

LAND RENTS AS A SUSTAINABLE REVENUE BASE FOR CHINA

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(There were eight articles written and published in both Chinese and English in a Special Issue on Land Value Taxation, Journal of Translation from Foreign Literature of Economics. This special issue arose from a project within the "2013 Plan of introducing overseas high-level cultural and educational experts," which was financed by the P.R. China. The project was applied by the College of Architecture and Environment of Sihuan University, in collaboration with the Trier University of Applied Sciences (Environmental Campus Birkenfeld), Trier, Germany. Within the urbanization program of the Chinese government the biggest migration of human history will happen. Speculation and high prices of real estate are a problem. The conversion of agricultural sites into developed areas needs more control, in order to guarantee food security. The tax base of communities has to be strengthened and sustained. With sound land taxation, the land use planning might be supported by financial incentives. A sustainable source of public finance might be exploited, without putting the economy in disorder. The articles can be downloaded at <http://se.xmu.edu.cn/izyc/LVT.asp>.)

China is looking for new methods of raising revenue to support its government and services for its people. This paper will introduce the concept of collecting land rent which will provide the needed public revenue for China's economy. It will show how to implement the concept of collecting land rent and methods for valuing land rent.

Real estate consists of land and buildings. The nature and characteristics of land and buildings are totally different and the revenue raised from each has totally divergent effects on people, communities, commerce, growth and economic well-being. Buildings are created by man's labor and incur a cost to produce. They deteriorate over time, lose value and need to be replaced. They should be built in suitable locations in order to preserve farm land and natural resources. Land is defined as everything that is freely supplied by nature, which includes all natural resources, such as air, soil, minerals, airwaves, forests and water. Everything not made by man, is categorized as land. Land has no cost to produce and is nature's gift to mankind. Land's uniqueness stems from its distinctive location, fixed supply and immobility. Land is required in the production of all goods and services. Land is our most basic resource and the source of all wealth.

Land rent is the value created from ecological and social endowments, not the personal activities of individuals. Land rent is an amount that should be paid annually for the exclusive right to use a land site location or other natural resource. Land rent varies by location and available amenities. It changes by people's competitive desire to use the same land site. Since land is fixed in supply and cannot be expanded, demand is the sole determinant of land rent. As land demand increases, the rent will increase proportionally. Buildings are not a part of land rent. Land rent is the only

source of public revenue that could be taken for public purposes without having any negative effect on the productive potential of the economy. When a community collects land rent for public purposes, both efficiency and equity are realized.

Most countries in the world use some form of a property tax. In some countries, both land and improvements are taxed; in other countries only land is taxed. The value taxed may be the market value or the annual rental value of property. In the United States the property tax is used as a primary source of revenue for funding local government services, infrastructure and public schools. Both land and buildings are usually taxed at the same rate. Some cities allow a higher tax rate on land value and a lower tax rate on building value.

One such city is Harrisburg, the State Capital of Pennsylvania, USA. The tax rate for land is six times higher than the tax rate charged on buildings. This low tax on buildings offers a significant influence on attracting new and additional investment, while simultaneously offering additional jobs, a larger tax base and expanded economic activities overall. In Harrisburg the higher land value tax has stimulated the highest and best use of land. It has discouraged land speculation and dramatically encouraged vertical development of high rise development. It has reduced the need to spread single projects across larger tracts of land and the land tax policy has made it easier to secure and to preserve open space areas for parks, recreation, historic sites, agriculture and public purposes. The low tax on buildings and higher tax rate on land began 30 years ago. A few of the improvements mentioned in the Harrisburg promotional literature include: That the number of unused vacant structures, has dropped by 88%, employment has increased by 20%, the crime rate has dropped by 22% and the fire rate has dropped by 51%. Fifteen cities in Pennsylvania tax land at higher rates than buildings.

China has raised revenue from taxes and land use development fees. It has invested in infrastructure, schools, police, fire protection, utilities, and recreation and public services. This investment has increased the rental value of land. China owns its land and each land user should pay land rent to enable China to provide high quality public services to everyone. Land rent exists whether the community collects it or allows people to retain the values that were produced by the community. Collecting land rent will enable China to attain a sustainable and growing revenue base for funding the local and provincial governments. As the demand for land increases the land rent increases.

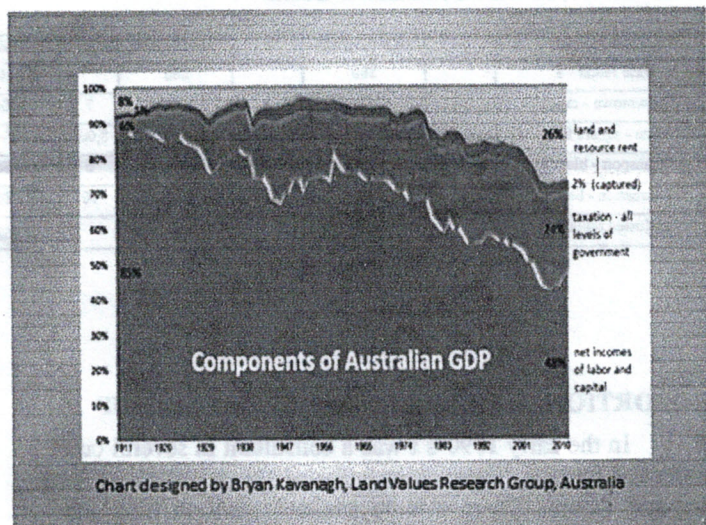
The burden of paying land rent reduces land speculation, premature land use and the detrimental use of farm land and the rural environment. (continued on page 7)

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The requirement to pay land rent fosters the most efficient, highest and best use of land. The rental value of land should be sufficient to finance all public services and to obviate the need for raising revenue from taxes. Public revenue should not be supplied by taxes on people and enterprise unless all of the available revenue has first been collected from the natural resources and the community-generated land rent. Only if land rent were insufficient would it be necessary to collect any taxes.

My research in Russia and Estonia indicated that even though they did not have established land records in 1990, there was enough land rent to fund the entire local and provincial government requirements. The collection of land rent, by the public for supplying public needs, returns the advantage an individual receives from the exclusive use of a land site to the balance of the community, who along with nature, contributed to its value and allows its exclusive use.

Only a few countries maintain good records of land rent and land value. Australia has some of the best records available on land rental values. A comprehensive study was completed by Terry Dwyer. In Australia, land rent represents more than 25% of gross annual domestic product. Australia's land rent is more than adequate to eliminate taxes on buildings, wages, production, commerce and investment.



The actual total land rental values in China are unknown because no public records exist. The gross domestic product of China in 2012 was \$8.23 trillion. Using the research from Australia, where they found that land rent represented more than 25% of its gross domestic product, China's land rent could be \$2.06 trillion.

Land rent produces a higher present value of income than a payment of a lump sum land grant, which many Chinese cities have relied upon in the past. Collecting land rent can provide the sustainable public revenue for China's economy. China can offer its people the best public services in the world.

LAND RENT RELATIONSHIP WITH LAND MARKET VALUE

Land Market Value is the total land rental income, minus the portion of land rent collected for funding public purposes, divided by a capitalization rate. A portion or all of the total land rent should be collected by the community for conferring the exclusive use of a land site. The portion of land rent collected is subtracted from the total land rental income. The mathematical relationship is then:

$$(V) \text{ Land Market Value} = \frac{(I) \text{ Total Land Rental Income} - (C) \text{ Land Rent Collected}}{(R) \text{ Capitalization Rate}}$$

Each of these terms is defined as follows:

V = Land Market Value (Selling Price)

I = Total Land Rental Income (Gross Income - Expenses)

C = Land Rent (Land Rent Collected for Public Purposes)

R = Capitalization Rate (Rate of Investment)

$$(I) \text{ Total Land Rental Income} = (V) \text{ Land Market Value} \times \text{Capitalization Rate}$$

+ Land Rent Collected for Public Purposes

For example, assume that the total land rent for a site is \$1,800; the land rent collected is \$300 and the capitalization rate is 6%, what would be the land market value?

$$(V) \text{ Land Market Value} = \frac{\$1,800 - \$300}{6\%} = \frac{\$1,500}{.06} = \$25,000$$

What would result if a larger portion of the land rent was collected? Let's consider \$1,650 rather than \$300.

$$(V) \text{ Land Market Value} = \frac{\$1,800 - \$1,650}{6\%} = \frac{\$150}{.06} = \$2,500$$

If only a small amount of land rent remained to be capitalized after land rent were collected, land would have a lower market value. It would, however, continue to have the same rental or productive value to the community.

PROCEDURES FOR LAND ASSESSMENT

The assessment process is an organized procedural analysis of data. This procedure involves eight specific phases, each of which contains numerous procedures.

1. Defining the Assignment - The goal is to estimate the **rental value of all land sites** within a given district. Land rent was defined as an amount that should be paid annually for the exclusive right to use a land site location or other natural resource.

2. Determining the Data Required and Their Source - Data related to land attributes include maps; aerial photographs; descriptions of physical characteristics like size, shape, view and topography; permitted (continued on page 8)

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uses; economic usefulness; present uses; available utilities; proximity to town centers or employment; and site improvements like streets, curbs, gutters, sidewalks and street lights. How are records being maintained for the values or fees that are currently being paid by land occupiers?

3. Collecting and Recording the Data - Assessors must determine: 1) what land data and valuation systems currently exist, 2) how effectively they operate, 3) how to build upon and improve these systems and 4) how to implement procedures for collecting additional data to improve the estimates of land rental values.

4. Verifying the Data - Rental data should be verified with people directly involved in the lease and with government officials who have first-hand knowledge of the lease terms.

5. Analyzing and Interpreting the Data - The balance of this report will be concentrated on various methods of analyzing and interpreting land value and rental data in order to estimate the rental value of land.

6. Estimating the Rental Values - Assessors analysis allows them to assign preliminary land rental estimates that serve as the basis for the rental value that will be paid by a land site user for the exclusive use of a location.

7. Public Examination and Analysis of the Land Rental Values - The preliminary land rental values can then be displayed on a **land rental map**. Public examination and review of the land rental values for land sites help to eliminate any irregularities or miscalculations in the assessments.

8. Periodic Updating of Assessments - Land rental values tend to change each year usually at a rate greater than inflation. If land rental values are not maintained on a regular basis (annually), they will become greatly under-assessed in only a few years.

RENTAL COMPARISON

Rentals are analyzed, compared, and adjusted to provide a rental value indication for the land being appraised. Rentals of similar vacant and the land portion of improved rentals are compared to the land being appraised. Rentals can be used to assist in the interpretation of evidence for a few sites (the sample), so that all of the sites can be properly estimated (the population).

After the base rental value has been estimated, the individual sites must be considered. Some sites have unique advantages or disadvantages compared to other sites. Assessors will want to study the typical differences and make individual refinements. They would make a positive adjustment for such desirable characteristics, as superior location, good views, topography, services and access; and a negative adjustment for such undesirable characteristics, as poor location, longer distance to transportation or civic centers, wet ground in the winter or poor access.

Actual real estate rental values vary for each site and are dependent upon numerous individual features, qualities, characteristics and restrictions such as:

location	size	level site	view
topography	river front	transportation	parks
traffic	noise	recreation	services

People would tend to be willing to pay additional rent for a land site with special advantages and would pay less rent for a land site with disadvantages. The rental value for the unique differences would be determined by how much more or less site users in general were willing to pay for those features. This difference must be determined for each significant variable feature.

Following is an example of a land rental adjustment grid and the procedures which are commonly used to estimate site rental value after considering all differences. The table shows how land rental values increase or decrease due to distance, size, transportation and other important superior and inferior characteristic differences.

LAND RENTAL ADJUSTMENT GRID

VARIABLE	=	STANDARD	>	SUPERIOR	<	INFERIOR
Base rental - \$		\$80		\$80		\$80,000
Downtown - miles	5	\$0	3	+ \$4	7	-\$4
Size - square feet	10,000	\$0	12,000	+ \$4	8,000	-\$4
Transport - blocks	3	\$0	1	+ \$8	6	-\$6
Recreation - blocks	6	\$0	3	+ \$4	10	-\$3
Adjusted rental - \$		\$80		\$100		\$63

PROPORTIONAL LAND RENTAL RELATIONSHIP

In the early 1990's I was a consultant in several cities in Russia and Estonia. These cities included Novgorod, Saint Petersburg and Tallinn. There was no available data on land sales or rentals. Based upon observing data in other jurisdictions, where land data already exist, a rental value for differing properties can be developed.

If a jurisdiction has some limited land data, such as permitted use (zoning) and density of population, it may still be possible to build a simple model. An assessor may draw a grid, showing the potential use on the Y axis and the resulting land rental value factor on the X axis. In this instance, a typical home unit site in a major city can be assigned a base rental value of 1.00 to which all other sites would be compared. Moving toward a superior location and potential use would influence the land rental value in a positive manner; moving away to an inferior location and use would influence the land rental value in a negative manner.

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USE - LOCATION	MAJOR CITY	SUBURBAN	DEVELOPING	RURAL
COMMERCIAL				
Central business	25.00+			
Downtown area	10.00	5.00	2.50	
Standard	3.00	2.00	1.00	.75
Secondary	1.50-	1.00	.60	.50
INDUSTRIAL				
Prime	2.50+	1.75	1.50	.95
Standard	1.50	1.00	.75	.65
Inferior	.75-	.50	.40	.25
RESIDENTIAL				
Prime	1.50+	1.00	.75	.50
Standard	1.00	.75	.60	.40
Inferior	.65-	.45	.40	.25
RURAL AND FARMING				
Acreage close-in	.20+	.15	.10	.05
Acreage distant		.10	.05	.02
Intense farming			.03	.02
General farming			.02	.01-

DEVELOPMENTAL ANALYSIS

A theoretical method to achieve a land assessment system is to make an estimate of the land rental value, based upon the net land residual income (total income, less all costs except land rental value). This would result from the development of a hypothetical building of the highest and best use for a given site.

First, determine what hypothetical improvements represent the highest and best use (greatest land value) for the site and the gross possible income from the improved site.

Second, determine the net property income by subtracting an allowance for the average vacancy (non-use) over the life of the investment and the probable operating expenses.

Third, estimate the cost of the proposed building. A portion of the net income is required to recapture the investment in the hypothetical building and furnishings, and what remains is the total rental income residual to the land.

Fourth, subtract the land rent collected for public purposes. The land value could be determined by capitalizing the net land income which was not collected for land rent. The rate, say 6% per year, would vary for different types and ages of property. The land price is what a potential future user would have to pay in order to use the site, unless all of the land rent is used for general public purposes.

An example of property rental income on a per square foot basis And the land value capitalized at 6%

Item	Land Income	Capitalized Land Value
Gross possible income	\$24	
Vacancy allowance	-\$1	
Operating expenses	-\$5	
Net property income	\$18	\$300
Recapture of building cost	-\$12	\$200
Land residual income	\$6	-\$100
Land rent collected	-\$5	-\$83
Net land income	\$1	\$17

In this example, \$6 per square foot is land residual income allotted to the land. The land rent collected is \$5 per square foot. The net land income remaining is \$1.

ALLOCATION

There tends to be a typical ratio of land rental value to property rental value (land plus buildings) for specific categories of real estate with similar characteristics in particular locations.

An analysis of a sample of units can be conducted, by subtracting the building rental value from the total rental value.

From this analysis a typical land factor (relationship), is determined for each type of property and location. In the sample below for example, the assessor concluded that the typical land factor is .40 (40% land and 60% buildings).

Sample Analysis

Unit number	Total rental	-Building portion	= Land portion	Land factor Land/Total %
212	\$190	\$114	\$76	40%
321	\$181	\$105	\$76	42%
222	\$192	\$117	\$75	39%
311	\$192	\$119	\$73	38%
Conclusion: Indicated Land Factor				40%

Once the land factor has been determined and tested for accuracy, the land factor can then be applied to all of the total rental values for the similar type of units in a given district, to estimate the individual site land rental values.

The calculation can be made as follows:

Population application

Unit number	Total rental x	Land factor =	Land rental
215	\$193	.40	\$77.20
305	\$185	.40	\$74.00
301	\$189	.40	\$75.60

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EXTRACTION

When there is a site that is suitable for redevelopment and the current buildings (as an interim use) make only a small contribution to the rent, the majority of the property and rental value is land value.

The property gross income is used subtracting an allowance for vacancy and operating expenses to determine the net property income.

While the building value is small a portion of the net income is required to recapture the investment in the existing (interim use) building and furnishings. What remains is income residual to the land.

Subtract the land rent collected for public purposes. The land value could be determined by capitalizing the net land income which was not collected as land rent. The capitalization rate, say 8% per year, would vary for different types and ages of property (the property interim use requires a higher capitalization rate). The land price is what a potential future user would have to pay in order to use the site, unless all of the land rent is collected for general public purposes.

An example of property rental income on a per square foot basis

And the land value capitalized at 8%

Item	Land Income	Capitalized Land Value
Gross income	\$24	
Vacancy allowance	-\$1	
Operating expenses	-\$5	
Net property income	\$18	\$225
Recapture of building cost	-\$1	-\$13
Land residual income	\$17	\$212
Land rent collected	-\$15	-\$188
Net land income	\$2	\$25

In this example, \$17 per square foot is the land residual income allotted to the land. The land rent collected is \$15 per square foot. The net land income remaining is \$2.

GROUND RENT COMPARISON (LEASED LAND)

In China land can be leased to tenants who construct buildings and pay an annual land rental fee. These land rental fees can be analyzed, so that a land rental fee can be estimated based upon comparable rentals. All leases should contain a clause that provides for an annual lease rate update to ensure that land revenue increases over time.

If the lease is for both the land and the building, the building portion of the total rental must be subtracted from the total rent leaving the rent allocated to the land.

Total property rent per square foot

Unit number	Total Per SF	- Building portion	= Land portion
1	\$20.00	\$10.00	\$10.00
2	\$20.00	\$10.50	\$9.50
3	\$20.00	\$10.00	\$10.00

Net ground rent is the amount paid for the right to use and occupy the land. Adjustments are made for differences between comparable rentals.

Land rent adjustments per square foot for differences

Unit	Per SF	Location	Traffic	Parking	Adj. SF
1	\$10.00	-\$0.50	-\$0.50	+\$0.75	+\$9.75
2	\$9.50	-\$0.25	+\$0.50	-\$0.25	+\$9.50
3	\$10.00	-\$0.00	-\$0.50	+\$0.00	+\$9.50

Three differences were observed, location, traffic and parking. Rent 3 was the best comparable rental located in the same area and required only one adjustment for traffic, Rent 2 required three small adjustments and Rent 1 required three larger adjustments \$9.50 is the adjusted price per square foot.

The concluded adjusted rent per square foot is \$9.50.

SUBDIVISION DEVELOPMENT

This is a hypothetical method of estimating the market value and the rental value of raw undeveloped land. This is the method used by developers to estimate the price they can pay for raw land before site improvements are made. The total value of undeveloped land is estimated as if the land were subdivided, developed and sold as individual sites. The income projection is discounted over the estimated time period required for market absorption and sale of all of the developed sites. Development costs, incentive costs and carrying charges are subtracted from the estimated discounted proceeds of the sale.

The Assessor estimates how many sites or units would represent the highest and best use of the raw land. Then an estimate of what the sales price of each fully improved site would be. The estimate was 50 sites selling at \$50,000 each for total sales proceeds of \$2,500,000. When discounted at 15% over 50 months the return would be \$1,850,000 before all of the development costs, incentive costs and carrying charges are subtracted. The total costs to develop are \$1,350,000. The value of the raw acreage is \$500,000 or \$40,000 per acre for the 12.5 acres. The 50 sites that are going to be developed and sold for \$50,000 each have a current undeveloped raw land value of \$10,000 each.

If the capitalization rate of undeveloped land was 10% the current site annual rental value would be \$1,000. The current annual rental value for the 12.5 acres is \$50,000.

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Total sales proceeds, 50 sites at \$50,000	\$2,500,000
Discounted at %15 over 50 months	1,850,000
Subdivision cost, \$1,000 per site	50,000
Development cost, \$15,000 per site	750,000
Sale cost, 10% of gross sale price	250,000
Rents, interest, carrying cost, 10% of net value	50,000
Incentive cost and profit, 10% of gross sale price	250,000
Total costs to complete the development	1,350,000
Net value of undeveloped land	500,000
Net value per acre, 12.5 acres	40,000
Net value per site, 50 sites	10,000
Annual rental value per site at 10%	1,000
Annual rental value of 50 all sites	50,000

CONCLUSION

We have considered the best methods for obtaining public revenue. We have found that land rent is the most just and is adequate to serve public needs when the community recaptures socially generated land rent rather than taxing labor and production. Cities need a sustainable and growing revenue source to fund community government public services. A land rental fee raises revenue from land use, natural resources and community funded services. Land rent is formed from ecological and social endowments, not the personal activities of individuals. There is sufficient land rent available to deliver adequate funding for the services made available by a government.

We have discussed the procedures for land rental assessment, the appraisal process and seven methods that can be used to estimate the rental value of land. It is feasible to update land rental values annually at a low cost. The value of land rent can be estimated with an acceptable accuracy and transparency, at a cost which is very small compared to the revenue to be obtained. A proper system of assessment and collection of land rent can provide for the proper economic use of the land.

We can build a system of public finance in China that would strengthen and maximize incentives for the fair distribution of wealth, environmental protection, efficient wealth production, provision of adequate government services and peaceful resolution of territorial conflicts. This would be accomplished by sharing the value of commons rent (socializing rent) on surface land sites, charging for emissions into air, the use of water, timber, grazing, mining, oil, minerals, water resources, electromagnetic spectrum and ge-orbital zones. This would allow reducing or eliminating taxes on income, wages, capital, sales, homes and buildings.

Closing with a quote from Joseph Stiglitz, Nobel Memorial Prize in Economics, 2001,

Much of the inequality in our economy has been the result of rent seeking, because, to a significant degree, rent seeking re-distributes money from those at the bottom to those at the top.... rent seeking distorts resource allocations and makes the economy weaker. It is a centripetal force: the rewards of rent seeking become so (concluded on page 15)

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outsized that more and more energy is directed toward it, at the expense of everything else

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He retired as the Assessor of Greenwich, Connecticut in 2012. From 1975 until 1986 he organized and was the Assessment Commissioner and Chief Executive Officer (Deputy Minister of Finance) of the British Columbia Assessment Authority in Canada. He implemented the annual Province-wide revaluation of the 1,500,000 parcels, currently valued at over one trillion dollars (\$1,000,000,000,000).

He is the President of the American Journal of Economics and Sociology. He is Vice-President of the Council of Georgist Organizations. He is a Board Member of the Robert Schalkenbach Foundation.

He was Professor, Law Department, Real Estate Appraisal, Baruch College, New York. He is an expert witness in the Connecticut Superior Courts. He consults with Governments on assessment, finance and legal cases.

(GroundSwell does not have room for footnotes but they are available from Ted Gwartney at tgwartney@aol.com) <<

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