

ESTIMATING LAND VALUES

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THE NATURE OF LAND AND NATURAL RESOURCES

CHARACTERISTICS OF LAND.

Land, in an economic sense, is defined as the entire material universe outside of people themselves and the products of people. It includes all natural resources, materials, airwaves, as well as the ground. All air, soil, minerals and water is included in the definition of land. Everything that is freely supplied by nature, and not made by man, is categorized as land.

Land holds a unique and pivotal position in social, political, environmental and economic theory. Land supports all life and stands at the center of human culture and institutions. All people, at all times, must make use of land. Land has no cost of production. It is nature's gift to mankind, which enables life to continue and prosper.

Land's uniqueness stems from its fixed supply and immobility. Land cannot be manufactured or reproduced. Land is required directly or indirectly in the production of all goods and services. Land is our most basic resource and the source of all wealth.

Land rent is the fee paid annually for the exclusive right (a monopoly) to use a certain location, piece of land or other natural resource. People receive wages for work, capital receives interest for investment, and land receives rent for the exclusive use of a location. Equity and efficiency require that the local general public, who created land value, should be paid for the exclusive use of a land site. That payment is in the form of a land tax.

When considering World-Wide economics, most people think that land rent contributes only a small insignificant portion of value. But as societies progress, land has become the predominant force in determining the progress or poverty of all people within a community. Land in major cities is so costly that people are forced to move further away and travel great distances in order to get to work and social attractions. In the more developed countries of the world, land rent represents more than 40% of gross annual production.

As more land is demanded by people the rent will increase proportionally, since land is fixed in supply. Demand is the sole determinant of land rent. Changes in land rent and land taxes have no impact on the supply of land, because the land supply is fixed and cannot be significantly expanded. Labor and capital are variable in supply. A higher price for commodities causes more labor and capital to make itself available. Labor and capital are rewarded for their work. A high

price is an incentive to work harder and longer, while a low price is not an incentive to work harder and longer. The rent of land, however, has no such incentive function, because the supply of land is fixed. The same amount is available no matter how high or low the price. Buildings are not a part of land rent. Land rent results from the desire made by everyone who lives within a community to use land. Economists consider rent to be a surplus payment which is unnecessary to ensure that land is available. When a community captures land rent for public purposes, both efficiency and equity are realized.

The economic market rental value of land should be sufficient to finance public services and to obviate the need for raising revenue from taxes. Taxes, such as income or wage taxes; sales, commodity or value-added taxes; and taxes on buildings, machinery and industry. Public revenue should not be supplied by taxes on people and enterprise until after all of the available revenue has been first collected from the natural and community created value of land. Only if land rent were insufficient, would it be necessary to collect any taxes.

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 allow its exclusive use.

LAND RENT COMPARED WITH MARKET VALUE.

Land Market Value is the land Rental Fee, minus land taxes, divided by a capitalization rate. Each of these terms is defined as follows:

1. Land Rental Fee is the annual fee individuals are willing to pay for the exclusive right to use a land site for a period of time. This may include a speculative opportunity cost.
2. Land Taxes is the portion of the land Rental Fee that is claimed for the community.
3. Capitalization Rate is a market determined rate of return that would attract individuals to invest in the use of land, considering all of the risks and benefits which could be realized.
4. Land Market Value is the land Rental Fee, minus land taxes, divided by a capitalization rate.

The mathematical relationship is then:

Land Market Value equals Land Rental Fee minus Land Taxes divided by Capitalization Rate and Land Rental Fee equals Market Value times Capitalization Rate plus Land Taxes.

For example, assume that the land rent for a site is \$1,800, the land taxes are \$300 and the capitalization rate is 6%, what would the land market value be? Land Market Value equals \$1,800 minus \$300, which is \$1,500, and then divided by 6% equals \$25,000, as the market value.
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What would result if a larger portion of the land rent were collected? Let's consider \$1,650 rather than \$300. Land Market Value equals \$1,800 minus \$1,650, which is \$150, and then divided by 6% equals \$2,500, as the market value.

With any three factors known, the fourth can be calculated, mathematically. The term land Rental Fee can be used instead of market value, or vice versa, in the discussion of land assessment systems.

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

Not only is land rent a potentially important source of public revenue, the tax on land is a means of limiting excessive speculation in land prices. This would ensure that the equal opportunity to be productive would be available to all citizens. With limited money to invest, people could invest in productive equipment and wages, rather than in high land prices which produce no additional tangible wealth.

PRINCIPLES OF LAND ASSESSMENT

An appraisal is essentially an expert opinion of the market value of a site; the assessor must present one that is supportable and can be explained. The assessor must develop and use specific terminology suitable and pertinent to land appraisal.

Land is the entire non-reproducible, physical universe, including all natural resources. A land site includes everything within the earth, under its boundaries and over it, extending infinitely into space. In addition to a location for a house or building, a land site would include the minerals, water, trees, view, sunshine and air space. The shape of the site can be described as an inverted cone with its apex at the center of the earth and extending upward through the surface into space.

In appraisal, a land site is a parcel of land that is finished and ready for use under the standards prevailing in its area. It might have the necessary public utilities in place, like gas, electricity, water, telephone and sewer, with streets, sidewalks drainage and grading completed.

The assessment process is essentially the valuation of rights to use or possess land sites. Other kinds of rights include subsurface mineral rights, riparian (water) rights, grazing rights, timber rights, fishing rights, hunting rights, access rights and air rights.

The assessor bases his estimate of land market value upon basic economic principles which serve as the foundation of the valuation process. There are many economic principles which people and assessors must understand and use when implementing judgment to estimate land market values.

It is necessary to discuss a few of the more important principles.

The principle of substitution maintains that the value of a property tends to be set by the price that a person would have to pay to acquire an equally desirable substitute property, assuming that no expensive delay is encountered in making the substitution. A person would pay no more for a site than would have to be paid for an equally desirable site.

The principle of supply and demand holds that the value of a site will increase if the demand increases and the supply remains the same. The value of the site would decrease if the demand decreased. Land is unique, since the supply is fixed; its value varies directly with demand.

The principle of anticipation contends that land value can go up or down in anticipation of a future event occurring, or a future benefit or detriment.

The principle of conformity contends that land will achieve its maximum value when it is used in a way that conforms to the existing economic and social standards within a neighborhood.

UTILITY, SCARCITY AND DESIRABILITY.

Land value can be thought of as the relationship between a location desired and the potential user. The ingredients that constitute land value are utility, scarcity and desirability. These factors must all be present for land to have value.

Land that lacks utility and scarcity also lacks value, since utility arouses desire for use and has the power to give satisfaction. The air we breathe has utility and is generally considered important, since it sustains and nourishes life. In the economic sense, air is not valuable because it hasn't been appropriated and there is enough for everyone, thus there is no scarcity, at least at the moment. This concept of air scarcity may not be valid in the future, however, as knowledge of air pollution and its effect on human health make people aware that clean and breathable air may become scarce and subsequently valuable.

By themselves, utility and scarcity, confer no value on land. User desire backed up by the ability to pay value must also exist in order to constitute effective demand. The potential user must be able to participate in the market to satisfy their desire.

LIMITATIONS ON LAND OWNERSHIP AND USE.

While land is the gift of nature, certain legal, political and social constraints have been imposed in most societies throughout the years. Every nation imposes certain public limitations on land ownership and use for the common good of all citizens. Four forms of governmental control include:
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1. Taxation: Power to tax the land to provide public revenue and to return to the community the costs incurred to pay for the various public benefits, services and environmental protection, which are provided by the government;
2. Eminent Domain: Right to use, hold or take land for common public uses and benefits;
3. Police Power: Right to regulate land use for the welfare of the public, in the areas of safety, health, morals, general welfare, zoning, building codes, traffic regulations and sanitary regulations;
4. Escheat: Right to have land revert to the public's agent, the government, when taxes are not paid or when there are no legal heirs.

FACTORS THAT CONTRIBUTE TO LAND VALUE.

The physical attributes of land include quality of location, fertility and climate; convenience to shopping, schools and parks; availability of water, sewers, utilities and public transportation; absence of bad smells, smoke and noise; and patterns of land use, frontage, depth, topography, streets and lot sizes.

The legal or governmental forces include the type and amount of taxation, zoning and building laws, planning and restrictions.

The social factors include population growth or decline, changes in family sizes, typical ages, attitudes toward law and order, prestige and education levels.

The economic forces include value and income levels, growth and new construction, vacancy and availability of land. It is the influences of these forces, expressed independently and in relationship to one another, that help the people and the assessor measure value.

HIGHEST AND BEST USE OF LAND.

A land site should be made available to the users who can make the highest and best effective use of the site and maximize the site benefits for all people. The proper system of assessment and taxation of land can provide for the proper economic use of the land. A high land tax on an improperly improved site tends to cause the site holder to either better improve his site to obtain greater return to pay the land tax or to look for someone else with the means to properly improve the site. A land tax can also provide the source of public revenue which the local governing body could use for the benefit of all people. Before an assessment can proceed, the highest and best use must be determined for each site.

PROCEDURES FOR LAND ASSESSMENT

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

1. Defining the Assignment.

The goal is to estimate the market value of all land sites within a given district. This will include manufacturing enterprises, apartments, commercial enterprises, single family home sites, government land, farms and all other land and natural resources of various descriptions.

2. Determining the Data Required and Its Source.

A land market assessment system is based upon data related to land attributes. These data generally include maps; aerial photographs; descriptions of physical characteristics like size, shape, view and topography; permitted uses; economic usefulness; present uses; available utilities; proximity to town centers or employment; and site improvements like streets, curbs, gutters, sidewalks and street lights. Governments have much of this data available in the different agencies.

3. Collecting and Recording the Data.

Most governments do not have all of this information available in a single data base capable of analysis. 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 values.

4. Verifying the Data.

Market data should be verified with a person directly involved in the transaction. Additional sources might be government land agents or officials who have first hand knowledge of the sale. Inaccuracies can also be brought by enlightened citizens if the data is made available to the public.

5. Analyzing and Interpreting the Data.

This report will discuss various methods of analyzing and interpreting land market data.

6. Estimating the Market Values.

Once the analysis has been concluded, it will be possible for the assessor to make a rational estimate of the market value of every land site. This estimate will serve as the basis for the value that will be paid by a site user for the exclusive use of a location (site).

7. Public Examination and Analysis of the Land Market Values.

The preliminary land value assessment, estimated for each site, could then be displayed on a land market map. Public examination and analysis of the land market values for land sites would help to clarify any errors in assessments. People who occupy land acquire skills in
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noticing slight differences in land characteristics. They can explain to the assessor why and how differences should be reflected in the conclusions about land values.

Once an adequate sample survey has been completed and had favorable public review, the results can be used throughout the total area. These sample data results could be used to estimate the comparative markets of each land site.

To ensure the optimal and equitable use of land sites, land assessments should reflect the attitudes of the individuals who can make the highest and best use of the site, who would be willing to pay more than individuals with inferior uses in mind. Those neither requiring nor willing to pay the land taxes for a superior site would use another site that met their needs, desire and budget, thus making it available for others who can pay for the better site.

8. Periodic Updating of Assessments.

Land market values tend to increase each year at a rate usually greater than inflation. Building values tend to decline each year, because of a wearing out of the physical structure or its functional desirability. If assessments are not maintained on a regular basis (annually) land will become greatly under-assessed and buildings will be overassessed in only a few years.

METHODS USED TO ASSESS LAND VALUE

Three Approaches to Valuing Real Estate.

Valuation of the land involves first determining the highest and best use of the site, estimating the value by current appraisal theory, and reconciling to a final estimate of value.

The first step in the valuation of land is determining the highest and best use of the site. The four criteria that highest and best use must meet are: physically possible, legally permissible, financially feasible, and maximally productive. Two types of analyzes are made in determining the highest and best use. The first is the highest and best use of the site, if vacant; the second is the highest and best use of the site as improved, or if undeveloped as proposed to be improved.

There are three standard approaches to estimating market value that form the foundation for current appraisal theory: the cost approach, the sales comparison approach and the income approach.

The cost approach is based upon the principle that the informed purchaser would pay no more than the cost to produce a substitute property with the same utility as the subject property.

The sales comparison approach utilizes prices paid in actual market transactions of similar properties to estimate the value of the site.

The income capitalization approach is widely applied in appraising income-producing properties. Anticipated present and future net operating income, as well as any future reversions, are discounted to a present worth figure through the capitalization process.

Specific Methods Used in Appraising Land Value.

In the valuation process the land value estimate is a separate step accomplished by applying either sales comparison or income capitalization techniques. The most reliable way to estimate land value is by sales comparison. When few sales are available or when the value indications produced through sales comparison require substantiation, other procedures may be used to value land. In all, seven procedures can be used to obtain land value indications.

1. Sales comparison: Sales of similar, vacant parcels are analyzed, compared, and adjusted to provide a value indication for the land being appraised.

2. Proportional Relationship: Relating a site to a known standard site. The difference can be expressed as a percentage. This procedure can be used when there is little value evidence in existence.

3. Land residual technique: It is assumed that the land is improved to its highest and best use. All operating expenses and the return attributable to other agents of production are deducted, and the net income imputed to the land is capitalized to derive an estimate of land value.

4. Allocation: Sales of improved properties are analyzed, and the prices paid are allocated between the land and the improvements.

5. Extraction: Land value is estimated by subtracting the estimated value of the depreciated improvements from the known sale price of the property.

6. Ground rent capitalization: This procedure is used when land rental and capitalization rates are readily available, as in well-developed areas. Net ground rent-the net amount paid for the right to use and occupy the land-is estimated and divided by a land capitalization rate.

7. Subdivision development: The total value of undeveloped land is estimated as if the land were subdivided, developed, and sold. Development costs, incentive costs, and carrying charges are subtracted from the estimated proceeds of sale, and the net income projection is discounted over the estimated period required for market absorption of the developed sites. With the appraisal process and the approaches to value understood, it is appropriate to consider the methods and procedures used to analyze and interpret the land data. The choice is based upon what data is available, it's reliability and usefulness in making a value estimate.

THE SOURCE OF PUBLIC REVENUE

What are the factors that cause land to have market value and to whom does this market revenue advantage properly belong? Land has market value for three reasons:
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1. The limited supply and "natural" productivity of the soil and natural resources, the quality of the land and the environment.

2. The publicly provided services, including planning, improvements that increase the market value of land and peoples' preference for a particular site receiving good public services.

3. The growth of communities and peoples' competitive demand for the exclusive use of prime locations.

Land rent is the price that people and businesses are willing to pay for the exclusive right to possess and use a good land site for a period of time. For example, people prefer to use sites of good location because it gives them an advantage of spending less time in travel by being near what they choose to do and where they work. A businessman can sell more goods at a site where many people pass each day, compared to a site where only a few people would pass.

The collection of land rent should be used as revenue, by the community for supplying public needs. This returns the advantage an individual land possessor receives from the exclusive use of a land site, to the balance of the people who live within the community and have allowed the land possessor the exclusive use of the land site for the period of time.

ENVIRONMENTAL PRESERVATION.

It is the responsibility of the local communities to insure that the market rent of land is collected for public purposes. When a major part of land rent is not collected, which is the case in most of the world today, land title holders obtain rights to sell the value of the public improvements which were made by the whole community. The community added to the market value to land by making improvements which increases demand and rent for the land. The longer the possessors hold the land out of use the greater will be the bonus they obtain.

By prohibiting people from using good land, the possessors force the premature use of other less desirable land, which is more distant from the city. This raises the cost of community improvements and the rental value of the unused, but better located, land. This precipitates the eradication of the rural environment by using city land inefficiently instead of preserving the earth's environment.

A problem that we face is that cities throughout the world are spreading out and using land prematurely which is not needed and should not be used. That land is not truly needed

for development because failure to collect land rent, subsi-

dizes the waste of natural resources and clutters the environment. Cities that collect the full rental value of land are more compact and provide greater and less costly amenities for their citizens.

Any moves to enact good government principles without collecting the full market rent of the land may result in a failure. People are guided by the profit motive. When people can make a larger profit by doing nothing, but keeping the land they possess out of use for a long period of time, they will use every method possible to achieve their objective. When the community collects the full market rent of land, they eliminate the motive for keeping land out of efficient use, because the unearned profit has been collected as public revenue.

Efficient land use appeals to all people because it surpasses the political constraints of most people. Everybody understands that the earth belongs equally to all people. They want a clean environment on earth and to leave a healthy inheritance to the future generations, regardless of their political viewpoints. The major function of a competent city government is to provide good community services by collecting the land rent created within the community to ensure the efficient use of land and equal opportunities for all of its citizens. Transportation is an important function of government which would facilitate the creation of a compact city, where people can easily find the facilities they desire for education, commerce, religion and recreation. Good land use, with the freedom of individuals to achieve the highest and best use of land, would ensure a desirable community. A compact city would reduce the need to invade the wilderness and devastate the environment.

EFFICIENCY OF PUBLIC REVENUE.

Adam Smith in *The Wealth of Nations*, suggested that any "tax" should be a charge for services which benefit all people and are more efficiently performed by a single cooperative effort. He postulated four principles of taxation which any source of revenue should meet:

1. Light on the production of wealth, and does not impede or reduce production;
2. Cheap to collect, requiring few collectors, and easy to understand;
3. Certain, can't be avoided, little opportunity for corruption, and provides adequate revenue;
4. Equitable and fair, payment for benefits received, impartial, and just.

Collecting public revenue from land rent is the only revenue source "tax" that meets these criteria. While the major argument for raising public revenue from land.
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rent and natural resources is because it is equitable and fair, it is also the most efficient method of raising the revenue which is needed for public facilities and services. Land is visible, can't be hidden and its valuation is less intrusive than valuations of income and sales. Taxes on labor and capital cause people to consider alternative options, including working with less effort, which produces less real goods. Production and consumption would be greatly improved if public revenue came primarily from land rather than a wage tax.

A tax on sales, commerce, value added reduces consumption, production and net wealth. There is evidence that communities who raise their revenue from land, rather than from labor and capital, are more prosperous, many increasing productivity by more than 25%. (Ted Gwartney, BS, MAI, is a professional real estate appraiser and formerly served as Senior Appraiser for First Nationwide Bank (Cal.); Assessment Commissioner of British Columbia Assessment Authority; Assessor in Southfield, Mich., and Assessor in Hartford, Conn. He actively consulted in the Russia campaign for collection of land rent. Currently he is the Exec. Director of the Robert Schalkenbach Foundation, NY, NY.)