Perspectives on the In-Place Value of Buildings and Structures for Rural Property

(Robert Ruscoe Fraser)

Abstract

The custom for valuation practice in rural localities is to apply a unit of value exclusive of buildings. Commonly the unit is 'dollars per fully developed hectare excluding buildings'. The unit specifically excludes buildings and thus the in-place-value of them must be calculated in the process of deriving the unit value and its application.

Bonbright (1937) portrays the substantive arguments and classic resolutions that have underpinned the theory for the whole valuation field, rural property included, and may still be the leading authority. Rural valuation literature is coy on the subject of the practical assessment of the in-place-value of structures but Frizzell (1979) and the American Institute of Appraisers (1983) are exceptions.

Assessing in-place-value of buildings requires resort to a fairy-tale separation of land and buildings because there is no market for buildings separate from land. The purpose for assessment is clear; the operational system, by contrast, is a thick soup of muddied water.

If unit value exclusive of buildings be persevered with the technique favoured is the observation method. This, the article proposes, should in the first place, be operationalised by dividing structure life and hence depreciation into quarters. Where the collection of buildings is old enough to have equal portions new and old the light bulb analogy is an obligatory check.

Age/Life and Modified Age/Life fail because of practical difficulties with the estimation of age (effective or chronological) and the paucity of data on structure life history.

The paper observes that a unit of value inclusive of structures, whilst it obviates the immediate difficulty of structure valuation, brings with it the necessity for consideration of building structure, type and function in making property comparisons. By implication this has its own problems but, the article suggests, to blithely follow the techniques of the crowd, who in Australia at least, are lead by assessors in Government Departments may not be the wisest course.

Perspectives on the In-Place Value of Buildings and Structures for Rural Property
(Robert Ruscoe Fraser)

Introduction

In rural valuation practice it has been the custom to calculate a unit of value exclusive of buildings. Commonly it is the value of a developed unit. For example for farmland in the wheat/sheep zones, the unit is one that is cleared (of vegetation), cultivatable (arable), pastured, fenced for livestock, and supplied with livestock watering points. The unit excludes buildings and thus their in-place-value must be calculated in the process of deriving the unit value and of course in application of the value unit to a subject property.

Rural valuation literature is coy on the subject of practical assessment of the in-place-value of structures. Frizzell (1979) and the American Institute of Appraisers (1983) are exceptions. Others, for example Rost and Collins (1984) and Murray (1969) provide less adequate treatment of the subject. Bonbright (1937) has the classic statements and substantive arguments, which have underpinned the theory for the whole valuation field, rural property included, and is still the leading authority. The process and issues are as difficult as the most difficult task in the whole field of valuation. Thus Baxter (1993) says " .. it is this process [apportionment of value to improvements] that proves remarkably difficult even for experienced valuers."

For land there is a market. For buildings or structures separate from the land there is no market. Thus to assess in-place-value of buildings involves resort to a fiction. The fiction is a notional separation of land into a ‘pure' land part and a building part. For doing so there is no simple formula.

Added Value Concepts

Valuing buildings separately from the land has its roots in 'added value' theory expounded in the law-courts. Putting the added value theory to practice is a real challenge for property valuers.

The legal definition of land implies the land itself together with all the fixtures (buildings, fences etc) and other improvements. Some authors describe development costs, which include all those costs associated with land improvement and development (buildings, timber treatment etc.), as sunk costs. By sunk is meant costs that are not recoverable (Speedy, 1978). Non-recovery coincides with the (trite) observation that once an improvement, say a house, is built the cost (or value) is not recoverable separately from the land on which it stands. In fact the only portion which may be recoverable has a value known as salvage value and it most usually represents a minute fraction of the cost of construction or in-place-value.

Valuing the improvements separately then involves the split of a legal entity. There is no such thing as a market for buildings and structures as they stand; that is with the exception of a value for salvage of the materials they contain. For a small number of special cases a slightly higher value is obtainable for a complete building which can be moved off-site without dismantling. In general then salvage value is small and in the usual case minuscule compared with what it would cost to construct.

Cost of construction, at the other end of the scale, represents the greatest value an improvement can have. The value which it 'adds to the land' maybe different, however. An 'improvement' like a water drainage channel to drain what was a relatively useless swamp may add many more times its cost to the value of the whole. Yet another improvement, a mansion, on a small outback farm may add to value much less than its cost. Thus 'added value' in valuation law jargon may be much greater than cost, much less than cost and anything in between. The in-situ in-place or added value is usually positive but may, in those cases where a structure is detrimental to a site, be negative.

Added value first hit prominence in lawsuits (in Australia) concerning the assessment of unimproved value. In such cases the landowner would attempt to place a high value on improvements which, when subtracted from the improved market value, would give a low unimproved value. It translated to lower rates and taxes in the system where land (unimproved) was taxed.

A key court decision where unimproved value was at stake and which provides a substantive basis for added value concepts is Campbell v. The Deputy Federal Commissioner of Land Tax for N.S.W. Unimproved value was the residual, this judgement declared, obtained by deducting the assessed value of the improvements from the land's improved value by means of a procedure described as follows: ".. value added to the land by the expenditure upon it in clearing, burning off, ploughing and other operations [and deducted] from that value so much of it as ... had since been exhausted." Furthermore the judgement said that the value of the improvements may be greater or less than cost. In McDonald, V. Deputy Commissioner of Land Tax the judgement explained, clarified, and asserted, that the meaning of added value was exactly as the Act under discussion defined it and thereby implied that its meaning could not be improved on; it was "the added value which the improvements give to the land at the date of valuation irrespective of the cost of the improvements." Further, the judgement continued, " and the question is how much their presence adds to the natural value of the land." - exactly the same as that in Campbell's case.

Later decisions like those in the Goobong case (Goobong Shire Objections) indicated that where cost of construction and value were relatively close to one another, cost should be discounted by up to 25% to take account of the tax savings associated with the development process. However the Income Tax Assessment Act now denies the many tax saving benefits it formerly bestowed on primary producers for construction costs associated with structures of all kinds. The cost for items once allowed as deductions in total, in the year of expenditure, are now spread over a long period of time. Thus tax savings will only be of importance in affecting added value of improvements where the Income Tax Assessment Act clearly indicates a connection between construction cost and taxable income calculations.

Added Value in Practice:

The several ways to assess added value of improvements are:

(i) Cost less depreciation calculated by what is known as the Age/Life method
(ii) Process oriented method based on Bonbrights observation method (described hereunder)
(iii) The half -life method.
(iv) Paired sales

Age/Life

There are two sides to this, cost on the one hand, and depreciation on the other. Cost of construction is in most cases readily obtainable from cost guides or direct from manufactures price lists. In Western Australia the publication known as The Farm Budget Guide (WA Department of Agriculture, 1994, for example) is one such source.

Value adjustments for used-up-life or depreciation that has occurred (accrued depreciation) must be made to assess improvement value. The essential first step in the process is an assessment of functional (remaining) life and the second an assessment of probable life of the improvement when it was new. Neither can be done with any certainty. Wear and tear manifestations of depreciation cannot be measured scientifically. James Bonbright's classic "Valuation of Property" (Bonbright, 1937) cites ".. absence of reliable data on the life histories of different types of assets .. " as a major inhibiting factor in coming to grips with the problem. Corgel and Smith (1981) and Malpezzi, Ozanne and Thibodeau (1987) for USA and Worthington (c 1978) for Perth, Australia have published estimates of economic lives of houses based on empirical research. Data on other structures is sparse or non-existent, however.

Such deficiencies have not deterred some Government bodies, notably the taxing authorities, from developing depreciation schedules. One, from the Australian Income Tax Assessment Act, with depreciation rates converted to length of life of structures is shown below.

Shearing sheds (iron walls)	50	years
Machinery sheds (" ")	33	"
Bores	13	"
Dams	20	"
Earth tanks (approx)	20	"
Fences	33	"
Shearing machines	13	"
Sheep dips (concrete)	50	"
Silos, grain (iron)	33	"
Tanks, concrete	50	"
Tanks, galvanised iron	10 to 20	"

A shearing shed, having an estimated useful life of 40 years, by reference to its possible life of 50 years, has been subject to 10/50 x 100 = 20% depreciation. Its 'in place value' (provided added value concepts are satisfied) is, therefore 80% of the present cost of constructing a similarly useful, though not necessarily identical, building. If, lets surmise, it was a shearing shed for 240 sheep under cover with under chute construction, split level and 3 shearing stands which would cost $26388 to build, its value (depreciated) would be = 40/50 x $26388 = $21110. By identical processes the value of other structures and improvements can be assessed.

Like many such calculations in the valuation world the resultant figure, $21110, hides more than it reveals. The hidden bit is the means by which the value was calculated. The figure may appear 'accurate' but it is only as accurate as the technique allows it to be. At best it is an unsatisfactory estimate because answers to the following questions are likely to be unsatisfactory:

1. What is the *life* of a structure of that kind?

2. What evidence is there that the Income Tax Assessment Act depreciation rates are true representations of fact?

3. How much life has gone?

4. How much life is left?

The answers are dependent on how much maintenance has been carried out and how much is intended to be done in future bearing in mind that only some of the depreciated structure is repairable (curable). The balance, incurable depreciation, in the form of structural decay, is permanent and cannot be repaired (or cured!) of its defects.

The process described is technically known as the age/life method. The so called modified-age/life-method begins with the assumption that curable depreciation, once the expenditure on curing has been incurred in the repairing the structure, changes the remaining life (that is some depreciation is negated or cured) and the structure’s effective age becomes less than actual or chronological age.

The effect of curing depreciated parts, at various times during a structure’s life, and the resultant effect on remaining life complicates the assessment of actual (accrued) depreciation.

The Observation Method of Assessing Building Value

In the face of the quandary with the age/life technique an alternative, possibly more practical approach, is to proceed as follows:

1. Observe the construction cost of a building of similar function to the one being valued. Ensure as a starting point that it is a functional part of the operation on the property - ie it assists in earning income and is therefore ‘useful'. A shearing shed, for example, has no value as a shearing shed if there are no sheep and no immediate prospect of sheep on the property, except to the extent that the next proprietor may value such an item for the purpose it was designed for. In summary, the building must first pass the test of usefulness. This of course applies no matter what technique is being used to assess structure value.

2. Seek answers to a series of questions, as follows:

(i) Is the building nearer the beginning of its life or the end. This will establish whether the depreciation is more or less than 50%.

(ii) Say we conclude it is in the first half of its life (less than 50% depreciated) the next question would be ‘is it nearer 50% than 0% (new) '

(iii) We now conclude, lets say, that though it is not new it is nearer new than 50% depreciated. In the process we have assumed its depreciation is less than 50% and greater than 0% (ie not new). The depreciation therefore rests around 25%.

3. The answer obtained from questioning will never provide more than what I have called ‘a process oriented estimate’. Precision will always be impossible and in view of this dealing with more than four quarters of life seems pointless.

4. Record the value of the building as:

$$(1 - .25) * 26388 = 19791 \text{ (rounded 19800)}$$

The bases of the process are:

(a) The starting points, that is to firstly judge whether the structure is or is not useful and secondly to discover/calculate the actual monetary amount of replacement cost of a substitute building with the same degree of functionality.

(b) The ending point, that is to judge whether or not the structure is useless (= completely depreciated) and therefore valueless.

The major, some say fatal, criticisms of the method are as follows: (i) depreciation not evident to the naked eye is ignored and (ii) underground or concealed assets cannot be inspected and therefore judged and (iii) it ignores the likelihood of catastrophic failures in the structure and therefore of functionality because what can’t be seen can’t be assessed (Bonbright, 1937)

The practical methodology described in the 'process oriented method’ was devised as a means of putting logic into what can be a puzzling task. It is an attempt to operationalise Bonbright’s observation method. In contrast to age/life techniques, which attempt to find what is absent, the focus in the method outlined is on what is present. In addition the beginning points (i) usefulness for production and (ii) new construction cost, are clear and unambiguous.

The light bulb analogy

The light bulb analogy (or 50% theory), described hereunder, is also from Bonbright (1937). In essence the valuation question asked is "what is the value of light bulbs in a building?" In the answer we remind ourselves that in the operation of any building light bulbs fail and are replaced. Assume replacement is done as each fails. When a time period passes equal to the average life of a light bulb some bulbs will be new, some near new, some old, some not so old, and every age in between. The average age will be half the life of a new light bulb and the value of the bulbs will be half the new price.

If the light bulb analogy is applied to farm buildings on well established farms we could say that on average the buildings are half worn out (half depreciated or have half their life left). By this theory the average collection of farm buildings will have a total ‘added value’ close to half-new construction cost. Walker (1994) contends that the market rarely pays replacement cost for such structures. Furthermore he asserts that transaction studies in U.S.A. have revealed that contribution to value hovers in the region of 30% to 50% of depreciated replacement cost. Australian literature on the subject is non-existent.

In summary there seems to be three practical ways of assessing in-place-value of farm buildings:

1. Use assessment combined with actual life versus chronological life using information from authoritative sources. The Age/Life method.
2. Use assessment combined with an assessment to place building into life quartiles based on estimate of remaining useful life – process oriented estimate – observation method.
3. Use of the light bulb analogy; a collection of useful buildings on well established properties are likely to have a value close to half the new construction price.

Finally there is no easy way to assess the in-place-value of structures. Usefulness is always the starting point, cost of construction and salvage value are the extremes (for usual structures). The end point or best value estimate is that obtainable, this paper asserts, from a combination of placing structures into life quartiles and applying the light bulb analogy as a check.

Building Value from Paired Sales

There is no market for in situ structures alone but there is a market for those properties with structures on them and (of course) properties of the same kind without structures. The latter are those properties which are developed but in an un-traditional way or are not yet fully endowed with structures. Other things being equal (time period the same, soils the same, etc) the difference in sale price between those with structures and those without provide a measure of value associated with structures. The measure is value for a whole group of structures and it is market determined.

This so called paired sale concept of depreciation assessment envisages, to sum up, that the result of subtraction of one sale price from the other, will represent the value of the buildings as a collective whole. The amount as a proportion of the total sale price of the property-with-buildings indicates the proportion of the transaction price the buyer placed on the buildings. Applying the same proportion of sale price to similar property helps underpin the theory that (i) buildings add value and (ii) the value added is the proportion of the whole sale price estimated from paired sales.

In practice appraisers (valuers) gleefully set upon ‘paired sales’ in their continual search for evidence to support the notion of the added value but the process gives the added value of the whole lot and not the value of individual structures. In land holdings in the wheat/sheep zones in Western Australia such sales indicate added value of buildings at around 20% of total sale price.

Ratcliff (1972) expressed the view that value is really the central tendency in a range of possible prices. The range is best demonstrated at auctions of residential land subdivisions where identical properties bring different prices. It shows that purchasers are unable to accurately value property prior to purchase and therefore to claim price differences between a single "paired sale", in the context of this discussion, represent the value of structures on one in the pair is, Kummerow (1994) claims, stretching the information source far past its reasonable limits. Thus Kummerow asserts validity emerges, in a statistical sense, with the use of several paired sale events. Of course, of course, but where are they?

Units of Value Inclusive of Structures

In situ or in place value of structures in real estate analysis represents a perplexing problem. For rural property analysis and value assessment it may be just as accurate to utilise a unit of value inclusive of structures, an all inclusive unit, and make adjustments in the application of the unit for differences in building structure types between the various pieces of sale evidence and the subject property. Adjustments could be made in the same way that adjustments are made for cleared versus uncleared land, pastured versus unpastured and arable versus unarable land.

Added value concepts expounded by the courts have paved the way for widespread application of units of value like dollars per cleared hectare excluding buildings. Such units need not and should not be blindly adhered to. The law, the courts and the profession have been found wanting in relation to the blind application, in Australia, of the Spencer Principle to prospective ordinary transactions and associated valuations (Fraser, 1994). They may also be wrong in attempting to employ concepts of added value that were framed in circumstances far removed from the practical application of sale price of farms to land purchased in ordinary transactions.

Finally in-place-value of structures may be the valuers great-unsolved problem. In which case the issue can be avoided by employing units of value inclusive of structures. If this is unacceptable the technique favoured is the process oriented operationalisation of the observation method carried out by dividing structure life into quarters and, in the circumstances where the collection of buildings is old enough to have equal portions new and old, applying the light bulb analogy as a check.

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