Determinants of Property Values

Overview

Professional property appraisers and economists sometimes use differing terms of art to refer to similar concepts, and this can lead to confusion or misinterpretation by others in reading and understanding their opinions. In this document I will survey the scientifically accepted perspectives on the determinants of the value of real property, and discuss how these values can be estimated to a reasonable degree of scientific certainty.

The economic approach to determining the value of a property or object rests on three distinct perspectives or sources of information. These are the *value in exchange* of the property, the *cost of production* of the property, and the *value in use* of the property. Each of these ideas can be employed in understanding the value of a property, and each has a substantial pedigree in the history of economic ideas.

From both a practical and scientific view, the most appropriate concept of the economic value of an object or piece of property is the *fair market value* or the amount that a willing buyer would give to a willing seller in exchange for the object or piece of property. In order to be considered fair market value, this exchange should be an "arms-length" transaction (meaning that the welfare and interests of the buyer are distinct from those of the seller so that the economic well-being of the seller is not a significant factor influencing the price the buyer is willing to pay, and the price the seller is willing to accept is also independent of the economic welfare of the buyer). The exchange should also have taken place after a "proper period" of marketing to ensure that the seller has located the buyer with the highest willingness-to-pay, and that they buyer and seller have acted "knowledgeably, prudently, and without compulsion." This concept of fair market value was and in some circumstances still is known to economists as *value in exchange*.

In addition to this source or representation of the value of an object or property, economists also recognize the cost of production as a source of information about property value. Economists often refer to the *marginal cost of production,* denoting the cost of producing an additional unit of the good or property. Any buyer who is contemplating the amount he or she would be willing to offer in exchange for a property, and for any seller who is making a decision about the amount that must be paid in order for them to willingly part with the property, the cost of reproducing or replacing the property is a material consideration. The cost of acquiring vacant land that is similarly situated to the property under consideration, and constructing an identical building on the property would provide a reasonable upper bound on the amount a buyer is willing to pay for an existing property. It also provides a reasonable starting point for negotiating from the seller's perspective, although many circumstances may arise in which a property owner has difficulty obtaining the full replacement costs of a property even if fair market value is obtained. Further difficulties in using the production cost may arise in connection with finding a vacant or usable

parcel of land that is similarly situated. These land costs cannot be ignored because typically such costs account for at least 5 to 10 percent of the costs of a property, and in many circumstances this cost share can rise to 40 percent or even more.

There is a third source of information about the value of an object or property that relates to the value of the stream of benefits that the owner or possessor receives from the property. This relate to what economists call the *value in use* of an object or property, and this source of information can be of particular importance with land, real estate and other durable property. Again, the logic for considering this source of information arises from determination of the general principles that might determine the amount that a prospective buyer would be willing to pay for a property. If the owner of a property can rent it for a particular amount each year and thus receive a stream of income, then a reasonable buyer will realize that a choice exists between depositing funds in a bank (or making some suitable investment) and thus receiving a stream of interest payments as income, or giving the funds in exchange for the property and receiving the stream of rental payments. It seems reasonable for the buyer to determine the amount of funds that would need to be deposited at the bank to generate a stream of interest payments that is identical to the stream of rental payments that might be obtained through property ownership, and to regard this amount as a reasonable ceiling on the amount that should be paid for the property. Economists refer to this amount as the *present value* of the stream of benefits obtained from the property. Economists generally regard this source of information as useful even if the property is not actively rented to a third party, but is used directly by the owner. This use by the owner generates a stream of benefits over time whose monetary value could be calculated. For example, an owner of a home who occupies that home is realizing a benefit in the form of a residence for which they do NOT have to pay rent to a landlord. These values (which economists refer to as *imputed rents*) are the major source of benefits to the home owner.

As with the accurate determination of marginal costs of production of the property, there are some natural difficulties that arise in calculating the present value of the stream of benefits. What interest rate do we think the prospective buyer imagines will be paid by the bank? How durable will the property be (which will determine the time period over which the benefits are received). If we are considering a property like real estate that must be used at a fixed location, then the prospective buyer must envision the various possible conditions that might characterize the neighborhood in the future in order to have a well-informed value of the range of benefits that could be obtained through ownership of the property. This will necessarily involve some uncertainty on the part of the prospective buyer, and it underscores something economists have understood for literally hundreds of years: uncertainty about future events is a natural part of the process of determining the value of a durable property. This is to be distinguished from abstract factors that might in some circumstances affect property values such as a general climate of "fear" surrounding a property or a vague and difficult-to-measure psychological value of risk. Rather, the economic perspective is to consider the variability in future returns that is linked to real, measurable outcomes that will or will not occur in the future. The range in possible benefits that will be realized in the future is a natural and reasonable factor to consider in determining the

value of a property. It must be considered when determining the present value of the benefits received from a property and can be expected to influence the fair market value of a property.

Real Property

In valuing real estate, each of the economic ideas discussed above has a counterpart in an accepted methodology applied by professional property appraisers in the United States and elsewhere. For example, property appraisers in the US and the textbooks from which they learn their craft frequently identify three approaches to appraisal. The first is the *comparative market value approach*, also called the *sales comparison approach*, in which a number of "comparable" properties that have sold under contemporary market conditions in arm's length transactions are identified. Adjustments are made to the observed sales prices to account for differences between the properties whose prices are observed and the subject property, and the results are either averaged over the small number of properties to produce an estimated value or the group of properties is used to provide a range of possible values for the subject property. Since the approach is based on observed market transactions of similar properties, this comes close to an estimate of fair market value and is clearly motivated by the concept of *value in exchange*.

A second approach to property appraisal is often referred to as the *cost approach*, and is recommended in circumstances when values are required for unique properties for which no comparable sales exist. This approach requires use of engineering data and construction cost estimates to determine the replacement cost of any building on the property. To these values are added values for the land itself (which might be difficult to obtain with accuracy because of factors discussed above). Adjustments may be made to land costs and occasionally to building cost estimates to reflect local market conditions or other special circumstances. The result is an estimate of the cost of the property and this is put forward as its appraised market value. This approach is clearly motivated by considerations of the costs of production that would be familiar to any economist.

Finally, property appraisers sometimes employ the *income approach* when seeking to estimate the value of a property. They collect data on leases and rental rates, occupancy rates and local market conditions. Using an interest rate or rate of return selected to reflect the uncertainty in market outcomes and associate risks of property ownership, they calculate the present value of the income that could be generated from the property. This approach is based on the economic idea of value in use, modified (as it should be) by considerations of uncertainty regarding future property markets, neighborhood conditions and potential nuisances or amenities that may affect the property in times to come.

Estimating Values under Counterfactual Conditions

In considerations that arise under civil law, and arise frequently in policy making deliberations that must weigh costs and benefits, it is sometimes necessary to evaluate property values under

counterfactual conditions. For example, decision makers may want to know what the value of a property **would** be if a bridge (that does not now exist) is built or if a building (that does exist now and has existed for some time) is removed, or even both of these things happening at the same time. These are sensible questions to ask. Changes in property values are part of the panoply of costs and benefits that reasonable and representative decision makers would want to evaluate before moving forward with bridge building, demolition or other significant changes to the community or the environment.

Estimating the value of real estate property under counter-factual conditions is possible to do to a reasonable degree of scientific certainty, but it poses a special challenge for many of the methods traditionally employed by property appraisers. These methods require obtaining samples of comparable properties being sold under comparable market conditions. If the appraiser is asked to evaluate properties under counter-factual conditions, then it may be impossible to find comparison sales even if modest adjustments are to be permitted.

While the appraiser in such circumstances might apply one of the other methods, these also run into difficulties. The cost approach provides an upper bound on value, but as mentioned above the contribution of land values must also be considered as a component of costs, and land values are heavily influenced by nuisances and environmental factors.

Similarly, application of the income approach is difficult because the counter factual case may present a different combination of nuisances and amenities in the community. This will affect both the value of the income stream and the variability of income. A property in an industrial community, for example, is affected by nuisance of heavy transportation, noise, and there is uncertainty in the income stream because of the potential for future accidental release of toxic elements into the environment. These cannot simply be valued by looking at a set of comparable properties.

Conclusion

In summary the standard approaches of property appraisers are motivated by the central ideas of economics concerning the determinants of the value of property. These central ideas tell us that nuisances and amenities are important considerations in determining property values because affect the income that can be earned from the property and affect what a willing buyer would give a willing seller in an arm's length transaction. Finally, these ideas tell us that the range of possible nuisances that might occur in the future in the neighborhood of the property is a factor that must be considered. If a neighborhood contains activities that increase the range of possible use values, then that increases the uncertainty in the flow of benefits and diminishes the value of the property.