

# Common Misconceptions regarding the Measurement of Obsolescence in Unit Principle Appraisals

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*The industrial and commercial property (e.g., special purpose property) of some corporate taxpayers is assessed for ad valorem property tax purposes based on the unit principle of property appraisal. That is, these taxpayer's industrial or commercial property is valued as one operationally, functionally, and economically integrated "unit." Valuation analysts ("analysts") working for either taxing authorities or taxpayers may apply cost approach methods to value the taxpayer's special purpose property. As part of the application of the cost approach appraisal methods, analysts should consider all components of depreciation—including functional and external obsolescence. The measurement of obsolescence is sometimes a topic of disagreement between analysts in property tax assessment appeals. This discussion focuses on several common misconceptions related to the measurement of obsolescence in the appraisal of special purpose industrial or commercial property. And, this discussion recommends several best practices responses to these common misconceptions.*

## INTRODUCTION

The industrial or commercial property of some types of corporate taxpayers may be valued based on the unit principle of property appraisal. That is, the taxpayer's industrial or commercial property may be valued as a single-operating "unit."

One generally accepted unit principle property appraisal approach is the cost approach. The cost approach is particularly applicable to the appraisal of special purpose industrial or commercial property. One component of every generally accepted cost approach appraisal method is the analyst's consideration of the functional obsolescence ("FO") component and the external obsolescence ("EO") component of property depreciation.

First, the valuation analyst ("analyst") has to identify the causes/types of obsolescence that may affect the taxpayer's special purpose property. Second, the

analyst has to measure the obsolescence adjustment (or allowance), if any, to the property cost measurement. The analyst typically categorizes the obsolescence adjustment as either FO or EO.

This discussion presents a nonexhaustive list of five misconceptions regarding the identification and quantification of obsolescence in the cost approach appraisal of industrial or commercial property. These five misconceptions may arise in a tax assessment appeal or litigation related to the appraisal of the taxpayer's property. These misconceptions often relate to the measurement of FO or EO in the cost approach appraisal of the special purpose property.

## MISCONCEPTION #1

The effects of EO are only temporary. That is, the causes of any EO will correct themselves over time.

Therefore, the effects of any EO should not affect the assessment date value of the taxpayer's industrial or commercial property.

## Best Practices Response #1

The effects of EO on the taxpayer's property are often temporary. This is because many of the causes of EO are cyclical.

The relevant consumer demand in the taxpayer's industry may increase or decrease over time. Demand changes and competitive factors can cause product prices of goods or services to fluctuate over time. The cost of essential raw materials may vary significantly over time. And, interest rates and investor expectations are generally cyclical. Therefore, the taxpayer property owner's required rate of return on investment will likely change over time.

With recognition of all of the above truisms, the objective of the property tax assessment is to value the taxpayer's property as of a specific point in time. This specific point in time is usually the statutorily defined "as of" valuation date. It is not the responsibility of the taxpayer property owner or the analyst to speculate as to what the taxpayer's property value may be at some time in the future. The industrial or commercial property appraisal should be performed as of a specific date (defined by statute in the specific taxing jurisdiction).

The taxpayer property appraisal should consider all of (and only) the obsolescence in effect as of that valuation date. The property appraisal should typically not consider whether the amount of obsolescence (whether FO or EO) will increase or decrease in the future.

## MISCONCEPTION #2

The taxpayer did not recognize a tangible property impairment charge on its financial accounting statements. Yet, the taxpayer is claiming an obsolescence adjustment for property tax assessment purposes.

If the taxpayer's property value really suffers from obsolescence, then the taxpayer should "write down" the tangible property value on its financial accounting statements.

## Best Practices Response #2

The following discussion considers three principal differences between (1) the recognition of property obsolescence for property tax appraisal purposes and (2) the recognition of a tangible property impairment for financial accounting purposes.

These three principal differences relate to (1) the starting point from which to make the value adjustment, (2) the appropriate standard of value to apply, and (3) the specific accounting guidance tests for recognizing an impairment charge for financial accounting purposes.

There are two U.S. generally accepted accounting principles ("GAAP") provisions related to the financial accounting recognition of property impairment:

1. Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") topic 350 *Intangibles—Goodwill and Other* and
2. FASB ASC topic 360 *Property, Plant and Equipment*.

ASC topic 350 presents the GAAP guidance for the impairment testing and impairment recognition related to intangible personal property ("IPP")—including goodwill and identifiable intangible assets. ASC topic 360 presents the GAAP guidance for the impairment testing and impairment recognition related to plant, property, and equipment (i.e., real estate and tangible personal property).

First, in a cost approach appraisal of an industrial or commercial property, obsolescence is typically measured as an adjustment to either (1) replacement cost new ("RCN") less depreciation or (2) reproduction cost new ("RPCN") less depreciation.

In the financial accounting recognition of a tangible property impairment, the adjustment is measured against the accounting net book value of the recorded property. Net book value is measured as original cost less accounting depreciation.

Typically, neither RCN nor RPCN is equal to original cost. Also, appraisal depreciation is typically not equal to accounting depreciation.

Second, both ASC topic 350 and ASC topic 360 are based on the fair value standard of value. Most property tax statutes are based on the fair market value (or a conceptually equivalent) standard of value. The differences in the two standards of value can (and often do) result in different value indications.

Third, both ASC topic 350 and ASC topic 360 provide very specific rules and tests for the recognition of an asset impairment. For example, for long-lived tangible property (i.e., property, plant, and equipment), the ASC topic 360 test allows for the recognition of an asset impairment only if the sum of all future undiscounted cash flow expected to be generated by the property is less than the property's net book value (or carrying value). There

is no present value procedure performed in the ASC topic 360 impairment test.

Accordingly, it is extremely unlikely that a long-lived tangible property will “fail” the ASC topic 360 sum of all future cash flow test and, therefore, be subject to an asset impairment recognition.

In contrast, it is much more likely that a property will fail the present value of future cash flow test that is often applied in a cost approach economic obsolescence measurement analysis.

### MISCONCEPTION #3

The economic obsolescence measurement in the cost approach is based on the subject property’s income metrics. Therefore, the cost approach appraisal analysis is just another application of the income approach.

### Best Practices Response #3

The statement above may be absolutely true if the analyst did not correctly develop the economic obsolescence measurement analysis. A cost approach economic obsolescence measurement analysis should be independent of the income approach property appraisal analysis.

Both the cost approach and the income approach may rely on a consistent set of property valuation variables, such as a property-specific discount rate or direct capitalization rate. However, the economic obsolescence measurement analysis should not be influenced by the conclusion of the income approach property appraisal analysis.

Some inexperienced analysts erroneously measure economic obsolescence as a “plug number”—or a residual amount. That is, first, the analyst quantifies the cost approach value indication as: replacement/reproduction cost new less physical depreciation less FO (for our purposes, “RCNLDFO”). Second, the analyst quantifies the income approach value indication. Third, the analyst subtracts the income approach value indication from the RCNLDFO value indication in order to measure any economic obsolescence. Last, the analyst subtracts any economic obsolescence from RCNLDFO in order to arrive at the cost approach value indication.

Applying this mathematically circular procedure, the income approach value indication will always be approximately equal to the cost approach value indication. Also, the cost approach economic obsolescence measurement is not independent of the income approach appraisal analysis. In fact, the cost approach value indication is entirely influenced by the income approach value indication.

Accordingly, this “plug” or residual procedure for quantifying the cost approach economic obsolescence is fundamentally flawed.

Economic obsolescence is almost always calculated on a comparative basis. Some of the many comparisons include the following:

1. Actual versus historical margins, returns, units, or prices
2. Actual versus budgeted margins, returns, units, or prices
3. Actual versus required returns (i.e., costs of capital)
4. Actual versus benchmark (comparable property or industry average) results

These comparative analyses may involve some of the same data elements that were considered in the income approach appraisal analysis (e.g., unit volume, average selling price, profit margins, etc.). However, the results of these comparative analyses should be totally independent of the results of the income approach appraisal analysis.

One comparative analysis that is not appropriate is (1) the income approach value indication compared to (2) the cost approach value indication—before the recognition of economic obsolescence.

A well supported economic obsolescence analysis can (and should) stand on its own analytical merits. It should (and can) be independent of the income approach appraisal analysis. With an economic obsolescence measurement analysis based on comparative financial or operational variables, the cost approach can (and should) provide a value indication that is totally independent from the income approach value indication.

### MISCONCEPTION #4

Total depreciation (including FO and EO) is implicitly recognized in both the sales comparison (or market) approach and the income approach.

If the taxpayer also explicitly recognizes FO and EO in the application of the cost approach, then that taxpayer property appraisal double counts (or exaggerates) the impact of obsolescence.

### Best Practices Response #4

Consistent with generally accepted appraisal professional practices, a cost approach analysis should recognize all components of total depreciation. This includes physical deterioration or depreciation, FO, and EO. All of these components of total depreciation are implicitly recognized in both the income

approach and the sales comparison (or market) approach. All of these components of total depreciation should be explicitly recognized in the application of the cost approach.

Unless all three property appraisal approaches include (implicitly or explicitly) all components of depreciation (including FO and EO), then the value indications of the three approaches will not reconcile in the valuation synthesis and conclusion procedure.

Accordingly, it is inappropriate to exclude consideration of obsolescence from any of the three generally accepted property appraisal approaches.

## MISCONCEPTION #5

The effects of FO and EO are already included in the physical depreciation estimate, if the physical depreciation is based on cost estimation guide depreciation tables from, for example, Marshall Valuation Service.

Therefore, the taxpayer property appraisal will double count (or exaggerate) the impact of obsolescence by considering both (1) a discrete FO and EO adjustment and (2) a physical depreciation allowance extracted from a cost estimation guide's depreciation table.

## Best Practices Response #5

The premise of this misconception is factually incorrect. The standard cost estimation guide depreciation tables, such as those published in Marshall & Swift's Marshall Valuation Service, are designed to include two components only (1) normal physical depreciation and (2) normal FO due to changes in construction materials and techniques.

Therefore, it is true that some influences of FO may be included in the standard cost estimation guide depreciation tables. These ordinary, age-related influences would relate to the structural deficiencies of all industrial or commercial properties of a certain age. Examples of these age-related influences include (1) the width of interior and exterior walls in older factories, and (2) the size and number of support stanchions in older warehouses.

However, the standard cost estimation guide depreciation tables do not recognize any influences of FO that are (1) property-specific and (2) not dependent on age. Examples of these factors may include inefficient layout or design, technologically obsolete equipment, excess production labor costs or material handling costs, and many others.

Furthermore, almost by definition, the standard cost estimation guide depreciation tables do not

include consideration of EO. This is because the influences of EO are, by definition, external to the physical property.

Accordingly, it is a generally accepted appraisal procedure for the analyst to extract physical depreciation and age-related (or ordinary) FO from a standard cost estimation depreciation table. The analyst then has to complete the cost approach appraisal analysis by discretely quantifying any property-specific (or extraordinary) FO and EO.

## SUMMARY AND CONCLUSION

The industrial and commercial property of some types of taxpayers is typically assessed for property tax purposes based on the unit valuation principle of property appraisal. For special purpose industrial or commercial property, analysts often apply the cost approach methods to appraise the taxpayer's property.

As part of an application of these cost approach appraisal methods, analysts should consider all components of total depreciation, including functional obsolescence and external obsolescence.

The measurement of obsolescence may become an area of disagreement in taxpayer property assessment appeals or litigation. This discussion presented five misconceptions that relate to the measurement of obsolescence. And, this discussion recommended best practice responses related to these five obsolescence measurement misconceptions.

Taxpayers, taxing authorities, tax counsel, and analysts should all be aware of these misconceptions regarding the measurement of obsolescence. This obsolescence discussion particularly relates to the application of the cost approach to appraise the taxpayer's special purpose property.

All parties to the property tax process should avoid these misconceptions in the pursuit of a supportable and credible appraisal of the taxpayer's special purpose industrial or commercial property.

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