

Land Rent, Taxation and Public Policy:

*Taxation and the Functions of Urban Land Rent**

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I

TAXATION AND THE FUNCTIONS OF RENT

MANY, IF NOT ALL economists now agree that the fisc may tax away rent without impairing any economic function. It is only necessary that the tax be independent of landowner behavior.

What is less widely understood is that *not* taxing rent obstructs its proper functioning. Untaxed landowners through the centuries have manifested a propensity for passive withdrawal that is simply too widespread to overlook and too well proven to redocument.

Some who have advocated (or opposed) "taxing land into use," while correct in their prediction of results, have basically misconstrued the nature of the policy: they see the tax as being piled on top of market rent, and amending the market. This is to be innocent of the basic process of land tax capitalization, briefly summarized by Jensen (1931)† (and curiously missing from the literature since). The costs of carrying or holding land each year are interest and property taxes, each being a percentage (respectively i and t) of selling price (P). If tax rate (t) rises, P falls, reducing the interest burden ($P \times i$) by the same amount that taxes rise. Taxes and interest between them always just exhaust the total rent (a) (1).

The public share of rent is $\frac{t}{t+i}$; the private share is $\frac{i}{t+i}$.

Those who do understand tax capitalization sometimes note that land taxes are not necessary to make landowners economize, but simply substitute a tax cost for an interest cost. They are right in a limited way. But the naive fellow who thinks taxes force land into use is right, too.

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† Bibliographical citations are to items in "Selected Bibliography on Land Rent Taxation," *Am. J. Econ. Sociol.*, 31 (July 1972).

The operation of the tax is simply more subtle than at first glance. I will enumerate five ways that land taxation helps rent perform its functions: by by-passing price discrimination in credit; by reducing land appreciation; by obviating other taxes which bias land use choices; by replacing log-rolling as a paramount guide to public spending; and by overcoming land market imperfections.

A. Price Discrimination in Credit. The poor pay more for credit. They get less, and for shorter periods. The basis of allocating credit is not primarily demand, or productivity, but collateral security. It is the credit rating of the borrower that covers the lender's risk, regardless of the purpose of a loan.

And so capital markets make liquid assets flow uphill, from poorer lenders, who prize liquid investments like bank accounts, to richer borrowers, to whom banks lend money because, in the popular phrase, they don't need it; who are big enough to diversify to cover risks, and to pay regular interest while awaiting late-blooming returns.

Many affluent landowners are even stronger; they do not have to borrow at all. The interest cost they feel when holding land is only imputed interest, at their opportunity rate. Capital markets are extremely insular, with high transfer costs. Many corporations plow back earnings to defer taxes, aggrandize management, inflate (rail and utility) rate bases, etc. Many heirs, heiresses, and retired farmers are not sharply aware of or responsive to mere imputed costs that cause no cash drain; and the absence of cash drain over several years also protects them from a "wealth effect," a loss of net wealth that otherwise finally would force their attention upon any drain. So the force of imputed interest as a holding cost is weakly felt by affluent landowners, as compared to an explicit cash payment of rent or taxes.

The price one pays for land, as a yearly cost, is proportional to an interest rate. The relevant rate is one's borrowing rate—or, for equity investment, one's opportunity rate. And so rich and poor pay different prices for holding the same land. This is price discrimination, but in reverse. The usual discrimination, with lower prices to weaker buyers, can be socially useful by broadening markets for decreasing-cost operations. This reverse discrimination in credit, on the other hand, redoubles the ineffectiveness of the demand of the poor for land.

There is no factor that acts with as much force as land cost, therefore, to screen out the bottom of the market for housing, small business, and other land-using activities. Look at it as adding to yearly interest cost, as

above; or look at it as inflating the buyer's capital requirement: either way, it hits the poor with differential severity.

It is natural that the poor should demand somewhat less land, in proportion to their lesser incomes, and even in lesser proportion than that because land as a consumer good, after a bare minimum, is a "superior" one, a luxury (Eichler-Kaplan 1967). But these are demand factors, not to be confused with the matter of credit, which is an added cost of supply. Credit discrimination means the poor pay more for any piece of land.

Of course, credit discrimination also means the poor pay more for all durable goods. But the interest share of the cost of any asset varies with its durability. The other share of cost is depreciation or capital depletion, which God sendeth upon poor and rich alike. An asset must have a useful life of 30-40 years before interest is as large a share of its yearly cost as depreciation (2). But land does not depreciate as a matter of course at all, so its entire holding cost (in the absence of taxes) is interest.

More, land often appreciates. The coming event casts its shadow before it in premium land prices. The interest cost of holding appreciating land now outvalues its current service flow—just the opposite from buildings. The poor man's handicap grows heavier—he requires more credit to finance each dollar of current cash income.

If we treat appreciation as a deduction from holding costs, and deduct a given amount—say 3 per cent of value—from the interest holding costs of poor and rich, it is clear how this factor exacerbates any differences in basic interest costs. It is a principle of leverage. A poor man's basic interest rate of 9 per cent falls to a net holding cost of 6 per cent; a rich man's 5 per cent falls to 2 per cent. The ratio of the poor man's cost to the rich man's rises from $9/5 = 1.8$ to $6/2 = 3$ (3).

Then there is the matter of risk. We have seen that land, functionally, is a "hired" factor like labor that must be paid in advance. A tenant paying cash rent would not think he could reduce risk by hiring more land. Much less would an impecunious buyer reduce risk by assuming a full mortgage to add land whose marginal service flow didn't even cover the debt service. Inventories and operating capital return principal in a few months. Even buildings begin to in a few years, and a small shoestring operator can often finance a building with a little "front money" of his own. But land income *never* returns principal, unless by error of the seller. The weak hand can return the principal of a land loan only by drawing on other assets, or by net saving from income. From the viewpoint of borrower as well as lender, risk is a maximum.

But when a debt-free landowner is the entrepreneur, he already owns

the principal, and the payment of imputed rent becomes optional. Each year's optional rent payment then becomes something he can draw on to meet deficits. Analytically, the income is implicitly paid (free of income tax, incidentally) but saved, converted to capital and consumed to meet the deficit. More than that, he can draw on the capital value of his land to meet deficits, by banking it. The capital value is 10 to 20 times the yearly service flow, and more if the land value is rising, so the cushion against risk is enormous.

A "weak hand" minimizes risk by hiring or financing a minimum of land. He selects factor proportions heavy on family labor. He turns his limited capital fast, to achieve enough volume to realize necessary economies of scale and keep himself fully employed. He keeps most of his limited net worth in circulating capital, which he can deplete to meet the risk of a surge in demand, or hold in the face of reduced demand. Lacking reserves of wealth to seize bargains and other timely opportunities, he compensates by constantly liquidating and reinvesting his capital. Each recycling gives him a chance to gain from the positive risks of business, and substitutes for possession of great reserves for contingencies.

A "strong hand" owns land outright. He does not regard it as a risky investment. Its value to him depends on its long term performance—he does not need cash every year. Even if it gives him a bad year, or several, there is no cash drain. Indeed, he can convert it to cash any time by borrowing or selling. Its capital value for sale or collateral is not usually much shaken by short run reverses, and often mounts imperturbably toward some higher use. Its capital value is all available to draw on to meet risk. This capital value is very high relative to current income, especially for appreciating land. It is not risked with each throw of the dice.

A strong hand minimizes risk by underusing land. The fact that its capital value is twenty times its service flow means an incremental land investment (holding other inputs constant) of \$1 adds 5¢ to expected annual volume (assume a 5 per cent interest rate). The 5¢ is well cushioned. An incremental investment in capital (holding land constant) of \$1 adds to volume \$1 times the yearly turnover of the capital, plus 5¢ interest (4). This volume is much less well cushioned.

Thus it is very common for economists to advise landowners to avoid improving land to the "theoretically" optimal intensity where the marginal product of capital equals its marginal cost (5). The last quarter or so of gross income is said to be of "low quality," because the added income is so little more than the added cost that it adds to risk out of proportion to the added net income. In all the years that this doctrine has

flourished, no one has raised the obvious counter-argument that the marginal productivity theory is symmetrical: that underimproving land implies over-applying land to the improvement so the last quarter of income from incremental land is of low quality. Why has it not been raised? Possibly economists subconsciously assume the viewpoint of the equity owner of land; and from this view, land represents so little personal risk that it is ignored.

Note that the strong hand who regards land holding as a low risk investment is minimizing his own risk, not social risk. Because the land value on which *he* draws to meet contingencies is not social capital—it is not thrown into any social breach to supply real goods, it is not depleted and used. Rather, he uses it to draw on the pool of real social capital, taking from others who lack equal collateral. Social contingencies and risks are met from real circulating capital. From the national view, it is the “weak hand” with his stock of circulating capital who supplies the resiliency to bear social risks.

Finally there is the matter of management capacity. A weak hand, we have seen, turns his small capital fast in order to employ himself fully. Strong hands have the opposite problem. They turn their capital as slowly as possible, to minimize their involvement in small decisions, continual replacement, hired labor, and customer relations. Land, which never turns over, but often appreciates of its own accord, serves them ideally.

Sometimes a strong hand erects a handsome, prestigious building on land, appearing to use it intensively. These are conspicuous, and create a widespread impression that richer men improve land more. These prestige buildings tend to substitute longevity for yearly service flow, so it is evident their true intensity is less than their marble columns at first suggest. The invisible land input is to commit land for a century to a building that will be obsolete and depreciated in half that time. Even less visible is the same owner’s control of surrounding air rights for his building’s view; of surrounding land to pick up spillovers from his building; of the land under his building for years before he built it; and of dozens of parcels of unused land here and there around the world. These matters defy most empirical studies because of secrecy, indirect ownership, and worldwide ownership by the wealthy. We must therefore give more weight to *a priori* analysis, and its teaching is clear. The comparative advantage of the strong hand lies usually in land ownership.

Now we begin to see the significance of substituting tax costs for interest costs of holding land. It removes a cost that varies directly with a person’s poverty, and replaces it with a cost that bears impartially on all. To be

sure, this hangs on the assumption that tax assessors are less partial to the wealthy than bankers are. Some studies have shown assessment bias favoring larger owners. Others have not, however, and this bias is less universal than the bankers'. It is also illegal, and more open to reform.

The greater effectiveness of tax than interest costs in making rent fulfill its function surfaces for observation wherever low-density zoners are campaigning to prevent rent from functioning to enforce economy of scarce land. There is some rhetoric against "greedy" "fast-buck" landowners who succumb to the temptations of opportunity rent, but the main thrust is against tax assessors. Low-density zoning keeps down land taxes, and so removes from most landowners the effective force that stirs them to economize on land the way economic theory says they should.

The bad results of not taxing land are several. First, the poor live much more crowded than the rich. A study of residential density in Milwaukee County (Gaffney 1972), for example, shows 23 per cent of the population occupying 3 per cent of the residential land area. In terms of land quality, much of this 3 per cent is in blighted neighborhoods. The rich preempt the choice neighborhoods and natural features at low density. Four per cent of the families have 30 per cent of the residential land area. The exception is the rich in luxury high-rise apartments, but these are so limited by overtaxation and low-rise zoning as not to loom large in overall data.

Of course, the poor would live somewhat more crowded than the rich anyway, because land as a consumer good is a superior good. The rich like space and they like good neighborhoods, while the first concern of the poor is better shelter, *i.e.*, the building. But this means that by not taxing land we are losing an opportunity to tax progressively.

Second, small business competes at a disadvantage. The seven international major oil companies like to preempt promising corners. They can wait for future income; it is their special skill: who can wait as well as they?

Third, expanding cities are made to sprawl. Appreciating suburban land levitates to strong hands, so builders are not often snapping up bargains from hungry peasants. They do keep trying, however, to find weak sellers. The problem is that weak sellers are more or less randomly located. Worse: they are likely to hold less eligible land, far out, or on flood plains, or without good roads and utilities. For strong hands take the best land, leaving the scraps for the weak. The result is a denial of all those benefits that rent, by forcing economy of land, would bring. There is waste of good natural features; of public spending; and of unrealized synergism,

in all its varied aspects. Among other problems, sprawl aggravates the disadvantages of smaller businesses, because they need the city, whereas giant business substitutes its internal synergism for the market's.

B. Land Appreciation. We have already seen that land appreciation exacerbates the allocative bias resulting from credit discrimination. Taxing land meliorates this problem by substituting a tax charge for the discriminatory interest charge. There is much to add to that.

Land appreciation receives extraordinarily favorable income tax treatment. The details of its privileged position warrant a book (6). Briefly, they consist in that the landowner can take tax-free cash out of appreciated land anytime by banking it (strong hands enjoying lower interest rates in this matter, too), while income on the capital gain is not taxed until sale, and often not then, sometimes not ever. Taxes if finally paid are at low capital-gains rates; carrying costs deductible from ordinary income.

These and related privileges have made land speculation a sovereign tax loophole, so much so that increments loom much larger in the thinking of many landowners than ordinary taxable income from land use, creating a strong allocative bias for holding. Clearly some strong medicine is needed to counter this bias and abate the resulting over-pricing and hoarding of appreciating land. Taxation of land is such medicine. The income tax as presently administered virtually exempts land increments from taxation (Gaffney 1969). The prospect of heavy land taxation dashes the hopes for such increments, and returns land from hoards to meet the needs of today.

Sometimes the problem is the reverse one: coveted increments motivate premature building in bad locations and add to sprawl. This does not come about in the implausible Davenport (1917)-Johnson (1914) pattern—they alleged that builders deducted land increments from building costs, and passed the gain on to buyers! Rather, there are circumstances when premature building helps to appropriate some privilege associated with land use. An early shopping center in an empty area may exert great leverage over public spending for roads, drawing them to itself with the aid of some political manipulation. To secure the resulting land increment, investors prematurely invade unripe territory, neglecting riper lands nearer it. Land taxation would press for early use of the riper land and deglamorize the increments from acquisition of green land.

Again, the apprehension of imminent low-density zoning in loosely organized suburbs stimulates owners to hasten to sink capital into premature high density improvements in order to establish their future grandfatherhood. There is a double bias toward sprawl. Snob zoning nearer

in pushes investors outwards; anticipated snob zoning further out, and the grandfatherhood instinct, pull them outwards. Grandfatherhood in this case means a monopoly rent attached to land. Anticipated rent taxation would threaten to recapture for the public the value of the privilege, and so weaken the motive to appropriate new ones.

Today, too many allocation decisions are made under the shadow of impending increments. Visualize the hierarchy of land uses as a series of concentric circles. Demand for higher uses is not fully satisfied in their proper circles, because of land holdouts there. Unmet demand probes outwards, casting a diffused "floating value" over outer zones. This floating value raises land prices enough so the outer land is too high priced to renew in its present use, although still unripe for the higher use. What is the landowner then to do when his extant buildings get too old to pay the land rent?

The socially optimal course is to renew the site in its present lower use. But the floating value factor discourages that. He is more likely to let old buildings keep growing old for a while, reserving land for the higher use. Builders needing land for the lower use are forced out another ring, casting their floating value over the next lower use, and so on in a series of shock waves. Result: more sprawl, at every margin of land use. Again, taxing land rent draws floating value back in, focuses it in its proper areas, and avoids this travesty of market performance.

C. Recourse to Other Taxes. Not taxing rent means raising necessary tax revenues by other means. In a small, open economy like the typical American local jurisdiction, these other taxes are almost necessarily shifted "downwards" to landowners, and so borne indirectly by rent. This is because capital and labor are mobile among jurisdictions whereas land is not. So labor and capital will not accept substandard returns in one jurisdiction; but land has no choice. (In this frame of reference it is a good convention to describe rent as "residual.")

If all taxes are shifted to rent, what difference does it make what kind of tax we use? It makes a lot. Taxes shifted into rent get shifted through reducing the supply of the thing nominally taxed, as landowners take evasive action to avoid heavily taxed land uses. Loss of net benefits from the nominal tax base is an "excess burden" from indirect taxation.

In every land-use decision, taxation biases owners against the more heavily taxed use. If the tax base is anything but rent, this bias leads to lower intensity of service flow from land and slower replacement of old structures. Not only are the allocative effects bad, so are the distributive ones.

Taxing land use, and human activity, leads to heavier taxes on the poor, who crowd onto land more densely than the rich, and fortifies the effects of price discrimination in credit in disabling the poor when they compete against the rich for land.

This reasoning rests on assuming a small open economy as the taxing jurisdiction. Many analysts object to assuming that non-land inputs can or will flee from taxes when we broaden the analysis to the national level. I believe they are largely wrong. Take for example the property tax on buildings, and regard it as a national phenomenon.

From the national view, driving capital across a local line is not to lose the capital, as it provides services wherever it goes. It may also be driven back by taxes. But investors have other escape routes.

First, they may move their capital across the international line. Increasing numbers are, aggravating a serious national balance of payments weakness.

Second, they may escape into public bonds. Taxation of private capital makes yields on public issues look better. If public capital needs were fixed there would be little drain of capital into public works. But public capital needs are greatly magnified by urban sprawl. Urban sprawl in turn results partly from taxing buildings, for building taxation lowers the optimal intensity of land use.

Building taxes contribute to sprawl in other ways than by their general tendency to reduce density. In recent times, as central cities age, the building tax base falls. This forces higher tax rates and poorer services, which in turn drives investors away from the central city where they would be welcomed only to be exploited as fiscal surplus generators. Investors then seek hospitable suburbs where new buildings can huddle together, protecting each other by their high taxable valuations from becoming the victims of fiscal exploitation. Thus the general use of buildings as a tax base in a metropolitan area tends to sterilize central lands and bias investors outward.

Applying the same reasoning on a national scale, the older central cities of the Northeast especially have made themselves unattractive relative to growth areas in the West and South, which can keep tax rates lower because their buildings, on the average are newer. This contributes to "continental sprawl," imposing added social costs of interregional linkage, in a manner quite analogous to urban sprawl.

Another aspect is that building taxes make incorporated municipalities with good public facilities look less attractive than they should in competition with incorporated areas with no services but lower tax rates. It is

not that municipalities should not charge for their services; but that they should levy charges in some less clumsy way, that does not make marginal investments submarginal as the building tax does.

Private utility line costs are equally inflated by sprawl. These are nominally taxed as improvements, but the tax is partly shifted forward under rate regulation procedures into higher user charges.

Public works and utility investments are well above average in longevity and capital intensity. Thus they absorb much capital and tie it up for long decades before returning it. The interest is paid by taxes and user charges on the very buildings which compete with the public for capital.

A third source of elasticity in the supply of investment is the macro-economic. Investment volume is elastic to the "marginal efficiency of capital"—*i.e.*, the investor's rate of return after taxes. An increase of investment opportunities brings new capital into being by raising real income and saving.

Assuming, now, that building taxes are not absorbed by investors in lower after-tax returns, they serve to lower urban density and so inflate social capital requirements, frustrate potential urban synergism, etc.

It is obvious enough why they tend to lower capital intensity on central lands. They impose an added marginal cost on every increment to capital intensity of land use, be it of height, lot coverage, quality, or advance of renewal date. It is less obvious why they let capital move outwards to the margins of the city. The same reasoning that says they abort marginal investment on central land would also seem to say they make marginal land totally submarginal, because marginal land yields no surplus that could absorb any tax. That is simply the classic lesson of Ricardo on "Tithes" (1911, ch. 11). But the lesson is too simple. It overlooks the human sources of land rent, that is public works and synergism.

The marginality of land depends on the extension of public works; also on the population and improvement of neighboring land. As capital is diverted from central land into public works extensions, peripheral land previously marginal becomes supramarginal. Investors may therefore build there and still have a surplus to absorb building taxes. People will move out—they have to live somewhere. The presence of pioneer settlers further enhances the rentability of surrounding lands, attracts more capital, builds a base for further extensions, etc. The urban carpet may unroll for miles into the countryside this way. Instead of there being diminishing returns to aggregate national investment of capital, as in both the Marxian and Keynesian schemes, there are probably increasing returns, thanks to the highly complementary relations of interdependent individual land im-

provements in growing districts and regions. This synergism is expressed and confirmed in growing land values around cities. It affords an escape route for the capital that is taxed away from its most productive uses in rebuilding central cities.

The net national results of taxing buildings then are: 1) a reduction in national capital via capital flight overseas; 2) a reduction of aggregate capital formation via the macro-economic process of reduced investment, income, and saving and 3) a reduction of urban density involving great diversion of capital into public works; a general inflation of the capital requirements of living, characteristic of urban sprawl; and, of course, a great increase in aggregate land needs.

So it does matter how we go about taxing rent. Taxing it directly serves the opposite ends: attracts capital from abroad; increases investment, real income, and capital formation; and contains urban sprawl.

D. Logrolling as a Guide to Public Spending. Land rents are partly the product of public spending, as we have seen. If the public fails to charge landowners for public benefits by taxing rent, every public improvement bestows unearned wealth on a few. There are several bad results.

For one, there is no objective criterion for maximizing social benefits in planning public works. Unearned enrichment of a few big speculators or old families or farmers is hardly a "social" benefit. The door is open to pressure and corruption. Indeed, there is hardly any alternative—what would be an honest way to give away public money to a privileged few?

Second, logrolling sets in and leads to over-decentralization. Landowners from every quarter of town compete in city councils for their share of unearned wealth. An efficient city calls for neighborhood differentiation and specialization, with much heavier public spending and higher rents in some areas than others. If rent were taxed, winning landowners would compensate losers through the tax mechanism. As it is not taxed, winners compensate losers in another coin: more public works. You vote for my project and I'll support yours, regardless of merit—it is an old familiar tale at every level of government.

Third, unearned enrichment discredits wealth and property. Instead of being a mark of distinction, a symbol of productivity and service, wealth symbolizes predation, dependency, and corruption. Unearned wealth makes for hypocrisy and a mockery of efforts to legitimize property and rationalize capitalism. Parasitic wealth stigmatizes all wealth. The latent sense of civic community and polity, now so frustrated in American cities, is lost between the avarice of some and the disgust of others. Not to tax

rent, therefore, is to alienate those outside a small circle, and lose a valuable resource of community spirit.

E. Market Imperfections. Because of fixed location and supply of land, the discipline of competition breaks down easily in the land market. Chamberlin (1933), Ise (1940), Hotelling (1929), Hoover (1937) and others have theorized about monopoly elements in urban rent, based on spatial differentiation of sellers of services from land. Curiously, no one has done anything comparable on the much more serious problem of land assembly. Here is bilateral monopoly, secrecy, holdout power, preemption, hoarding, and every nightmare imaginable in trying to make competition work.

The response of land buyers to anticipated assembly problems is, as one might expect, to hoard land for future expansion. This is not self-correcting but self-reinforcing. Buttressed as it is by all the favors to land appreciation noted above, it is a formidable factor.

In a well-oiled market there is pooling of reserves, greatly deflating aggregate needs. In the land market there is little pooling. Everyone must have his own. It is a pattern of vertical integration of firms, with corresponding disintegration of the market pool of land reserves. Industries hold great reserves, of course. Homeowners do too—it is nice to have an extra side yard for a possible future wing, and additions to homes are in fact common. Shopping centers take more land than they really need for parking, for future additions; and if they can sterilize potentially competitive locations by preempting a few key parcels, why not? Public buyers enter to legitimize the whole process, and few private buyers can match the hoarding neurosis ("foresight") of park commissions and school boards.

Another problem is that of the landowners' waiting for greater certainty. The certainty is to be bestowed by his neighbors when they commit themselves to a use. The waiter, however, is not producing certainty by waiting. He imposes uncertainty on his neighbors by not committing himself. The stalemate that sometimes results is far from socially optimal. Something like this has been popularized recently under the name "The Prisoners' Dilemma," and turned into a game.

In such a market, a powerful lubricant is essential if there is to be any semblance of an optimal competitive outcome. Taxing rent serves the function, ever so much better than games between economists pretending they are prisoners. It loosens everyone's hold on land, especially land with monopoly potential (and hence higher assessed value). Releasing

land to commerce is also self-reinforcing, this time constructively. When land ownership turns over faster and easier, everyone's hoarding propensity relaxes. As to the waiting and certainty problem, synchronized assessment increments over whole neighborhoods give the signal that lets every landowner know the time is nigh, and lets each one avoid narrow self-sufficiency and orient his improvement to the immediate prospect of a total interdependent community, complete with Yellow Pages, rising around him.

II

HOW TO TAX RENT

WE SAW EARLIER that many local taxes are shifted to rent, and are indirect taxes on rent. So the trick for public policy is not just to tax rent, it is to tax it in such a manner as to exploit the fact that rent may be taxed with benefit rather than damage to economic functions.

A. *Fiscal Leverage vs. Fiscal Profit Sharing.* The benefits spring, to repeat, from imposing a regular cash cost on the landholder, a charge that discourages his ever retaining land in uses whose service flows fail to cover it. To this, many have objected that it is too harsh; that land users prefer risk sharing and profit sharing to leverage. They can point to some voluntary contracts between private lessor and lessee where rent is a share of profit, or of gross. One could point, on the other hand, to ordinary mortgage terms, with debt service in excess of land rent, which apply more leverage than mere cash rent would. But there are reasons why government should apply more leverage than a private landlord does to his lessees.

One, government possesses a power to allow for exogenous risks, a power not generally available to private landowner lessors, by its assessment of land. That is if, through no fault of a landowner, land on which he had built should suffer a neighborhood decline, a government taxing rent would share the loss by lowering his land assessment. If the fault were his, on the other hand, he would suffer it all, for there would be no general decline of neighborhood values. Likewise, he would reap all the gain from his superior management.

There are a few instances of private contracts tying interest or wage or farm rent payments to some index of market changes. For urban land, however, there is no device in private contract that ties payment to an annual assessment: hence recourse to less perfect devices. Government alone is in a position to supply maximum incentive leverage while still sharing exogenous risk. Sharing the latter, it can reasonably be much firmer about the former.

Two, government as representative of the whole community is interested in fostering cumulative spillover benefits from private investments. It wants private investors to complement its public works with matching private works, containing urban sprawl by meeting demand from good central land. It wants to synchronize interlocking private investments and minimize mutual uncertainty in developing areas. It wants to foster dense population around its retail centers, to support them; and retail centers for its population, to serve them and help pay taxes. It wants to unfreeze the whole land market, discourage hoarding, and prevent all the social wastes of blocking competition.

Three, private risk-sharing contracts presuppose a large guaranteed lessee investment in a building. There is the leverage. Government can not get involved in everyone's private business like that, telling landowners when to build and how much they must invest. By charging a regular rent tax, regardless, it assures that landowners will raise buildings in good season.

A complicating question in rent taxation has always been the treatment of increments to value; and the choice of capital value or current income (realized or "notional") as the tax base.

As to the first, taxation of land value increments obviously lacks the good incentive effects of taxing rent. It is avoidable by not selling, and greatly diluted by deferring sale. It puts a hurdle in the way of sale by investor to builder, and then applies no leverage to the buyer.

Capital value as a tax base has been often criticized as overtaxing rising land whose capital value has risen out of proportion to current cash income. Heilbrun (1966, pp. 123-27) has demolished this argument as it deserves (7). The income from rising land includes appreciation, at the time it accrues. To get at this income, without waiting for sale, a simple tax on capital value suffices (8). To tax current cash income in the lower use is to miss out altogether on taxing the increment. To tax capital value is to have an increment tax, but one that is not diluted by deferral until sale, and does not discourage timely ownership turnover.

B. Rent, Spillovers, and Congestion of Open Facilities. There are two brakes on increasing returns from urban synergism: internal congestion; and external markets. Here we treat the first.

Those who fear congestion of open common space and facilities—streets, schools, parks, air and water—rank high among people who oppose letting rent serve its economic function of forcing land to the best use. They regard congestion of common open space as an external diseconomy from

use of private land: where I have stressed synergistic gains, they see net losses. They favor taxes on actively using, rather than passively holding land, interpreting user taxes on landowners as user charges for open common land and facilities. They favor compulsory land-consumption via low-density zoning, the better to insulate man from his neighbor, and above all to avoid letting immigrants in cheap housing dilute the school tax base. They do not share the Horace Mann philosophy of paying a social dividend to the poor man's children by taxing the rich man's land for public schools.

There is no question of the premise that congestion and pollution are bad. What to do about it is something else again.

One must concede something to each of the points, but not very much, for they are based on a number of confusions.

Confusion number 1 is not to hold population constant in the analysis. That is, intensive land use is implicitly blamed for the birthrate. Land economics takes population as given. Its problem is how to deploy people, not to sterilize them. Thus, intensive land use near downtown does not in itself increase street loads. Rather, it lets a given number of people get downtown by walking or riding buses a few blocks rather than driving a few miles and parking all day. Which arrangement imposes less burden on streets, air, and open space? Which puts more sprawl between the city and recreation in the open country?

True, the more efficient city then attracts immigrants. But these bring added economies of urban scale. The point of urban planning is to achieve a maximum of such positive interdependencies with a minimum of negative frictions like congestion. To that end, accommodate efficiently each given increment of people, and welcome the next. Those who agree with William H. Whyte that "open space is not merely the absence of something bad; it is a positive good" will be pleased to note that the immigrants to these efficient cities cannot avoid leaving great realms of empty open space behind them, which should greatly shorten the Audubon Society's list of threatened rare species.

Confusion number 2 is to equate intensity of private land use with congestion of common space. In fact, private buildings transport people vertically, substituting elevators for horizontal street movement. If we cut off the marginal twentieth story of an apartment or office, and relocate the floor space ten miles out at the other margin of the city (the horizontal one), we would throw a great new load on ten miles of common streets. This is no way to decongest them.

Intensive private land use does not mean an absence of park land. Pop-

ulation around parks justifies the public investment in space, in landscaping and furnishing it. Putting private land to work meeting the legitimate space demand for homes, work, and market relieves the pressure to invade park land. Central city park sites become dearer, it is true. But if urban sprawl were contained by intensive central development, fringe lands now eyed by subdividers would revert to low values and open recreational use.

Confusion number 3 is to overlook the factor of age and quality of buildings. Taxes on buildings and low-density zoning are thought to screen out marginal buildings and their inhabitants. But they screen in buildings that become marginal by virtue of senility.

Confusion number 4 is to conceive of congestion in short run terms. An overloaded sewer, for example, is a sign of short run increasing costs, but not long run. It is a signal to replace the mains with larger ones, achieving in the process great economies of scale. Car-choked streets manifest increasing social cost of cars, but not of transport. They are a signal to tax cars and promote mass transit, again achieving economies of scale. Crowded schools do not reflect overpopulation but inadequate schools, and failure to take advantage of Conant's Law of increasing returns to scale of school.

There is such a thing as true congestion. There comes a scale of city so large and central density so high that an absolute space limit is approached. The "linkage sector" of the city (transport and utilities) moves into the stage of long run increasing costs. In this extremity the optimal solution is not to abandon the principle of taxing rent, but to extend it to the linkage sector, which now yields rents, too. In this case the object of the charge is to limit use and space-consumption in the linkage sector, and so it should take the form of a user charge.

Use of unfenced open space without tenure protection is temporary tenure of the space. So a "use" tax on open space is analogous to a flat tax on the rent of land in formal private tenure. It is not analogous to a tax on the use of private land, but exactly the reverse. To tax the use of private land is to untax the non-use of it. This lets owners hold the space without charge, which is analogous to letting them "use" public space free.

The optimal user charge would be selective, hitting and screening out congesting and polluting uses, reserving limited downtown street space for for higher and less congesting uses. With such a concept in hand, and someone like Professor William Vickrey or James Nelson to administer it, there might indeed be no limit on the optimal size of a city. May we be so lucky as to find out soon! Meantime we already observe progress in this direction on many fronts, from parking meters to pollution police.

Confusion number 5 would be to think of school congestion as a space problem. It is a problem of finance and distributive equity. The solution, I am sure, is to support schools in part by state or federal aids based on population or attendance. Redistributing wealth and paying social dividends are not functions we can realistically expect of local government in a mobile age.

C. Intergovernmental Relations. The second brake on increasing returns from urban synergism is the external market. Many cities fear growth because they think their market is limited.

If a private firm reasoned that way, economists would identify it as a monopoly and evaluate the attitude accordingly. To cities we give more rope: they represent the public. But what "public?" Only the land-owners of the city. They are all too happy to exploit other "publics" in the old Hanseatic tradition documented by Schmoller (1884).

Central government represents the larger public. Its interest is to apply more positive leverage to cities than they might apply to themselves, to counter any monopoly restriction or stodginess. One such kind of leverage I have already mentioned, the payment of school subventions based on population. Legislative reapportionment based on population affords another growth motive, praises be to *Baker vs. Carr*.

A third kind might be a state tax on rent, as now proposed in Oregon by Dean Lindholm. State government finances many of the public works that generate urban rent. It has a legitimate interest in being recompensed. It stands toward cities much as they stand toward private individual land-owners. The state spends to give the city opportunities. Many cities fail to respond with spending on local feeders and network lines to match the state's trunks. The state needs to apply tax leverage.

It has the institutional power. State taxation of real estate is not dead, it is alive and well in Nebraska, and merely quiescent in other states. Anglo-Saxon-Norman law makes no bones about the ultimate underlying eminent domain of the state over all land. Some creative economist needs to propose a specific formula for sharing rents between state and city. The important thing is the general purpose: collect state-created rents to prompt cities to spend to generate more rents. In sharing these new rents between state and city, both can afford to be generous. Synergism yields a comfortable surplus for the city. As for the state's tax base, Adam Smith noted 196 years ago that the "Commerce of the Towns Contributed to the Improvement of the Country" (1776, Book III, ch. 4).

The state has the moral authority to tax rent. In the past, many people

shied away from "confiscatory" taxation. But now that question is obsolete. We already have confiscatory taxation. The only question is what shall we confiscate? Is it land that belongs to the state, or people? That is the alternative. We have gone a long way towards socializing people in this century. We draft young men and we tax human talent, in Toynbee's words, as though the talented ones had committed some pre-natal crime against humanity; and we take a regressive payroll tax from every worker. Every bit of rent we confiscate now lets us un-confiscate that much of ourselves as human beings.

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1. Algebraically, $P = \frac{a}{i+t}$

$$\text{Carrying cost} = (i+t)P = (i+t) \frac{a}{(i+t)} = a$$

For derivation and elaboration see Mason Gaffney (1962).

2. A building of 40-year life, and initial cost of 1, depreciates in a straight line at $2\frac{1}{2}$ per cent yearly. Mean capital investment over life is $\frac{1}{2}$. Interest at i per cent on $\frac{1}{2}$ is $2\frac{1}{2}$ per cent.

For more precision one would elaborate from empirical data on depreciation patterns on the following lines. Mean yearly depreciation is $1/L$, where L is life. The level cash or service flow of an asset whose present value is one is $\frac{1}{1-(1+i)^{-L}}$, where i is interest rate. The share of this level flow that is depreciation is:

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

If $L = 40$ and $i = .05$, the share is $\frac{1(1-.14)}{40 \times .05} = .43$.

If the service flow is not level but declining (the normal pattern) then the depreciation share is larger.

3. For an elaboration of these points see Mason Gaffney (1961).

4. For example, if capital turns in 4 years, added yearly volume is $25\phi + 5\phi = 30\phi$.

5. A particularly conspicuous landowner to receive this advice from many prominent economists is the U.S. Government. Economists who advise citing public works on public lands so as to maximize the "Benefit: Cost Ratio" usually assign no cost to the public land, even though it may be a scarce and valuable damsite. Thus they are advising against intensity great enough to equate marginal product and marginal cost of non-land inputs. The practical error is often compensated by understating non-land costs, especially interest. But the analytical error is no less glaring and mischievous in its overall confusing effect on the minds of economists.

6. An effort to sum them up has been made by Mason Gaffney (1969, 1967b).

7. For mathematical treatments see Gaffney (1967b, pp. 308-13 and 321-22) and (1969).

8. The tax is a fixed percentage of the capital value. So, in equilibrium, is the yearly appreciation. Therefore the tax is a fixed percentage of the appreciation.