salaries.

Yet, these funds are needed to create, maintain, and replace human (I prefer the Puritan usage, "inward") capital. They are not properly income in the same sense as land rent, or the return on physical ("outward") capital above maintenance and replacement. Once we take the step, as most of the profession has, of calling higher education and professional training the creation of human capital, then there is no stopping point back to conception.¹¹ All nurture and early training are creating human capital.¹²

Implications:

A. So-called consumption taxes are misnamed. They actually do not exempt true savings, as alleged. True savings include all money spent to raise children. Savings also include a good deal of money spent to maintain the body of the worker and producer, to repay parents for earlier inputs made, etc. Of the flows commonly called "income," only land income (unless saved) is pure consumption. Thus, sales and income taxes tax in cascade the turnover of human capital.

B. Retail sales taxes, excises, VATs, etc., are taxes on turnover and exchange, rather than on consumption per se. They could also be called taxes on reproduction, with an unvoiced but important Malthusian overtone. William Greider points out that, to "aid capital formation," the formula of 1988 was "austerity," meaning tax consumption. Thus, Hatsopoulos, Poterba, and Krugman's work on "overconsumption" was in that fashion. Pete Peterson's article was most influential ("The Morning After," *Atlantic*, 10/87). (An investment banker, he was Secretary of Commerce under Nixon). L.H. Summers, advising Dukakis, took the same line. Andrew Mellon had proposed the same, 1929.

C. The presently standard labeling of taxes is so twisted and even reversed from what seems a proper usage, it is hard to avoid sensing a bias at work, bending theory and language to serve a class interest.

¹¹To be consistent and logical, even the entire courtship process before conception must be added in.

¹²Probably personal character, the original meaning of the Puritans' "inward estate," is more important than most things economists call "human capital" today. The formation and transmission of good character should occupy us far more than the trivial pursuits now mainly stressed as creating human capital by economists who take themselves and their craft too seriously relative to socially more valuable work done by scoutmasters, clergymen, kindergarten teachers, etc. Abraham Maslow has been a pioneer in this field, and Frank Goble is his prophet.

10. It is impracticable, uncustomary, and probably impossible to tax capital uniformly under the property tax.

Movable consumer capital is more concealable than other kinds of capital. Certain kinds of consumer capital, like gems, are more concealable than others. Other kinds, like licensed automobiles, are less concealable, and are in fact taxed even while other forms of mobile capital are exempt.¹³ Private and intimate consumer capital, like household furnishings and clothing, could never be taxed without unthinkable invasions of privacy. Ocean vessels and aircraft have high evasion capabilities.

Human capital is never taxed under the property tax. Problems of valuation are insurmountable.¹⁴ So are problems of enforcement as a form of peonage, slavery, denial of bankruptcy protection, etc.

Capital in the form of inside information (well logs, prospecting maps, "good will," social and business contacts, going concern value) is unassessable. Some of it enjoys legal confidentiality on the grounds that it is "proprietary" or "privileged," while not being considered property for tax purposes. Its very confidentiality prohibits assessment of its value. Valuable patents and copyrights are classed as "intangible," and exempted.¹⁵

In practice, the property tax on capital is now mostly a tax on structures affixed to the ground, and "fixtures" affixed to the structures, which are included in "real estate." Equipment affixed to a structure may be converted from taxable real estate to exempt personal property simply by unbolting it and putting it on casters.

In farming, livestock on vast ranches mostly escapes detection and assessment. Trees and vines are easier to enumerate, but in practice are undervalued. Timber is now generally taxed on another principle altogether (yield taxation), forsaking uniformity and neutrality completely.

¹³There may be other reasons why taxing vehicles is socially desirable, but the property tax on them is not informed by any such rationale, and is not levied in proportion to their social external costs.

¹⁴At the same time, other kinds of taxes overtax the income and turnover of human capital. Uniformity and allocational neutrality are never achieved, however, by taxing under different principles, which must involve inconsistencies. (Different tax bases, rates, taxable units, tax jurisdictions, and taxable events.) The point here is that the *property* tax is not applicable uniformly to all forms of capital.

¹⁵"Intangible" is a class that conceals essential differences. It makes sense to exempt layered paper claims to the same real wealth, to avoid double taxation. Patents, on the other hand, are direct ownership of intellectual wealth, and often of natural forces and principles as well. They sometimes give effective control of valuable natural resources.

Implications:

A. The only way to tax capital uniformly is to exempt it all.

11. It is impracticable, uncustomary, and probably impossible to tax the income of capital uniformly under the income tax.

Some hard problems are itemized below:

- depreciation of human capital
- inflationary adjustments
- imputed income of consumer capital
- capital in state and local p.w.
- capital overseas
- capital on the high seas and airways
- multiple write-off of buildings, including depreciation of a substantial part of the land under them after the first round.
- uneven application of LIFO adjustment, favoring larger firms.
- expensing granted partially as a tax subsidy to certain favored investments, e.g., "dry holes." This includes expensing of factitious "abandonments" of unproductive leaseholds, of culled young fruit trees, etc. Expensing of R&D; of advertising; etc.
- arbitrary extension of capital gains treatment to certain forms of capital and land uses, and not others.
- letting regulated utilities depreciate capital slowly to maintain their rate bases, but fast for tax purposes.

The degree of popular exasperation with different write-off schemes shows forth in recurrent suggestions to tax gross income, "eliminating all deductions."¹⁶ That such an absurd, destructive, distortive proposal can be seriously advanced by college graduates today may be partly attributed to sheer ignorance and failed education, but so can anything else. There must be a more specific

¹⁶That, of course, would turn the income tax into a gross turnover tax, taxing the complete corpus of capital each time it is sold. It would eliminate all but the highest mark-up, slowest turnover forms of merchandizing. Organizationally, it would force universal vertical integration. Among kinds of capital, it would eliminate all but the most longevous.

reason; I believe it is the essential difficulty, and practical impossibility, of taxing capital income impartially.

Implications:

A. The only way to treat capital uniformly is to exempt it all. This may be done via universal expensing.

B. Expensing itself is biased against firms lacking other taxable income, and must be adjusted to offset that. The idea of "safe-harbor" sales of unusable credits to other firms turned into a publicity disaster, and possibly deserved to. Direct cash payments, or carry-back carry-forward provisions, may be preferable.

12. So-called "capital gains" are in some part land gains.

Capital per se depreciates. It is land that normally appreciates. "Capital gains" is a term of art, probably chosen deliberately to camouflage land gains, and avoid the previously common term "unearned increments." Another common pejorative is "unjust enrichment."

Land gains may be taxed away entirely without prejudicing capital formation. This mode of taxation may distort land allocation, if contingent on sale, but Vickrey, Auerbach, Wetzler, and others have worked out basic solutions to that. See also #13.

Implications:

A. Proposals to encourage capital formation by downtaxing "capital gains" are basically off the mark. Much, probably most, of what they shelter are unearned increments that serve no useful social-economic function, and foster counterproductive land speculation. Preferential treatment targeted to certain limited kinds of gains might be justified, but even that case is weak because of non-uniformity. If a tax subsidy is of proven merit, expensing or a visible subsidy might be a better way to give it.

B. The sustained lobbying and political support for downtaxing "capital gains" in the name of, and as the main plank in, a program for stimulating income-creating investment has the effect of camouflaging counterproductive, nonfunctional unearned increments. A writer like George Hatsopoulos, with tunnel vision, sees the capital gains preference solely in one aspect, its role in sheltering retained earnings of corporations.¹⁷ If it is desirable to abate the corporate income tax, this seems a most inefficient way to do it, with more side effects than direct effects.

¹⁷1990, "Capital gains tax differential: impact on capital costs." In Walker, Bloomfield, and Thorning, *The U.S. Savings Challenge*, Boulder: Westview Press, pp. 201-15.

13. The property tax on land, levied on speculative land prices derived from anticipated higher future income, has the effect of taxing land price increments at the time they accrue, thus achieving the Haig-Simons ideal.

14. Nations and states that rely heavily on sales and excise taxes do not generally have high rates of capital formation, but the reverse.

Most of them are Third World nations, or, like Ireland, are becoming like them. Whither California?

Implications:

A. To raise saving it is demonstrably ineffective to rely on retail sales taxes and the like. There is more evidence of high rates of capital formation in countries with heavy property taxes, like Taiwan. We have given a priori reasons to expect this.

B. California will continue its downward slide. Whither Michigan, if it carries through with the current proposal to eliminate most of its property tax? Down, down, down.

15. Taxing land and exempting buildings is associated historically with high rates of owner-occupation of land, for residential and business purposes.

An example is New Westminster, B.C., the last municipality in B.C. to abandon the exemption of buildings from the property tax (circa 1955?). When it stood alone as a land tax city, it had the highest rate of home ownership in Canada. A rural example is the Lindsay-Strathmore Irrigation District of Tulare County, California. From 1925-1952, approximately, it had the highest land charges of any rural district in the state. The mean farm size fell to under ten acres (all citrus or olives), all owner-operated.

Owner-occupation of land is a natural outlet for direct formation of capital, in land improvements.

16. Landownership is extremely concentrated, more so than building ownership.

Data are available.

Implications:

A. Taxing land values, and/or land incomes, or land gains, or land inheritance, is extremely progressive; at the same time it has positive effects on the incentive to create capital. Thus, it eliminates the supposed conflict between progressive taxation and capital formation.

17. Land does not depreciate with time or use.

"Consuming" land, therefore, means preempting a time slot. "Preempting" means excluding others from using the land, regardless of what the excluders themselves do with or on the land. Thus, holding land unused during a time slot is consuming it during the subject period.

Implications:

A. A tax based on holding land is the purest kind of consumption tax, in the only proper and logically consistent sense of the term.

B. Retail sales taxes and the like miss out on a great deal of true consumption. The largest item is direct consumption of the services, and latent services, of land.¹⁸

C. Standard "income" taxes, like sales taxes, also miss the imputed income of owned land. In addition, they miss out on unrealized land gains. "Income" taxes do not bite on unrealized gains as they accrue, but only later, if ever, if the land is sold carelessly so that the gain is recognized. Sales taxes bite on gains only when and if the gains are realized in cash, and spent on taxable items.

18. Capital in old buildings may be consumed and destroyed by locational obsolescence, even when the building remains physically sound.

In a dynamic, unpredictable market, a certain amount of this is to be expected, and is justifiable. However, in a major roller-coaster land cycle, towards the peak, there is a great deal of factitious locational obsolescence. The speculative land price swallows up the capital in the standing structure.

This takes the financial form of equity withdrawal. The owner takes the rise of land price as a substitute for storing up Capital Consumption Allowances (CCAs) to maintain his capital intact. Thus he consumes the CCAs as they inure to him.

That occurs whether or not the high land price later recedes. If it does recede, the fall is seen as negative income, tending to counteract the first effect. However it is likely to coincide with unemployment, bankruptcy, etc., making saving difficult and unlikely.

¹⁸Renting land from others is also exempt from most "general" sales taxes, although it might be included.

This is one of several mechanisms whereby a rise of land prices is treated by landowners as current consumable income, even though there is no corresponding production of real wealth. Result: negative capital formation. See Appendix to #9, *infra*.

Implications:

A. ***Property tax assessors should revalue land annually, thus showering cold water on incipient land booms.***

B. High property tax rates on land put a cap on land booms. Consider the basic, simplified valuation equation, $V = a/(i-g+t)$, where V is land value, a is current net rent, i is the interest rate, g is the expected growth rate of a , and t is the property tax rate. ***In the manic phase¹⁹ of a land boom, as in California up to 1989, $g \rightarrow i$, and nothing holds down V except for t .***

Through that mechanism, a high rate of property taxation applied to land (high t) averts negative capital formation.

19. Misallocating capital has much the same economic effects as lowering the aggregate supply.

Artificially raising demand for capital, leading it into wasteful, low-productivity uses, has similar effects. Overpricing land leads investors to overallocate capital to land substitution. This takes several forms: see Appendix 19, *infra*.

Implications:

A. Heavy taxation of land, precluding overpricing, should prevent overallocation of capital to land substitution.

20. Taxing anything except land will sterilize marginal lands (and marginal activity on all lands).

Thus, non-land taxes abort investment outlets, demand for capital, hence capital formation.

21. Bankruptcy laws need drastic tightening.

¹⁹One of the great ironies is that during the manic phase, a theory with a name like "rational expectations," and corresponding pretensions, waxed dominant among economists. It is one of the recurring conceits of intellectuals to think that social life is, or could be, controlled by rational processes. One might even take the emergence of such theories as a sure sign that wisdom and judgment are being overborne by mob psychology and crazes. See Rene Dubos, *The Dreams of Reason*.

Now they are used to let villains bleed companies and financial institutions, then escape to Florida and keep the loot.

TO BE CONCLUDED

APPENDIX TO #18

Consider an existing building, solid, useful, and middle-aged. It is ready to be "milked," as a "cash cow." That means that most of its cash flow from now until teardown will be regarded as CCAs (Capital Consumption Allowances), rather than income. CCAs are invested elsewhere, to conserve the owner's capital. When the building is finally torn down, the owner (and society) will have as much capital as ever.

Now suppose the price of the land under the building to rise, in a speculative boom, while the cash flow of the building remains the same. Let the land price rise so high it is now worth as much as the land+building were worth before. ***Now, the owner does not need to conserve any CCAs to conserve his wealth: the rise of land price has done it for him.***

At the same time—viewing the same point from another angle—the cash flow from the land+building is now imputable to the land alone, to justify the land's higher price. ***The cash flow is all net income, because land does not depreciate.*** The owner may spend it all on consumption; being human, he begins to do so. ***Lenders descend on him and seduce him into borrowing on the land to increase his consumption.*** "Equity withdrawal" is the current term for it.

From yet a third angle, the building has undergone "locational obsolescence," and lost its economic value. Physically, it may look the same; economically, the land has sucked the reproducible capital out of it.

From a fourth and last angle, capital, to survive, must earn cash flow enough not just to cover interest on the unrecovered value,²⁰ but also enough above that to *reproduce* itself. As Mill said, "Capital is kept in existence from age to age, not by preservation, but by continual reproduction." Capital reproduces itself by yielding CCAs. When rising land prices devour capital, and/or rising ground rents arrogate its CCAs, ***capital stops reproducing itself.*** This is how rising rent drives capital out of production. It is not that capital "sulks." Such a metaphor is misleading: economic agents cannot afford to sulk. Rather, capital is drained and consumed by the rise of all-devouring rent.

This ruin occurs without apparent harm to the owners of buildings when, as is the rule, they own the land under them. It is silent and insidious, like a vampire in the night. It would only be contentious and "newsworthy" if the land were owned by a different party than owns the

²⁰To recompense the self-restraint of its owners (who are always tempted to consume it).

building, and the lease expired. There are such cases—in trailer parks, and on the Irvine Ranch leaseholds in Orange County in the early 1980s—when the sapping of capital is visible and contested. As a rule, though, it passes unnoticed: no one seems to be suffering, no one rebels or can plead injury, even as a big share of the nation's precious capital stock shrivels and dies without reproducing itself.

After that, *there ensues a shortage of loanable and investable funds. That, in turn, slowly grinds down land prices* and rents. This, I believe, makes sense of George's phrase, that rising rent cannot permanently force interest "below the point at which capital will be devoted to production." It would be clearer had he said at this juncture "below the point at which capital reproduces itself." Shortage of capital, and tightness of loans, finally force down land prices. Labor, meantime, endures a period of acute suffering after job-making investing dwindles down.

APPENDIX A TO #19

Equity withdrawal consumes capital.

When assets appreciate, the owners regard that as current income, most of which they will consume. Selling the assets may be part of that process. The process also occurs without a sale: they might just borrow on the assets instead. Commonly they let the capital run down without replacement, eating their own seed corn so to speak, letting the rise of the underlying land value serve in lieu of a proper CCA (Capital Consumption Allowance). Cf. #9.

Misallocation of capital for overpriced land; substitution of capital for land.

(See Appendix on excess capital capacity.)

When land is overpriced, it leads to overallocation of capital to land-saving investments. *This waste of capital leads to a shortage of disposable or "circulating" capital.* It is characteristic of land-saving investments that their *payout is very slow*; the capital in them is locked up²¹ for many years or decades. In a word, it "turns over" slowly, if at all.

Although capital cannot be converted into land, it can substitute for land, and does when rents and land prices are high. John Stuart Mill long ago pointed out that the *structure and character of capital is determined by the level of rents and wages*. High wages evoke labor-saving capital; high rents evoke land-saving capital. It is useful to carry this further, and recognize five kinds of capital evoked or overstimulated by high rents and land prices:

1. Land-saving capital, like high buildings.

²¹Other words for locked up are frozen, sunk, fixed, non-circulating, unrecoverable, clay (as vs. putty), etc.

Land-saving comprises intensification of use of previously rentable lands, or "exploiting the intensive margin of production."

2. Land-enhancing capital, meaning capital used to improve land for a new, higher use.

That includes, but is not limited to, bringing previously submarginal land into production, way out on the frontiers. It also means converting rangeland to plowland, dryland to irrigated land, irrigated pasture to horticulture, and furrow irrigation to drip irrigation. In urban growth, it means converting farmland or wasteland to dwelling units. It also means replacing low-density estates with garden apartments; apartments with shops and offices; and obsolete structures with modern ones. Both country and city are marked by many "interfaces of supersession," where lower uses give way to higher uses.

Developing submarginal land is particularly capital-intensive, and the payoff is notably slow. A generic example is reforesting land that is high, cold, dry, and sloping, where the timber does not ripen for over a century. In farming, an example is planting citrus or avocados on dry slopes, requiring pumping the irrigation water and running drip lines to each tree. In urban growth, an example is subdividing outlying land where the improved lots have little value above the costs of their streets and utilities. See also #5, below.

3. Land-linking capital, like canals and rails and city streets.

4. Land-capturing (rent-seeking) capital, like squatters' improvements, and canal and rail lines built to secure land grants, and dams and canals built to secure water rights.

These land-seizing investments are never optimal for society, and always waste capital. Land-seizing investments are laid out by self-seeking individuals ("rational economic agents") with no expectation of *ever* recovering the capital invested because the payoff comes as title to land, which never wears out. Canal, rail, traction, water supply, freeway, and other such promoters are always mainly in the business of selling lands.

5. Rent-leading capital.

In urban growth, an example is overimproving land today, expecting higher demand tomorrow. This is "forcing the future." It occurs because there are "economies of simultaneity" in building. It is hardly ever economical to add stories to buildings one at a time. If you are going to build to four stories, you have to do it all at once. Suppose today's demand is high enough to justify a two-story building, but you see the demand rising steadily over the sixty-year life of the building. You build a four-story building today, and absorb early losses on the upper two stories, as an investment for future years. A city builds a four-lane street, where two would do today, anticipating higher future usage. It puts excess capacity in its water and sewer lines, for future growth. Such examples are legion.

Economies of simultaneity are related to economies of scale. Building higher, taken by itself, suffers *diseconomies*, a.k.a. increasing costs. On the other hand, building larger, with horizontal expansion, evinces economies of scale. It also requires more land, meaning more land rent. It comes into style during periods of rent-leading capital building.

Land-saving capital and economic instability.

In a speculative land boom, land prices go prematurely high. ***Premature high land values profoundly distort the character of capital investment.*** High land prices stimulate land-saving, land-enhancing, and land-linking investments. This is a rational economic response when and if the market is sending the right signals. Ideally, an optimally high level of land rents and values serves as a community synchronizer, causing everyone to build *as though others were going to build complementarily in sync.*

However, in the frenzy of a speculative boom the market sends the wrong signals. Land is peculiarly subject to inefficient, random speculative pricing in booms because it has no cost of production, so its pricing is entirely subjective, i.e., based solely on forecasts of future rents and resale prices, with no firm cap based on cost.

Overpricing of land reserves land for two contrasting kinds of buyers and holders:

Type A buyers would "force the future" with "rent-leading" buildings. They plan to and do develop land for a future demand higher than present demand. In Chicago, 1835, this was exemplified by building four-story buildings outside The Loop. Overpricing and consequent overimprovement gets greater the farther out you go. In London, 1993, it is exemplified by Canary Wharf.

When that demand fails to materialize, Type A buyers cannot recover their money. They cannot rent out all their floor space, if that is what they built. Or they cannot use the full capacity of their tannery, harbor, shipyard, sawmill, packing plant, soap factory, brickyard, or whatever they overbuilt.

When Type A buyers develop land beyond the reach of existing infrastructure, they force extensions of same, which are often losers, cross-subsidized by the whole system. This wastes social capital. For example, in May 1993, British Prime Minister Major opened the six-lane Limehouse Link vehicular tunnel, 1.1 miles costing \$500 million, the most expensive highway per mile in British history. The idea is to link the Canary Wharf Docklands project to the city. Britain also completed the seven-mile Docklands Highway, costing another \$520 million. There is a problem: the Canary Wharf Docklands project is not renting up.

Type B landowners just hold land unused or underused. Rather than force the future, they would free-ride on the future. They are usually looking or expecting to sell for a rise. Type B-1 is the aggressive outside buyer, the stereotypical "land speculator," who does this calculatingly, cold-heartedly, as a purely pecuniary investment. Type B-2 is the ancient owner whose land just happens to lie in the way of growth. Type B-2 owners are sympathetic figures in popular drama and sentiment. They are passive victims of change, clinging to old values against mechanistic, impersonal, exogenous, amoral, modernizing forces. However, their market behavior has much

the same economic consequences as that of Type B-1. Many turn out to be ambivalent, resisting change for a few years while quietly expecting to sell out for top dollar for their retirement.

The land of Type B landowners absorbs no capital directly, but much capital indirectly, by forcing the stretching-out of all land-linking investments in space, and generating no traffic or use to justify those that are built to and past them. Empty land also generates no synergistic spillover gains to raise the cash flow of surrounding, complementary lands. Thus it helps freeze up capital sunk in improving them.

The combination of (a), reduced net saving, with (b), waste and freezing of capital, **leads to a shortage of disposable capital, tight lending policies, and a crash or slump.**

Land speculation and credit institutions.

There is another factor George hints at in *Progress and Poverty*. When land is first overpriced, credit is extended further in order to accommodate it. That is, **banks lend on overpriced land, counting on a further rise.** When the rise slows, they extend the loans, sometimes even granting new loans for paying interest on old loans.²² They use political pressure to get governmental agencies (e.g., the World Bank) to extend or underwrite these risky loans (e.g., in Latin America). When the bubble bursts, the loans are not repaid. This destroys capital. Witness the collapses of Charles Knapp, Charles Keating, et al.²³

The developing areas are supported by credit extended from older areas, until credit is recalled in a panic. Credit is, as George says, **like a rubber band that gives before breaking, until suddenly it snaps.**²⁴

J.S. Mill had advanced a related idea in his chapter on the tendency of profits to a minimum (Mill, *Principles*, Book IV, Chapter IV, Article 5). Mill sees profits driven down to a minimum by the formation of more capital than can find profitable use. Then investors, rather than accept safe, low returns, give a "ready ear" to riskier ventures promising higher gains but risking great losses, which in fact occur.

Modifying Mill with George's idea, profits are driven down, not by a glut of capital, but overpricing of land. Then investors give a "ready ear" to riskier ventures—and more deferred returns, in land-saving²⁵ and marginal developmental ventures. When the land bubble collapses,

²²This is Ponzi finance. David Felix has pointed out how a Ponzi operator develops a demand for capital that actually rises when i.r.s. rise. Could the debtor U.S. government be entering such a phase?

²³In the present context I simply use "banks" generically for financial institutions. It is recognized that Knapp and Keating were S&L cases, and that after 1979 S&Ls were deliberately sacrificed to bolster commercial banks, so the details of the two kinds of institutional history differ.

²⁴George, who often chooses such striking examples, understates this point with an example of an English merchant selling gaudy calico and Birmingham idols, and financing his buyers. Actually, the heavy and significant credit went from England to the colonies to finance rails and cattle and such substantial developmental items.

²⁵Consult other material herein, where we add to "land-saving" the corollary ideas of land-enhancing, land-linking,

these risky ventures in saving and developing land prove to have been ill advised. Land now becomes too cheap to warrant and repay such outlays to have saved it. Thus the **capital is lost, and there is little recovery with which to meet the next payrolls**. Ricardo pointed this out long ago.²⁶ Veblen developed a theory somewhat along George's lines, but with "goodwill" substituted for land value as the overpriced siren that leads the sailors on the rocks.²⁷

George's theory is incomplete, and yet contains an essential element to include in a complete theory of how a boom wastes capital, and leads to shortage of liquid capital, causing a crash.

Today there are a dozen books on the S&L collapse, the RTC bailout, etc. **Much of the capital loss is simply being added to the national debt**. What is needed is to show how this collapse is an integral, inevitable accompaniment of a political economy dominated by landowners who can first force down their taxes, and then further force up their land prices by perverting the credit system into an engine for subsidizing them with cheap mortgages based on overpriced land.

APPENDIX B to #19: A cycle of capital waste, Chicago, 1830-37

The following notes purport to show how the above principles may be derived from events in a 19th century episode of boom and crash.²⁸ The narrative centers on Chicago, then an infant city.

A Cycle of Boom and Bust: Chicago, 1830-40

Notes by Mason Gaffney

These notes are most useful if studied in conjunction with "The Canal Boom," a chapter in

land-capturing, and rent-forcing investments.

²⁶*Principles of Political Economy and Taxation*, Chapter 1, "On Value," and Chapter 31, "On Machinery."

²⁷Wesley Mitchell, Veblen's disciple who pioneered modern business cycle research, had some such model on his back burner, too. Mitchell, unfortunately, was so dogmatically inductive that it became a compulsion, and he and his National Bureau finally couldn't see the forest for the trees.

²⁸Alternatively, they may be derived a posteriori from world history, then applied a priori to Chicago. This writer's evolution began in Chicago with a study of Homer Hoyt's work.

Homer Hoyt, *100 Years of Land Values in Chicago*, Chicago: University of Chicago Press, 1933.

Herewith a summary of major events, major principles at work, and their interpretation.

1. What happened in Chicago happened elsewhere in the nation, and the N. Atlantic economy. The world moved more or less in sync. Even then, much of the world was linked by capital flows; Chicago was a part, a particularly volatile part, of one stupendous world drama.
2. What happened in this cycle happened both earlier and later: this was only one of many. Chicago grew in fits and starts, not steadily.
3. The amplitude of cycles was greater on the economic/geographic fringes than at the core. This refers to cycles in population, land values, and economic activity.
 - a. Chicago was at the macro fringe of settlement based on New York State's Erie Canal, opened in 1825. Besides that canal, there was new freedom of competition in shipping, barging, and steamboating on rivers and the Great Lakes: in 1824 the U.S. Supreme Court outlawed shipping monopolies (*Gibbons v. Ogden*). Chicago held what we now realize is a key macro-geographic site, a continental crossroads and a breaking point. Its importance was not yet clear to all contemporaries, however, so it was marginal for its times. The famous Gallatin Report²⁹ of 1808, which identified almost all key routes needing improvement, missed the route of the Illinois and Michigan Canal, the key to developing the advantage of Chicago's location. More credit goes to General "Mad Anthony" Wayne, who defeated the Shawnees and other Indians in 1794 at the Battle of Fallen Timbers near modern Toledo, Ohio. Wayne then urged Congress to found Ft. Dearborn on the site of Chicago. Wayne's insight into economic geography and location value had been sharpened by his earlier profession, surveying, coupled with his strategic military planning.

²⁹Albert Gallatin was Jefferson's Secretary of the Treasury. His report on transportation routes was a logical follow-up of the Lewis and Clark expedition, but was national in scope.

Chicago's micro-site was and remains a "stinking swamp," which is what Chicago means in the tongue of the Pottawottamie Indians who named it. It is still "The Windy City," with an unattractive climate. Shawneetown on the Ohio and Cairo at the meeting of the Ohio and Mississippi seemed more promising. It was not clear for decades that this site would become the capital of the Midwest. In a famous early incident, the banks of Shawneetown refused credit to a town as unpromising as Chicago.

- b. Amplitudes were higher, percentagewise, six to ten miles from central Chicago than at the city center.
4. New building in Chicago depended on the flow of capital imported from the east; the U.S. depended in part on capital imported from Europe. We were a colonial economy, with heavy foreign debts and absentee ownership.
5. Capital import took the form of consumer goods, i.e., an import balance. Ships returned east with sand for ballast. What did the sellers get in exchange? Read on!
6. Chicago lived by exporting IOUs. These were secured mostly by Chicago real estate. Hence, the volume of imports varied as a function of the level of land prices, and also with their liquidity.³⁰ Lord James Bryce, an English visitor, observed that "Many a place has lived upon its boom until it found something more solid to live on."
7. Market agents (buyers and sellers) knew that cities are highly interdependent and synergistic. In a period of rapid growth, optimistic buyers acted as though complementary buildings and public facilities were already in place, or soon would be. Lord Bryce was struck by it: "Men seem to live in the future ... they see the country not merely as it is, but as it will be."

³⁰Liquidity varies with volume of land sales, or land turnover:

- a. A sale is the occasion for a loan (although not the only occasion);
- b. A sale often precedes building; building also occasions another loan, a "construction loan" followed by a "take-out loan" to fund the loan semi-permanently.

Owners of central land and old buildings did not oppose, but supported, new building and street extensions, bringing more land into the ambit of the central market. Under boom conditions they are more sensitive to synergy than to competition. They tolerate logrolling and cross-subsidy, anything to expand the market. They know they are threatened by rival cities, and they race for the No. 1 position. A growing city should be happy, said Bryce, "But there is often a malignant influence at work to destroy happiness in the shape of a neighboring city, which is making progress as swift or swifter, and threatens to eclipse its competitors." Some famous rivalries are Philadelphia vs. New York; Chicago vs. St. Louis; Seattle vs. Tacoma; Charleston vs. Savannah; Mobile vs. New Orleans; and San Francisco vs. Los Angeles.

(Later, in depressions, the reverse attitude sets in: everything competitive is opposed, and local leaders support policies to lock up land, to keep it off the market. The nation has long shown a manic-depressive collective personality.)

The prime example of a key public facility is the Illinois and Michigan Canal, designed to link Lake Michigan and the Great Lakes and the St. Lawrence system and Erie Canal with the Illinois River and the entire Mississippi System.³¹ It would exploit the connection to New York opened by the Erie Canal, opened in 1825. A federal land grant was given in the 1820s to help finance this I&M Canal.

Just *talking* about building the canal sold lots. From 1830 on, buyers acted as though this would soon be a *fait accompli*. Chicago building and speculation boomed in anticipation. In the event, however, the canal was not even begun until 1836, and not usable until 1848.

The social psychology of land booms is revealed in the language used by eyewitness reporters: mania, epidemic, fever, madness, contagion, rage, etc. Mob psychology is not comprehended in formal mathematical models, especially those that include words like "rational" among their axioms. Land is peculiarly subject to herd psychology because its value is based entirely on expectations of the distant future, remote from the realities of today. Land is irreproducible, so its value is unchecked by the ability to produce new supplies at a known, finite cost.

³¹Did you know there is a "continental divide" between the St. Lawrence and the Mississippi valleys? It is a low ridge, hardly noticeable, a few miles west of Lake Michigan. It was easily penetrated through the "Calumet Sag" in southwest Chicago.

There is a steep gradient of land values out from the center, due to internal transportation costs. This limits the area of land that can effectively be urbanized around the center, in spite of the vast prairies stretching endlessly to the horizon.

8. This all occurred in a time of peace, profound peace. The nearest thing to a war was the Black Hawk "War" of 1832, whereby local militia, with little federal expense, drove the Sauk and Fox Indians from northern Illinois. The U.S. in these years defended its very long border with few troops and minimal taxes, and was even preparing to distribute a surplus to the states. The surplus came from booming sales of federal lands.

The absence of heavy taxes, federal debts and foreign threats, and the "peace dividend" of a boundless public domain waiting to be exploited, contributed to the optimism that became a mania of speculation.

9. Asking prices for land lagged demand for land.
 - a. On the upswing, buyers got bargains with a free joyride up the price elevator. Until 1834, legitimate buyer-users were the majority. They gained both from building and the rise of land prices. After 1834, speculation took over completely.
 - b. On the downswing, sellers held out for much more than buyers would pay, and turnover dropped nearly to zero. Here is where "a page of history is worth a volume of theory." In theory, buyers and sellers have the same information and expectations. In history, sellers hold out when demand falls, and sales virtually stop. Hoyt documents this through five full cycles, 1833-1933, and you can see it in southern California today.
10. The amplitude of land price swings was truly extreme: a 60-fold rise, 1830-36.

The amplitude of all cycles related to land (prices, sales, subdivision, building permits) far exceeded, by orders of magnitude, the amplitude of swings in other economic data (production, commodity prices, income, etc.). Ordinary life must go on, even in the blackest depression. Speculation is what stops.

11. Building lagged behind population growth.

- a. In 1834 there were ten persons per dwelling unit.
- b. In 1840 there were many empty buildings. Buildings could not be "unbuilt," or otherwise liquidated, when people had fled.

12. Land values drew in capital:

- a. From outside buyers, some of whom moved to town.
- b. From lenders, who took it as collateral.
 - i. Loans to the state, or its canal company, taking their lands as collateral. This occurred in 1835 especially. The state had a vast land grant, as the railroads did later. In 1835, the State Legislature pledged the lands for a loan.
 - ii. Loans to private land buyers.
- c. From payees who held bank notes issued by Chicago banks, and held elsewhere.³²

High land values induced builders to build higher, and more intensively, to match the land value. They built with borrowed money, secured in part by land value.

13. Banks *monetize* rise in Chicago and other Illinois land values.

³²Someone used the bank notes to pay to sink fixed capital in Chicago, and the bank notes were held by suppliers outside Chicago. This implies growth of Chicago banks, and use of them by depositors elsewhere. The same net effect also resulted when Chicagoans who previously banked elsewhere moved their accounts to new Chicago banks.

- a. Land seller creates bank to finance his own sales. The state of Illinois owned "Illinois and Michigan" lands, from a federal grant. It chartered a state bank in 1835 to lend to buyers thereof.³³ Liberal credit is a potent device for raising land prices.

The Illinois Bank also loaned to the Illinois and Michigan Canal Co. to begin building the above-referenced canal, not finished until 1848. As collateral it took lands granted to said Canal Co.

The Illinois Legislature *required* the state bank, as a condition of its charter, to lend to the state by buying state bonds. These bonds were used for a phantasmagoric, premature, subeconomic network of canals. Canal planning was driven mainly by the desire of marginal counties to raise their land values. The modern name for this behavior is "rent-seeking." Abe Lincoln, downstate in Springfield and the Sangamon Valley, was caught up in it.

- b. The state bank, and all banks, also loaned to buyers of others' lands.
- c. Out-of-state (mainly Michigan, Indiana, and Wisconsin) banks also loaned to buyers of Chicago land. These notes for a while circulated in Chicago, helping raise land and other prices.³⁴
- d. This new M helped raise land prices, making more land value to monetize, a positive feedback loop,³⁵ adding to amplitude of cycle.

³³At this period, American states were allowed to charter banks, although this would appear to have violated the Constitution. This practice continued until 1863, at which time the absence of southern Congressmen permitted a drastic change. The change did not, however, abort the excesses of what is called "The Gilded Age," 1865-73, and the severe crash of 1873. Banking reform alone, without reinforcing land and tax reform, has never yet stopped the boom/bust cycle.

³⁴Higher prices would tend to drive notes back out. However, during a boom fever, overpriced land looks cheap, keeping the Michigan notes in Chicago. Later, when the Michigan money flew out, the Michigan banks dishonored their notes, sucking capital from Chicago when it most needed it.

³⁵Positive feedback loops are also called spirals, snowballing factors, cumulative factors, perverse factors, reinforcing factors, aggravating factors, non-equilibrating factors, etc.

Monetary expansion holds down interest rates below the level of an unbiased market. Land value is more sensitive to interest rates than other values are.

14. At the peak, 1836-37, demand dropped but asking prices held. Result: sales (measured by deeds recorded) fell like a stone.

In 1837, sales from the Federal Land Office were 3.6% of those in 1836. Federal asking prices were absolutely fixed, regardless of demand.

15. In the crisis, the state plunged inexorably ahead, like a bull rhino charging with its eyes closed, with its comprehensive statewide canal network. It also projected a statewide rail grid. Abe Lincoln was all for it. It issued \$10 million in bonds—a lot of money then. This crowded out other investment, sucking capital away and forcing up interest rates.

All parts of the state demanded their shares, to get the same gains as the I&M Canal was bringing to Chicago. The program was much too great for the existing resources of Illinois and its lenders.

16. There developed an "artificial abundance" of lands seeking buyers, owing to overextension of infrastructure and planned infrastructure. High land prices induce the following:

- a. Land-saving capital, like high buildings. Land-saving comprises intensification of use of previously rentable lands, a.k.a. exploiting the intensive margin of production.

Land-enhancing capital, meaning capital used to improve land for a new, higher use. That includes bringing previously submarginal land into production, way out on the frontiers. In urban growth, it also means converting farmland or wasteland to urban use.

- b. Developing submarginal land is particularly capital-intensive, and the payoff is notably slow. A generic example is reforesting land that is high, cold, dry, and sloping, where the timber does not ripen for over a century.
- c. Rent-leading capital. In urban growth, an example is overimproving land today, expecting higher demand tomorrow. There are "economies of simultaneity" in building, so if you are going to build to four stories, you nearly always have to do it all at once. Suppose today's demand is high enough to justify a two-story building, but you see the demand rising steadily over the sixty-year life of the building. You build a four-story building today, and absorb early losses on the upper two stories, as an investment for future years. A city builds a four-lane street, where two would do today, anticipating higher future usage. Such examples are legion. (Note that such behavior betrays the existence of markets in which demand, at any time, is less than perfectly elastic. If it were elastic, you would build the lowest-cost size immediately.)

Along with economies of simultaneity are economies of scale. Building higher, taken by itself, suffers *diseconomies*, a.k.a. increasing costs. On the other hand, building larger, with horizontal expansion, evinces economies of scale. It also requires more land, meaning more land rent. It comes into style during periods of rent-leading capital building.

- d. Land-linking capital, like canals and rails and city streets.
- e. Land-capturing (rent-seeking) capital, like squatters' improvements, and canal and rail lines built to secure land grants. Cf. the racing of California cities for water sources over the last century.

17. The combination of high interest rates with a surplus of land for sale broke the land market.

18. High interest rates resulted from:

- a. A huge rise in demand for capital to link, develop, improve, and provision new lands, both extensively and intensively, locally, nationally, and worldwide. Francois Quesnay, often called the founder of economics, described capital as

"advances," noting that capital consists of resources paid "up front," as we say today, before there is any return. Quesnay noted that each kind of capital requires more of the other kinds, to complement it. He listed *avances souveraines* (public works, and sometimes military conquest), *avances foncieres* (clearing, draining, fencing, building), *avances primitives* (equipment, cattle, etc.), and *avances annuelles* (current expenses, including public expenses like police and soldiery). Those who advance one kind of capital often fail to reckon how much more of their *own* capital they must advance to match the first kind, and hardly ever reckon how much more of *others'* capital must be advanced.

During this canal-boom era, six or more major trunk canals were being built by Atlantic Coast states to breach the Appalachian barrier. Hundreds of feeder canals, many of them submarginal and heavily cross-subsidized, were started at the same time. Seven or more canals were being built from Lake Erie south to the Ohio River. Drains on world capital were beyond world resources.

- b. Capital in the forms of *avances souveraines, foncieres, et primitives* did not revolve, but was sunk for decades. Too much was locked into hard forms like canals and rails and bridges and tunnels and cuts and fills, from which recovery is slow at best and, as it turned out, often impossible ever. In a bust, even many *avances annuelles* are lost. Adam Smith, David Ricardo, John Stuart Mill, Knut Wicksell, Stanley Jevons, Karl Spiethoff, perhaps Boehm-Bawerk, and other great economists recognized this as a cause of depression and unemployment.³⁶
- c. Too high a share of income was generated by long-term investments. When funds ran out, these employments could not be continued, and stopped generating income. There was a loss of the priming, driving, income-creating power of capital to sustain real production and income, from which alone real savings come.
- d. Too little propensity to save from current income. The rise of land prices was treated like current income by the owners, and consumed, even though it did not correspond to any production of consumable goods. Once the values had

³⁶Tragically, neo-classical economists and their successors have stuffed these insights down the memory tubes of history. Their reasons, if any, do not bear examination, and are generally not even given.

risen, they satisfied the owners' need for assets without those owners having to save and create real capital.

One prodigal living on land sales was the U.S. government. At this period it collected less in taxes than it spent, and lived by selling off the public patrimony for cash, using the proceeds for current expenses. This aborted capital formation, just as private prodigality does. (Today the U.S. government does the same thing by going into debt, which has the same effect.)

19. Why was so much capital locked in?

- a. Stretch-out of lines in space. Stretch-out in space was caused by the combined force of leapfrogging over the better, rentable lands which developed too slowly, combined with speculative promotional forces trying to force premature or other subeconomic development of marginal lands. Chicago itself was a leapfrog, in the continental picture. The Hudson and Connecticut valleys were still undeveloped. At the micro level, the city of Chicago itself sprawled out six to ten miles, when it lacked population to fill in a circle of one mile. The same was true of dozens of growing cities in the U.S. at the same time.
- b. Stretch-out of construction times. Overambitious projected lines, and grand systems, took generations to go on line and start throwing back cash. Meanwhile, capitalized interest doubled and quadrupled the capital sunk in them. By the crash, the state had put millions into the unfinished canal and rails. This capital became torpid: it stopped revolving. The effect on the body economic is much the same as the effect on the human body of slowing metabolism (the rate of turnover of your protoplasm).

In addition, delay in completing one improvement diverted demand elsewhere and stimulated competing improvements. The I&M Canal was just one of dozens of routes projected from the St. Lawrence system to the Mississippi system. There were six in Ohio alone (all completed, too) south from Lake Erie to the Ohio River. There was one, craziest of all, projected from the Maumee River (near modern Toledo) southwest to the Wabash through Indiana (where

Dan Quayle went to school). Every such project created new townsites, and an avalanche of new towns was thrown on the market.

- c. Effect of premature high land values on shaping the character of capital investment. High land values stimulate land-saving, land-enhancing, land-linking, and rent-leading investments (as described above, Section 15). This may be a rational economic response, basically, when and if the market is sending the right signals. Ideally, an optimally high level of land rents and values serves as a community synchronizer, causing everyone to build *as though others were going to build complementarily in sync*. In the frenzy of a speculative boom it sent (as it still sends) the wrong signals.

In addition, high land prices motivate land-seizing ("rent-seeking") investments, which are *never optimal for society*, and always waste capital. Land-seizing investments will be laid out by self-seeking individuals ("rational economic agents") with no expectation of *ever* recovering the capital invested, because the payoff comes as title to land, which never wears out. Canal promoters were mainly in the business of selling townsites at stations and terminals along the canals.

- d. Overpricing of land reserves land for two contrasting kinds of buyers and holders:
 - i. Type A plans to and does develop land for a future demand higher than present demand. In Chicago, this was exemplified by building four-story buildings outside The Loop (the city center) in 1835. Overpricing and consequent overimprovement gets greater the farther out you go.

When that demand fails to materialize, he cannot recover his money. He cannot rent out all his floor space, if that is what he built. Or he cannot use the full capacity of his tannery, harbor, shipyard, sawmill, packing plant, soap factory, brickyard, or whatever he overbuilt.

When Type A develops land beyond the reach of existing infrastructure, he forces extensions of same, which are often losers, cross-subsidized by the whole system.

- ii. Type B plans to hold, and sell for a rise. His land absorbs no capital directly, but much capital indirectly, by forcing the stretching-out of all land-linking investments in space, and generating no traffic or use to justify those that are built to and past them. Empty land also generates no synergistic spillover gains to raise the cash flow of surrounding, complementary lands, thus helping freeze up capital sunk in improving them.
- e. Misperception of real interest rate.

A boom generates inflationary psychology. Imported consumer goods are costly; local land values rise even more. Borrowers see the real value of their debts falling, offsetting some or all of their interest payments. Such expectations come to be the mark of the shrewd, knowing, cutting-edge, state-of-the-art inside-dopester, whose expectations come to be considered more "rational" than those of conventional old fogeys. Today, this kind of thinking is apotheosized in "rational expectations," the (University of) Chicago School economists' answer to divine omniscience.

Thus inspired, people take on mountains of debt that they cannot service unless the market keeps rising.

- f. The promotional wiles³⁷ of engineers, contractors, financiers, empire builders, materials sellers, et al.

The same kind of folks who sold the pyramids, the Tower of Babel, Angkor Wat, the Mayan-Aztec temples, the Great Wall of China, the long canals of Peru, the Roman roads and aqueducts, Irish famine relief through road-building, the Yukon-San Diego Aqueduct, the Rancho Seco, the Three Mile Island and Chernobyl nuclear generating stations, the Washington Public Power Supply System, and other sterile or abortive monuments are busily at work in all times and places. These sellers played on the fears and ambitions of

³⁷One could write another paper or book on their various wiles, and the legislative logrolling processes of partial funding and whipsawing that stretch out two-year construction periods into twenty-five-year periods, piling up capitalized interest.

public leaders, who need "experts" to intimidate the public. They got paid up front, leaving the public to clean up their messes.

The U.S. Army Corps of Engineers was in there. They dredged Chicago Harbor, using federal dollars. They were the agent for implementing Henry Clay's "American System," a compromise whereby Eastern states got tariff protection and Western states got federal aid for internal improvements. It's been called "The Great American System of Public Works for Private Gain." This was an early way of distributing federal surpluses to the states: "River and Harbor Improvements" became synonymous with "pork barrel politics" early on. Thus the surpluses were turned into capital, all right, but often it was capital of low productivity and long, long deferred payoff.

Chicago came off well in this Congressional bargaining. It got its federal aid, and then the South Carolina Nullification Crisis of 1832 forced the tariff, which was raised in 1828, back down anyway. Besides, as a potential industrial site, Chicago was positioned to gain from the tariff, too.

20. Artificial abundance of land for sale was caused by:

- a. Speculative holdouts pushed prices up high, and held them there too long.
- b. The market responded slowly but massively, adapting capital to this artificially-high land price level.

Macro-infrastructure like the Erie Canal and Mississippi River improvements were justified by tapping and enhancing lands that were worth it at the higher price level.

Micro-infrastructure like streets in Chicago. Hoyt found that in 1836 there was enough subdivided land in Chicago to house and support 50,000 people, when the actual population was 4,000.

Intensification of private land is the most intuitively obvious result of high land prices.

21. Capital import inevitably was overpowered by debt service. That has to happen as debt rises, which it cannot do forever. That forces a new city back on its basic, long-term export industries and services. As it and its competitors seek to expand those, the terms of trade turn against them: more supply means lower prices.

Chicago then was like many Third World nations today, e.g., Mexico and Nigeria with their oil. As they turn to debt service, human and other resources previously used to build new capital (exporting IOUs) must be turned to exporting real goods. If they are one of many in the same position, that lowers prices of their exports and puts them on a downward price treadmill.

22. At the national level there were only blue skies and smooth sailing. In 1835 the national debt was totally extinguished, and surpluses mounted swiftly from soaring land sales and excise taxes. President Jackson deposited the surpluses in private banks around the country, giving them reserves on which to expand fast. They loaned to speculators to buy more federal lands, raising the surplus still more.

In 1836 Texas won independence from Mexico, giving spirits a lift. No powerful nation threatened our rapid westward expansion.

23. In Chicago, however, there was a fragile circle of dependence among several elements. Previously we have looked at positive feedback loops of the first kind, simple ones with just two elements. Here there were many elements, serving to disguise the elements of positive feedback. The arrows below show the direction of support: i.e., the element at the tip of the arrow, to the right, depends on the element at the shank end, to the left. Closing the loop, the first element on the left depends on the last element on the right.

GO --> Chicago's basic economy --> Chicago speculative land prices --> Illinois banks --> Illinois state bonds --> Illinois state building program --> The Illinois and Michigan Canal --> Return to GO

Take especial note of the dependence of banks on speculative land prices. *This is the great secret that macro-economists never tell.* It has been obvious to all contemporary reporters, even as it is today. Yet you look in vain through volumes of macro-economic

theory for any recognition of it. Classical, Keynesians, Monetarists, Post-Keynesians, Lucasians, econometricians, cliometricians, radicals, conservatives: they almost all theorize in the clouds as though it never happened, or could never happen again. It is a fantastic feat of collective amnesia that should make us very wary of received doctrines and their expositors. This is one reason why "A page of history is worth a volume of theory." In principle, theory should be useful; in practice, theory seems to be dominated by those who are willfully blind and deaf.

Every element depended on every other. It was too much to understand: the interdependency and vulnerability was shrouded in complexity, in a naive age. It was too much to keep working for long: one failing element would bring down the whole system, and did. What element failed? Read on!

24. The weakest element was speculative land pricing. We have cited over-subdivision, enough to support 50,000 people when there were at most 4,000. The market was bound to fall in any credit pinch. Recall the extreme sensitivity of speculative land prices to interest rates. Current cash flow was "overcapitalized," in the common expression, meaning the price-to-earnings ratio of land was extremely high, and correspondingly dependent on easy credit.
25. Much publicity went to President Jackson's "Specie Circular" of May 1836. After that, the Federal Land Office would not accept bank notes for public lands, except from banks that settled their balances in specie, and except from bona fide settlers. Apparently there were only a few of those: in 1837, sales from the Federal Land Office dropped to 3.6% of those in 1836.³⁸

The Land Office had been selling mainly to speculators, financed by "wildcat" banks that printed their own notes. Jackson demanded "specie," a term of the times for gold and silver. He was either tired or apprehensive of getting burned by wildcat banks. He did continue to accept bank notes from banks that settled in specie.

³⁸There was a double peak in some measures. President Jackson's Specie Circular of 1836 halted federal land sales in 1836. In 1837, Congress and the president began distribution of federal surpluses to the states. This revived local investment for a while. Thus, the peak is usually described as 1836-37.

Too much has been blamed on this episode, because of its dramatic and political nature. If anything, it should have upheld the market for lands previously sold, and may have had that intent. It meant federal lands were held off the market. It did undercut many wildcat banks, thus helping create a shortage of cash in frontier areas. We will see, however, that world banking was about to collapse anyway. We will also see from the Illinois case that banks depended heavily on the collateral value of lands already sold, more than the prospect of lending on lands not yet sold.

26. In January 1837 President Jackson began distributing the surplus to state governments, as authorized by Congress six months earlier. This staved off crisis for a few months, causing the cycle to have a double peak.

27. In May 1837 New York banks suspended specie payments. New York had its own problems, of a similar kind. New York City, despite its advanced age, had never previously developed anywhere near its potential, partly due to the aristocratic “patron” landholding system that aborted development of its Hudson Valley, plus the New England orientation of settlers who developed the upstate Mohawk Valley.

This was New York's first great boom, and it went as wild as Chicago, and fell as hard. Perhaps it went wilder: it had the misfortune of a good credit rating. For a few years before 1837, 90% of the cost of government in New York City was spending on new streets, financed by local improvement bonds. After 1837, its speculative land values melted away like snow in the April sun.³⁹ Buffalo, at the west end of the Erie Canal, also had a wild ride.

New York banks were also under pressure from England. When we were discovering canals, they were discovering railroads, with similar results. Chicago's crisis, like most crises, was a small scene of a vast worldwide drama.

Suspensions swept the south and west. At the end of May, Illinois banks suspended specie payments.

³⁹The same happened to dozens of small towns in the Mohawk Valley. The case of Auburn, New York, is documented in detail by Philip Cornick, *Premature Subdivision and its Consequences*.

A general liquidity crisis followed. People scrambled to convert real goods into cash. Converting normal provisions into cash is an everyday occurrence: loans on such collateral are "self-liquidating." On the other hand, converting huge volumes of real estate into cash is extraordinary, and cannot be done. What resulted was total collapse of sales. Demand dropped but asking prices held. The result: sales (measured by deeds recorded) fell like a stone. Cf. Southern California, 1989-93.

28. Subdividing land came to a complete halt, 1837-43.

29. Asking prices for land held until mid-1839. Then, finally, they dropped by 75% overall, and 90% on the most speculative fringes. 1842 was the nadir, when most construction everywhere came to a complete standstill.

30. The Illinois state bank foreclosed on lands but could not sell them. It failed in 1842. Many marginal wildcat banks failed earlier.

31. Indiana and several Southern states declared bankruptcy, repudiating their state bonds, ruining their credit for years to come. (This severely weakened the Confederate states in the Civil War.)

32. The tide of migration ebbed back east. Chicago's population fell; houses lay vacant.

33. Revival began around 1844, leading to another peak and crash in 1857, following nearly the same patterns.

"When will they ever learn?" could have been written much earlier, and probably will play again. Make sure you, at least, learn now. From 1987 to 1990 I had students study this material, and asked on the final if they saw any danger of its happening again now. Almost everyone answered "It can't happen here." Thus, most people get caught up in the mass delusion. Be you, rather, the rare one who learns from history! In time!