



Land Rent, Taxation, and Public Policy

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"LAND RENT, TAXATION, AND PUBLIC POLICY"

Mason Gaffney

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I. Rent, Taxation, and the Economists

Not many years ago, mention of taxing ground rent was likely to evoke at best pleadings of ignorance, usually well founded, and at worst scorn and rage, similarly founded. More recently, many economists have set out to dispel the ignorance. Netzer [77], Harriss [45], Gaffney [30, 33], Schwartz and Wert [87], Clawson [13], Hulten [58], and Alyea [1] have written on urban taxation in the United States. Turvey [98] has written in the English context; Holland [52], Lindholm [70], and Kaldor [64] in the developmental. McDonald [73] and Gaffney [28, 29, 34] have written on taxing rent from exhaustible resources; Brewer [3] and Henley [50] on rural land taxation. Clark [12], Rawson [80], and Groves [41] have written on experience in Canada and Australia. A complete modern bibliography would go on for pages.

These modern restatements have a distinguished ancestry. Most economists are aware that the classical economists wrote seriously and favorably about taxing rent. Smith [93, Book V, pp. 773-803] and Mill [74] were advocatory, followed by Say [84], Senior [89], and Cairnes [7]. Ricardo [81] stated the rationale curtly in his Chapter X, "Taxes on Rent."

It is less well known that many neo-classical and interwar period economists argued for taxing rent. These were the years when the topic was dominated by the antagonistic personality of Henry George, who attacked

economists as Mandarins and won their enmity. Marshall and Walker¹ debated him bitterly --- yet they wrote lucidly of the advantages of taxing land and rent [72]. [100] [101]. H. G. Brown² is known as the advocate in this period, and is often thought to have stood alone. Many economists will be surprised, therefore, at the favorable treatment by Pigou [78], Carver [9], Graham [40], Hotelling [55], Hayes [47], Bye and Hewett [6], Trevelyan [97], Zangerle [106], Heaton [48], and Simpson [92]. Institutionalists Commons' [14] interest was particularly strong; he was an active political partisan.

On the Continent, the contentious prose of George paled beside the florid Gallic advocacy of the father of the sober-sided art of mathematical economics, Walras.³ Another land-taxer was Wicksell [103].

Naturally there have been also noncommittal writers, those reserving judgment, those wanting limited or modified taxation of rent, and so on. Among these are Anderson [2], Simon [91], Fisher,⁴ Wald [99],

¹Walker is known for his furious debates with Henry George, but evidently stood closer to him than many writers.

²The Economic Basis of Tax Reform [4]. A complete list of Professor Brown's contributions to this topic would number thirty or more articles and books.

³See L. Walras, Études d'Economie Sociale [102]. It is a pity that all of this is lost in the Jaffe translation, which altogether Bowdlerizes this aspect of Walras.

⁴House and Home [23]. This work taken alone would place Fisher among the advocates, but elsewhere he expresses deep doubts about the feasibility of distinguishing land and buildings [24].

Seligman [88], the Hickses,⁵ Heilbrun,⁶ Jensen,⁷ Scheftel [85], and Haig [42, 43, 44].

There has also been the negative. Outright skeptics and critics include Cannan [8], Edgeworth [18], Hoxie [57], and Darwin [16], who emphasized the problem of street congestion. King [66, 67] objected to distinguishing land value increments from other speculative gains, as did Knight [68]. Ely [21, 22] objected to forcing unripe suburban land into premature use. A. Johnson⁸ and Davenport [17] took the opposite tack, that private collection of land value increments stimulated outmigration and building. V. Johnson and R. Barlow [63] emphasize distributive inequity and regressivity. Ratcliff [79] denies the possibility of defining ground rent, as do Keiper et al.⁹ Kurnow [69] believes the base to be inadequate.

⁵In their Report on Finance and Taxation in Jamaica [51] the Hickses question the feasibility of assessing land, but favor the assessment freeze approach to new buildings.

⁶On allocative grounds Heilbrun is among the proponents, but he is concerned about adequacy of yield and equity [49].

⁷In his "Exemption and Improvements" [60] Jensen emphasizes the inadequacy of the base but is otherwise favorable.

⁸Johnson [62] asserts that land value increments stimulate both agriculture and building.

⁹Theory and Measurement of Rent [65]. An extraordinary book in which the authors first deny that rent is definable and then purport to measure it.

The topic has not, then, been altogether neglected, as often thought. It has recurrently commanded the interest of economists over at least two centuries and continents. It has, however, been neglected in the senses that it is much bigger than the little treatment it has received, and even that little is not widely known. I will not review here the literature, nor reopen old debates, but will survey the topic, emphasizing several new issues and approaches, with a view to affording some notion of how vast the field really is and how much work is needed. I will treat the social functions of urban site rent; the necessity of taxing rent for it best to serve its social functions; alternative ways of taxing rent; and inter-governmental relations.

II. Urban Land Rent: Meaning, Sources, and Functions

A. Meaning

Essentially, rent is the net product of land after deducting non-land costs. It includes imputed service flow as well as cash flow, of course, with the former assuming primary importance today because exempt from income tax.

There is a host of definitional details in applying the simple basic concept of rent. In respect to time, "rent" is originally an annual concept based on the yearly repetitive cycles of farming. Most urban ground rent, even under static assumptions, derives from an irregular stream of costs and revenues over the life of a building. To be sure, the ubiquitous parking lot yields yearly and even daily and hourly ground rent with a minimum of intertemporal dependence of costs and revenues. But most urban rent must be discovered by first forecasting the life of buildings; then discounting costs and revenues to the present; and finally multiplying this

present value by the capital recovery coefficient,¹⁰ which converts it to a level annuity over building life.

Under dynamic assumptions the definition of rent becomes even more interesting. Building lives must be foreshortened to allow for progressive locational obsolescence, to release the site for a series of higher and higher future uses. Land income now consists of two parts: simple ground rent from first-generation buildings; and value increments from the temporal approach of higher future rents. R. T. Ely developed his theory of "ripening costs" to justify postponing land improvement in this condition, but there was no pretense of rigor in his analysis, which was innocent of any real capital theory [20, 21, 22]. The Lutzes have applied capital theory to a parallel analytical problem and reversed the conclusion, I believe correctly [71]. This correct determination of optimal life yields also a correct definition of rent.

In respect to quantity, additional land around a building yields increasing and then diminishing net service flows, so one need usually distinguish marginal from average net productivity, except in an equilibrium when all latent plottage has been realized by replatting. Even in this equilibrium, outlying incremental square feet are less productive to a land-using householder or firm than central ones, and as a whole unit

¹⁰In standard interest tables, the "annuity whose present value is one":

$$\frac{i}{1 - (1+i)^{-L}} \quad \text{where } i \text{ is interest rate and } L \text{ is life. To capitalize in perpetuity, divide by } i, \text{ but note this would assume stasis in perpetuity.}$$

For more detail see Gaffney [30, pp. 154-57], and [27].

✓ expands, added sub-units become marginal in location as well as quantity. All these little details need to be tidied up and specified in defining rent for any particular purpose.¹¹

The purpose of social policy, to which this paper is oriented, is generally best served by defining rent as the highest latent opportunity cost of land. Ideally, this rent would be charged against all land uses so as to eliminate all marginal extensions of land holding, in space or time, whose marginal service flow fell short of the marginal social cost.

There is a lingering tradition of regarding rent as a "residual." Although economists generally recognize that residual and direct imputation are equivalent, the old idea persists. It is a poor convention. It makes of rent a wastebasket for the mistakes of managers and the slothfulness of heirs. Landowners dealing with lessees are more importunate: rent is due periodically with the passage of time, regardless of land use. Owner-occupants leasing land from themselves need to apply the same principle. If an owner fails to profit from good land, it is not the land's fault. For social as for private accounting, land should be imputed the highest available latent opportunity cost. Like the lawyer, its time is its stock in trade. Land-time is worthy of its hire--that is rent. Land as such is passive and irresponsible. It yields its service flow by being owned and available. It is always an input to its owner's economy, regardless of output. Actual use is a function of ownership and management.

¹¹ A beginning has been made by M. Gaffney [29].

Neither should land be regarded as a risk-bearing agent. Land is a flow resource, not a fund of circulating capital which can be depleted to meet losses. Land is best regarded as a hired factor, like daily labor, to which the capitalist employer advances "subsistence."¹² The owner demands regular payment, in advance of product completion and consumption. The great Wicksell nailed down this point.¹³ Landowners who lease land to building owners on long terms for level annual payments--the most common arrangement--confirm the point.¹⁴ The reason that common parlance and perception often confuse the landowner function with the capitalist function is that the functions are usually joined in the same person. Imputation of rent requires a functional analysis, however. Functionally, the owner of capital hires land and advances rent. Capital then carries the product over time, absorbing risk for better or worse. It is capital that is embodied in a product irreversibly, losing any scrap value commensurate with its previous value, while land retains a scrap value in general equal to its previous value--an unlosable measure and meaning of opportunity cost. It is capital whose return is meaningfully "residual."

¹²The term has an archaic ring which may raise eyebrows; but this classical term expresses the relationship of capital to hired factors better than any later expression. If this be wages-fund heresy, make the most of it! It is actually Wicksell.

¹³Value, Capital and Rent [103, pp. 98, 103, 115, 146-68]. It is tragic that these penetrating insights have not yet found their way into common use and understanding.

¹⁴Other lessors who take a "piece of the action" do not refute the point. Rather, they are assuming part of the capitalist's function of bearing risk, frequently involving a contribution to capital. As always

If it is not already obvious, these definitional details assume great importance when we later ask how best to tax "rent," and what effects to expect. They assume great importance when we ask how much of urban property income is "rent." If the above definitional detail be used, the estimates of urban rent and land value made by Goldsmith [39] and Kurnow[69], often cited and relied upon, are meaningless. The allocation between land and buildings made by most tax assessors is meaningless. If rent is the latent opportunity cost of land, then most current operating income from property in older central cities is rent.

B. The Sources of Rent

Land rent is the joint product of three things: natural features, public spending, and private activity by others than the landowner.

Natural features include location at a natural confluence of routes, amenities, bearing strength, drainage, and so on. Non-economists, including many planners and engineers, often go overboard attributing all value to such natural features, with no regard for travel savings and mutual access. Economic model builders have a weakness for the other extreme, because time-distance is fun to model. The market plods ahead and resolves the several forces, disregarding unbalanced advice. Many economists, happily, are now developing models and evidence weighing and balancing various determinants of urban rent and value [75, 76, 46, 90, 15, 82].

in questions of functional imputation, the function must be distinguished from the person.

A landowner as such may also take a "piece" as an indirect and imperfect means of letting rent payments vary with variations in the exogenous factors determining rent. Farm landowners have devised a much better technique, the use of county average yields that reflect weather but not individual management. The public has an even better technique: the use of assessed land values, kept up to date rigorously.

Public spending is essential first to establish and maintain land tenure. The public armed forces appropriated land initially for the nation, and maintain sovereignty. In marginal outposts where American-owned land has been confiscated (Cuba, Guatemala, Mexico), or might be (Saudi Arabia, Phillipines, Chile), the point is hard to miss, much as many would like to. Local police are equally essential: imagine collecting rent in Harlem without them. In this age of riots and rent strikes, looting, loitering, and absentee landlords, the need for hired force to maintain property institutions not commanding universal spontaneous compliance is all too clear.

Public spending also supplies works and services that add to land rent. Indeed, the entire net benefit from many public works is to be found in the added rents they create. Other public works, like water supply or power lines (where these are public) yield added revenue from user charges. In setting the level of user charges, the debate often, indeed customarily, proceeds without recognition that Newton's third law must apply, i.e., for every added user charge there is an equal and opposite reaction in the form of lower rents on the limited land served. Fortunately the marginal cost pricers are bringing to increasing audiences this basic law of conservation of economic energy, which Hotelling [55] made so clear in 1938.

A portion of what the world calls "land value" is produced by the landowner himself, as when he subdivides and pays much of the initial capital cost of streets. This still occasions some confusion in defining rent. But Marshall solved the dilemma long ago with his concept "the public value of land" [72]. (See also Pigou [78].) What is rent depends on what the public does free for the landowner. If the public does nothing

there is no added rent from this source.¹⁵ A good working definition of rent is that amount which could be taxed away without impairing any useful incentive.

Under current practice around American cities, some subdividers have to contribute something like \$2000 to the value of the finished lot, which may be from 10% to 100% of its market value, depending on location. Clearly true land value is only the excess above this cost, and rent is the annual equivalent of land value. The landowner whose land income is all rent is he who just uses frontage along an existing public road. Taxation of rent would hit the latter harder than the subdivider, and help avoid the noxious pattern of sucker¹⁶ driveways strung out for miles along trunk roads.

The private share of street improvements is overestimated by some analysts who look simply at the landowner's initial capital cost. After that, the public assumes maintenance, repair, snow removal, policing, and finally replacement. In most neighborhoods the original landowner's early contribution is long gone and may as well be forgotten. The landowner does continue to contribute in his capacity as a taxpayer; but not unless his tax payments get ahead of the service flows received back can he claim to have a net credit in creating rent.

Public authority today also gives--or denies--rent through zoning control of land use. Where zoning is limiting, a monopoly rent attaches to it;

¹⁵ Warren Roberts has written profoundly on the absence of rent under political turbulence, and rent as the product of an effect sovereign [83].

¹⁶ The analogy is to a twig growing directly from a tree-trunk without proper dendritic development of limbs and branches.

and where this is appurtenant to land it may as well be regarded as part of land rent. The power that influential people have to get preferred zoning in a variety of places is temporarily another form of monopoly rent; but once exercised, it too becomes appurtenant to land.

A third source of urban land's productivity is complementary private activity on other land significantly linked to a given parcel. Positive spillover benefits, cumulating and reinforcing, are emphasized by urban economists as what cities are all about. Urban gravitation, magnetism, agglomeration economies, scale, critical mass, increasing returns, external economies, and now symbiosis and synergism are common terms for the phenomenon. I will use the last, indicating an interacting process where the whole comes to exceed the sum of its parts. The excess is rent.

✓ Marshall [72] and George [38] perceived it long ago. Florence [25], Fetterman [26], Thompson [96], Gaffney [37, pp. 503-07], and Chinitz [11], among others, have eulogized it recently. E. M. Hoover [53] sought to summarize the causes in three basic principles: multiples, massing of reserves, and bulk transactions. "Multiples" refers to specialization and subcontracting; "massing-of-reserves" to pooling of supplies through mutual access; "bulk transactions" to large scale transfer and handling. Interpreted very broadly these spare words may be intended to subsume a host of gains from urban size and concentration, but it is probably not redundant to itemize cheaper distribution; greater markets and tax base to share the cost of, and warrant greater investments in developing the city's basic locational assets, and supplying unique facilities and services. Larger markets also serve to whet competition, to maximize choice and variety, to foster innovation, to pool risks and maximize load factors, to improve

credit, and to facilitate all human contact for economic, social, and political ends. Nothing short of several thousand pages can really convey the full force of urban synergism. The first thousand might profitably be the Yellow Pages. But Adam Smith captured the essence in one phrase, "The division of labor is limited by the extent of the market."

Frank Knight [68] and other critics of the rent concept have emphasized how much of land rent is a "human product." But mark well the confusion in identifying the individual landowner with all humanity. Rent is the product of people, it is true, but they are other people than the rent collector. The human contribution to rent is given through public spending and synergistic spillovers.

Summing up, urban land rent derives from natural advantages, public spending, and synergism. It may be defined operationally as that which may be taxed away without impairing any functional economic motivation. So defined, it comprises a large share of the income of urban real estate.

C. Economic Functions of Urban Land Rent

Most prices and factor payments serve two functions: to elicit supply; and to ration it among competing demands. Rent serves only the second of these.

It is not that the supply is fixed, although the supply of natural advantages is fixed. Public spending and synergism both add to the want-satisfying service flow of land. But privately collected rent does not elicit public spending (except dishonestly). Neither does rent on one parcel stimulate private activity on other parcels of the sort that radiates synergistic spillover benefits. The synergistic part of urban rent is created, like the British Empire, in fits of absentmindedness; not aforethought by those who receive it.

High urban rents do cause fringe landowners to reallocate farm land to urban use. Some interpret this as "eliciting supply." But from an overall view, this is clearly part of the function of rationing the fixed land supply among competing uses. The city only gains what the farm loses.

Many words have been wasted over whether land supply is fixed or elastic. The answer is in one's definitions and terms of reference, which need to be specified. The present subject is taxation of urban rent. In this context, an elastic supply is one that flees a jurisdiction in response to taxation. Taxing jurisdictions are defined as areas of land, from which land cannot, by definition, flee to escape taxes.

If anything, land supply rises due to taxing it. Higher taxes give the public more to spend to enhance the rentability of land. Taxes also increase the public motive to spend to create more rents, since taxes return a share of rent to the agency that creates it. We will also see presently that taxing land rent may activate inert land. The resulting increased private activity spills over synergistic surpluses onto neighboring land, adding to real service flows from land.¹⁷ In view of these matters, land taxes do not erode their own base but tend to increase effective supply.

The function of rent is to ration land among competing demands. The tax authority must take care to announce (in Pigou's sense) taxes in such a way as not to impair this function. Rent communicates the economic signal letting no one believe that open space is a free good. It constrains

¹⁷ If there were a monopoly-breaking effect from activating inert land the result might be a net loss of rents to monopolists. There would, of course, be greater gains elsewhere. See IV, C.

owners to economize not just on nature's gift of raw space, important as that is; but also on the other factors that give land its value. These are public spending, and spilled-over synergism. The first obviously costs money. The second may seem "free" like nature; but it is, again like nature, scarce, and must be economized.

Indeed, the natural limit on land supply makes it the more important that rent be charged to ration land, to assure that mankind receive the maximum benefit from what land there is. Intensifying land use is a substitute for adding to land supply. When this function is obstructed, as by rent control or low-density zoning, the supply will not go around. The needed extra land may then be supplied, at enormous social cost, by extending urban infrastructures into the country. Charging market rents on central lands would supply it at no social cost.

Ely and Wehrwein described rent as the "sorter and arranger" of land uses, pursuing von Thünen's model where rent withholds central land from lower uses in order that they not interfere with higher and better ones. This only begins to tell the rationing function of rent, however. Rent not merely sorts commerce from industry, it is much more subtle. It determines the optimal intensity of each use.

Intensity is the quotient of non-land inputs divided by output. It has several dimensions. An obvious one is height. High rent ordains high buildings. Marshall expounded the rationale artfully. Beginning with a high building, hold floor space constant while you cut the height and expand horizontally onto a larger site (all this in the planning stage, of course). Thus you lower building cost but increase land cost, with constant

output. Optimal height is where the marginal saving of capital from adding land equals the price of land.¹⁸

Another dimension of intensity is, of course, quality. Rent constrains people to enjoy their luxury in the form of better and lovelier buildings and plantings instead of wide grounds.

Yet another aspect of intensity is density of occupancy or use. This is not fully harmonious with quality, for there is up to a point a conflict between quality and crowding. The conflict is resolved in the market place. The poor compete with the rich for valuable land by doubling up at higher density. They compete so well that the 100% location in most retail areas serves not the carriage trade but the mass market, sharp elbows and all. They compete so well that the rich, where they have the power, often dismiss the market referee and legislate for low-density zoning, a sort of compulsory land consumption. This strengthens their consumption dollars by giving preference to their style of consuming space. It helps them even more as owners: although it lowers some specific unit values, one would expect compulsory consumption to valorize the whole.

A final dimension of intensity is temporal. We have seen that rent is an annualized level amount derived from fluctuating yearly costs and revenues, over building life. Intensity is the quotient of non-land inputs

¹⁸Marshall [72, pp. 447-49]. An excellent modern empirical English work is P. A. Stone, "Economics of Housing and Urban Development" [94]. Stone's work is written from the viewpoint of a town-builder who holds streets and buildings equally in his purview. A work of high quality, it betrays an interesting technocratic blind spot. Economy of land is conceived as economy of streets and farm land. There is no use of market value, hence no economy of synergistic values or travel time.

divided by output, remember. These non-land inputs must be annualized to compare them with annual output, and compute intensity.¹⁹

The findings from this operation are more than trivial, for they establish a trait of intensive land use that common parlance and perception overlook: to wit, shortness of building life. The annual input from a dollar invested in constructing a new building is the sum of depreciation and interest on the undepreciated balance. The shorter the life the greater the yearly depreciation input. In terms of output, that means a dollar invested so as to be recovered with interest in 20 years must yield a higher annual service flow than one to be recovered in 60 years.

It is very common for economists to deal casually with intensity in terms of building value and land value. This can lead to oversights. A million dollar building may represent high intensity or low, depending on the life over which it is designed to yield service enough to return the million with interest. The shorter the life, the higher the intensity.

A function of rent is to attenuate the lavish use of land-time, just as it constrains the careless use of land-space. This is easy to show with a little of the mathematics of capital theory; but most readers require some orientation before they feel comfortable with that, so let us instead adapt Marshall's technique of common sense applied to rates of substitution between land and capital. Beginning with a short-lived building, hold the

¹⁹Alternatively, one gets equivalent results by discounting all costs and incomes to present values, but it must be done in perpetuity, and most capital theorists overlook this, so their use of present value leads to error. Annualization gives the same result as the perpetuity approach, but without the use of a nebulous infinite future.

present value of future service flows constant while you cut the yearly service flow and expand temporally into a longer-lived building (all this in the planning stage, of course). Thus you lower building cost but increase the present value of the land-time required, with constant present value of output. Optimal planned life is where the marginal saving of capital from adding future land-time equals the present value of that increment of future land-time.

The higher the future rents, the greater the pressure not to substitute longevity for service flow.

Again, there are conflicts between the things that high rent stimulates. Tall buildings tend to be more durable. Rent promotes height but discourages longevity. Again, the market resolves the several forces and settles the conflict. Circumstances determine which force prevails in each case.

Mark that the subject was planned longevity. Another function of rent is to convey up-to-date information about changes in the scrap value of land. This new information is the basis for ultimately demolishing a building to salvage the land. The time to demolish is when the old building ceases to yield a return on the salvage value of the site. Almost always time will have brought some surprises and locational obsolescence, and the original plans should be modified.

While the latter point is in the literature [33], the former is not. The role of rent in determining the planned longevity of capital is virgin intellectual territory. Whoever works out the analysis and what it implies for policy will have made a signal contribution to economics and the public welfare. The macro-economic implications are challenging. Rent affects

replacement and turnover of capital, and hence demand for labor, factor proportions, and even gross investment and hence national income. There is a set of challenges worthy of anyone's steel.

So far we have surveyed the impact of rent only on individuals singly. But the rationing function of rent is more subtle yet, and more social. Rent coordinates interdependent activities of neighbors.

A remarkable accomplishment of rent is to encourage the production of spillover benefits--yes, even those which are produced in "fits of absent-mindedness." Here is the invisible hand at work, once removed! This comes about because the "highest and best use" of land is usually that which most complements its neighbors.

The landowner is not trying to complement his neighbors; he wants access to them. But there is a law of reciprocity. Access is mutual, so what is the poor Scrooge to do? In spite of his worst intentions, he can only help himself by helping others. By using his land optimally he not only exploits the opportunities his neighbors and government have given him: he gives more back. If in addition he and his neighbor should happen to perceive this happy relation, and deliberately plan to maximize joint net benefits, there is no telling how far self-interest might carry them. And is it really unrealistic to anticipate a little public spirit, too?

So rent not only makes landowners economize on synergism, it makes them produce more. Rent thus plays a central role in a self-reinforcing multiplier process whereby growth begets growth. Like all feedback processes, this one is complex, powerful, temperamental, and imperfectly understood. It is what makes urban economics the mystery and challenge that it is. Like all multipliers, it has brakes too. Limited hinterland

is an external one; congestion an internal one. We will see presently some ways to release these brakes.

Another function of rent is to determine the timing of land use succession. An old building should be demolished and replaced when its current operating income ceases to cover interest on the land value. Given static expectations, that is simply rent. Given growth expectations, that is rent from the first generation replacement plus an adjustment reflecting the economic value of bringing later generations nearest to the present [71].

Rent not only tells the individual when to renew, it helps synchronize the succession of uses on neighboring sites. As a city expands, or as its center expands into old residential neighborhoods, high opportunity rents at the perimeter apply simultaneous pressure to all landowners there to convert to the higher use. With this mechanism in good working order, all private and public investments in the transition area can be made with secure knowledge that complementary and supplementary activity is forthcoming without costly delays. This is the triple-S principle: synchronized synergistic succession.

A last function of rent is to help plan the linkage or circulatory sector of the city -- streets and utility lines. These generally raise rents, particularly when the user charges are kept low and equal to marginal cost. By capturing the surplus benefit from these works, rent can serve to measure the surplus, and simultaneously, if taxed, to finance the deficits of marginal cost pricing. Decisions of size, extension, and replacement of lines can then be made optimally [30, pp. 157-68].

III. 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: that the base be the potential of land rather than the kinetic; the aptitude rather than the achievement; the faculty rather than the use; the opportunity rather than the residual. In fine, the base should be rent as defined in I. above.

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 [61] in 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).²⁰ The public share of rent is $\frac{t}{t+i}$; the private share is $\frac{i}{t+i}$.

²⁰ Algebraically, $P = \frac{a}{i+t}$

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

For derivation and elaboration see Mason Gaffney [29].

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. 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 to 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 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 [19]. 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 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.²¹ 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

²¹A building of 40-year life, and initial cost of 1, depreciates in a straight line at 2 1/2% yearly. Mean capital investment over life is 1/2. Interest at 5% on 1/2 is 2 1/2%.

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 $\frac{i}{1-(1+i)^{-L}}$, where i is interest rate. The share of this level flow that is depreciation is:

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

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.

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% 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% falls to a net holding cost of 6%; a rich man's 5% falls to 2%. The ratio of the poor man's cost to the rich man's rises from $9/5 = 1.8$ to $6/2 = 3$.²²

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 principle 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 principle, unless by error of the seller. The weak hand can return the principle 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 principle, and the payment of imputed rent becomes optional. Each

²²For an elaboration of these points see Mason Gaffney [36].

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 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% 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.²³ 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.²⁴ 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, it adds to risk out of proportion to the added net income. In all the years that this doctrine has flourished, no one

²³For example, if capital turns in 4 years, added yearly volume is $25¢ + 5¢ = 30¢$.

²⁴A particularly conspicuous landowner to receive this advice from many prominent economists is the U.S. Government. Economists who advise sizing 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.

has raised the obvious counter-argument that the marginal productivity theory is symmetrical: that underimproving land implies over-land improvements, so the last quarter of income from incremental land is of low quality. Why has it not been raised? It seems likely that many economists subconsciously or reflexively 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 [32], for example, shows 25% of the population occupying 3% of the residential land area. In terms of land quality, much of this 3% is in blighted neighborhoods. The rich preempt the choice neighborhoods and natural features at low density. 4% of the families have 30% 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 basic 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 these need the city's linkages, whereas giant business substitutes its own 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.²⁵ 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 and most losses are 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

²⁵ An effort to sum them up has been made by Mason Gaffney [31] [35].

appreciating land. Taxation of land is such medicine. The income tax as presently administered virtually exempts land increments from taxation [31]. 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-Johnson [17] [62] 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 in. Land taxation would press for early use of the riper land and deglamorize the increments from acquisition of green land and seduction of suburban councilmen.

Again, the apprehension of imminent low-density zoning in loosely organized suburbs stimulates owners to hasten sinking 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 taxes 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 heavier 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. Let us take as an example the part of the general property tax that falls 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 in the second jurisdiction. 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 average newer. This contributes to "continental sprawl," imposing added social costs of interregional linkage, in 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 unincorporated 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 automatically shifted forward under rate regulation procedures in 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 data. 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" [81, Chap. XI]. 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 improvements 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, 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 to 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 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 [10], Ise [59], Hotelling [56], Hoover [54] 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.

IV. 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 rent 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 supplies no leverage to the buyer. It warrants short shrift.

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 [49, pp. 123-27] has demolished this argument as it deserves.²⁶ The income from rising land includes appreciation, at the time it accrues. To

²⁶For mathematical treatments see Gaffney [35, pp. 308-13 and 321-22] and [31].

get at this income, without waiting for sale, a simple tax on capital value suffices.²⁷ 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.

²⁷ 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.

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

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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. Population 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 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 landowners of the city. They are all too happy to exploit other "publics" in the old Hanseatic tradition documented by Schmoller [86] and the German Historical School.

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 landowners. 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,

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