

# ***EXTERNAL OBSOLESCENCE***

## ***A REVIEW***

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External obsolescence is not measured by reduced rents or values when all property in a market is severely affected. The need to measure external obsolescence is only problematic in the cost approach, however, because the anticipatory nature of both the sales comparison approach and the income approach enables them to account for external loss on a market-wide basis.

The definition of external obsolescence, *“is an element of depreciation; a defect, usually incurable, caused by negative influences outside a site and generally incurable on the part of the owner, landlord, or tenant.”*<sup>1</sup> Further review of definitions is Economic Depreciation, defined as, *“loss of value from all causes outside the property itself.”*<sup>2</sup> Various external factors affect potential economic returns, thus having a direct impact on the market value of a property.

External obsolescence may be quantified using several different techniques. Each technique is not applicable in every valuation problem. The appropriate technique is dependent on the availability of data to analyze and the type of property being valued. The various techniques are listed below, although not discussed in this presentation, the appraiser should be aware of the terminology.

- Equity-to-book ratio analysis
- Income approach
- Income shortfall
- Governmental regulations
- Gross margin analysis
- Market approach
- Return-on-capital analysis
- Utilization analysis

External forces often influence the value of taxpayer’s industrial and commercial property. This is particularly true with regard to the value of special purpose, complex, and fully integrated industrial and commercial property. External obsolescence is a key consideration in appraisal work and results from diminished value to improvements. External obsolescence is one of the

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<sup>1</sup> The Dictionary of Real Estate Appraisal, 4<sup>th</sup> Edition, Appraisal Institute, 2002, Page 106

<sup>2</sup> Dictionary of Real Estate Terms, Barron’s Educational Series, 1984, Page 85

most difficult concepts to understand. It is implicit in all three approaches to value, but is specifically addressed in the cost approach.

To start, review the earnings history of the subject property and any local or other influences that may affect the economic performances of the subject. Zoning, the local economy, unemployment, and industry factors can affect the value of real estate. Industry economic conditions affect all aspects of a business, not just real estate or machinery and equipment.

External obsolescence is addressed specifically because it is independent of physical depreciation and functional problems. External obsolescence can be categorized into economic, environmental, and locational.

Real estate, because of its fixed location, is susceptible to external influences. The principles of externalities can be either locational in terms of effects on the areas adjacent to the property, national, or international. The property itself has no control over whether the market overbuilds and creates an excess supply of competitive properties. For example, consider a plant that is located in and serves a market that is undergoing marked changes in population growth, demographic changes, and development patterns, or extended lease-up periods for new properties, declines in overall occupancy, and reductions in achievable economic rents are all factors that, whether separately or together, erode market value.

External obsolescence can exist in a newly constructed building. Ultimately, the measurement is whether there is sufficient net income or demand to satisfy all the property's components. When there is insufficient income demand to satisfy a proper return to the land, and return on and recapture of the improvements, a diseconomy is present, and external obsolescence exists.

Two methods can be used to measure external obsolescence. The method that is best supported by market data should be selected. An appraiser can either capitalize the income or rent loss attributable to the negative influence, or compare sales of similar properties that contain the same negative influence with others that are not.

If excess income is generated, then an economy is present and income is attributable to the real estate or business. This may be attributable to a fluctuating market, entrepreneurial position, or the business side of the property.

The three basic categories of external obsolescence are:

1. Economic Influence
2. Environmental Influence; and
3. Locational Influence.

## 1. ECONOMIC INFLUENCE

Economic influence occurs when interest rates increase, supply is ahead of consumer's demand; other influences that cause a decline in market value or a property may suffer a decline in value due to the market's inability to cover construction costs.

The basic premise is income must cover the total construction costs, including an allocation of entrepreneurial profit, as well as site value and land acquisition costs. This can be measured by estimating the income required to satisfy the improvements and land. If there is minimal furniture, fixtures, and equipment (FF&E) present, the situation can be handled by the sales comparison approach, or the income approach, or both.

### *Sales Comparison Approach*

The example is a 50,000 square foot discount store in a semi-rural area, and new competition and a limited population base is found in the market area. Two sales similar to the subject are analyzed. The comparables are not new but, each suffers the same physical and functional losses as the subject.

Sale 1: 48,000 square feet, located in an urban setting with normal demand, sold for \$50.00 per square foot. The land contribution is estimated at \$5.00 per square foot of building area, resulting in a net \$45.00 square foot for the building only.

Sale 2: 40,000 square feet, located in a semi-rural setting similar to the subject, sold for \$25.00 per square foot. The land contribution is estimated at \$4.00 per square foot, resulting in a net \$21.00 per square foot for the building only.

Therefore, the loss is calculated in the following table:

	Size/SF	\$\$\$P/SF	Land Value/SF	Bldg. Value/SF
Sale 1	48,000	\$50.00	\$5.00	\$45.00
Sale 2	40,000	\$25.00	\$4.00	\$21.00
Subject	50,000	X	<b>Difference</b>	\$24.00
<b>External Obsolescence</b>	<b>\$1,200,000</b>			

The loss is the result of the market's inability to support the physical and functional depreciated reproduction cost new of the improvements adequately. The semi-rural location is not the cause or issue.

### ***Income Approach***

The economic influence can also be measured using the income approach. Again, if there is minimal FF&E, an overall capitalization may be applied. The method recognizes that unless the improvements generate sufficient income to provide a proper return to the improvements, external obsolescence will exist. Entrepreneurial profit is included because, it is a market charge that reflects sufficient incentive necessary to satisfy the risks associated with building the project. Entrepreneurial profit may be the first cost item lost when external obsolescence is present, and may be greater than the entrepreneurial profit.

The process is demonstrated in the following table:

Reproduction Cost	\$2,500,000
Land Contribution	\$ 900,000
Total	\$3,400,000

By analyzing comparable market sales and a 10.0% ( $R$ ) is selected, the required net operating income is \$340,000 ( $I = V \times R$ )

However, if the net operating income is \$270,000, the estimated shortfall is \$70,000. It is assumed there is no loss due to environmental or locational influences. The loss is attributable to a downward trend in the economy.

The income attributable to the land is in both the required and the actual net income. Therefore, the loss is assumed to be attributed to the improvements. Therefore, the building capitalization rate should be slightly higher than the overall rate ( $R$ ), and for this example, 11.0% is used. This results in a loss of \$636,364, rounded to \$636,000 ( $\$70,000/0.11$ ).

### ***Presence of furniture, fixtures, and equipment (FF&E)***

Property that includes a significant amount of FF&E, the same basic premise is used, but you must use a residual-type technique. In this instance, a basic rate of 8% is applied to the land and improvements. Entrepreneurial profit will be allocated to all of the components, except land. The process is demonstrated in the following table:

Reproduction Cost plus entrepreneurial profit	\$ 2,250,000
Less: Physical and functional obsolescence	\$ 355,000
Depreciated value of improvements	\$ 895,000
Estimated Remaining physical life	54 years
Depreciated value of site improvements	\$ 125,000
Estimated remaining life of FF&E	9 years
Depreciated value of FF&E	\$110,000
Estimated Land Value	\$900,000

The base land rate is estimated at 8%. To calculate the required rates of return on the base land rate and recapture over the remaining life is as follows:

Buildings	Site Improvements	FF&E	Land
1/65 =	1/9 =	1/5 =	N/A
1.54%	11.11%	20.0%	N/A
8.0%	8.0%	8.0%	8.0%
9.54%	19.11%	28.0%	8.0%

The required income for each component is estimated.

\$1,895,000	\$125,000	\$110,000	\$900,000
9.54%	19.11%	28.0%	8.0%
\$180,783	\$23,888	\$30,800	\$72,000

The total required income is \$307,471

If the net income is \$250,000 based on an analysis of comparable rentals, there is a shortfall of \$57,471. The income deficiency is based on a negative economic influence. All the components of the property have been satisfied and both the net income and the required income have the same return to the land, all the income loss can be attributed to the improvements.

The income loss is capitalized to a present worth at the rate to the building. This is calculated by extracting the rate from the market, assuming a 30% land-to-building ratio (( $\$900,000/(\$2,250,000 + \$900,000)$ )).

Land-to-Property Ratio	(L) x (R <sub>i</sub> )
Plus Building to Property Ratio	(B) X (R <sub>d</sub> )
Overall Capitalization Rate	(R <sub>□</sub> )

$$30\%L \times 8\%R_i + 70\%B \times ? R^b = 10.18\% \text{ (The } 10.18\% R_{\square} \text{ is derived from market analysis)}$$

Then solving for the equation

$$R_b = 10.18\% - 2.4\%/70\% = 11.11\%$$

## 2. ENVIRONMENTAL INFLUENCE

Environmental influence reflects the loss in value to the improvements resulting from noxious or inharmonious influences in the surrounding area. For example, a property adjacent to a landfill operation in a declining neighborhood and downwind from the landfill could drop in value. The loss is outside the control of the property.

This is estimated by calculating the net income loss to the property, and then allocating as necessary to the improvements. The loss can be measured by using the sales comparison approach matched-pair technique, or a gross monthly rent multiplier (GMRM) for a residential property. An allocation to the land and improvement should be done *pro rata*, and should be decided beforehand.

### *Sales Comparison Approach*

Two sales are found, analyzed, and found to be similar to the subject property. Sale 1. is adjacent to the landfill. Sale 2. is similar but located in a commercial area. The following is an indication of the obsolescence.

	Sale 1	Sale 2
Selling Price	\$1,200,000	\$1,750,000
Land contribution	\$300,000	\$500,000
Improvement contribution	\$900,000	\$1,250,000

The loss due to environmental influence is the difference between the improvements of the commercial setting and the impacted property, or \$350,000 (\$1,250,000-\$900,000). The percentage loss is calculated by dividing \$350,000 by the depreciated value of the improvements in the commercial setting. This establishes the base value from which the loss is measured. Therefore,  $\$350,000/\$1,250,000 = 28\%$ .

### ***Gross Monthly Rent Multiplier***

The GMRM of an environmentally impacted residential neighborhood is estimated at 125. The GMRM of a residential neighborhood not influenced may differ. For example, the appraiser finds two rentals that are similar in all characteristics, except Rental 1 is impacted by a landfill, and rents for \$1,000. Rental 2 is a residential area that is not impacted and rents for \$1,400.

The rent loss is \$400 per month. The obsolescence is measured by applying the GMRM applicable to the subject of 125, then subtracting the proportional allocation to the land. Therefore,  $\$400 \times 125 = \$50,000$ .

The allocation to the land by using a land-to-building ratio, say \$40,000 (land)/\$165,000 (total property) = 24.2%. The complement is 100% - 24.2%, or 75.8%. Therefore, the allocated loss to the improvements is  $\$50,000 \times 75.8\% = \$37,900$ .

### **3. LOCATIONAL INFLUENCE**

This category of external obsolescence assumes a property is located in an inharmonious location, such as an industrial building in an area changing to commercial development. A test of the market indicates the highest and best use of the property is continued use as an industrial building. The high land value indicates the improvements contribute little to the overall value as improved. If functional obsolescence were not present, the allocation to the land would be substantial.

The loss to the improvements due to locational influence can be estimated by either a sales comparison approach or an income approach to value. Suggested applications follow:

#### ***Sales Comparison Approach***

If two similar industrial buildings are located in a viable market and each recently sold, a match-pair technique can be applied, assuming both buildings are 100,000 square feet, and have the same age, quality, and functional utility. Care should be emphasized how you handle the obsolescence in question.

Sale 1 is located in an industrial area and sells for \$90 per square foot or \$2,250,000. Sale 2 is located in a transitional area and sells for \$80 per square foot, or \$2,000,000.

	Sale 1	Sale 2
Selling Price	\$2,250,000	\$2,000,000
Land contribution	\$100,000	\$500,000
Improvement contribution	\$2,150,000	\$1,500,000

The loss in value due to external obsolescence for locational influence is \$650,000 (\$2,150,000 - \$1,500,000).

### ***Income Approach***

The same approach may exist and can be measured using the income approach and assuming the subject is 100,000 square feet. The building capitalization rate (Rb) of 10.0% is assumed. The building capitalization is used because it can be attributed to the physical components experiencing the obsolescence loss. For example, the good location rents for \$6.00 per square foot, the transitional location rents for \$3.00 per square foot; therefore, the total rent loss is \$3.00 per square foot. When the \$3.00 per square foot is multiplied by 100,000 square feet of the building, the rent loss is \$300,000.

The net income loss to the property of \$300,000 is allocated to the physical components of land and building, applying a residual technique. Assuming the land capitalization rate of 8.5% and a land value of \$350,000, income to the land is \$29,750. The income loss to the improvements is then \$57,750 (\$87,500 - \$29,750). Capitalized by the building capitalization of 10.0%, the total amount allocated to external obsolescence for locational influence is \$577,500.

### **SUMMARY**

Economic, environmental, and location influences are categories of external obsolescence that is recognized by the appraisal profession. When these influences occur the market is out of balance.

External obsolescence is the result of a deviation from an efficient marketplace. Real estate is not efficient, and when there is inefficiency or external obsolescence, entrepreneurial profit, which is part of all improvements, is the first to go. Usually there is insufficient market data to measure and allocate the losses accurately. The situation must be interpreted to allocate property between the land and improvements.



External obsolescence is handled at the conclusion of estimating depreciation in the cost approach. If external obsolescence is properly interpreted, it is also part of the sales comparison approach and income approach. The appraiser must make certain that the comparables selected in the sales comparison approach reflect the same external influences as the subject. If they do not, additional adjustments must be made.

In addition, the selection of comparable rentals, as well as the appropriate discounting or capitalization technique, should reflect the same market influences as the subject. Care must be taken when an economic rent is established for the subject and a subsequent net income is determined, the overall capitalization rate will reflect the inherent risk to the property.

Finally, categorizing external obsolescence into basic components results in a clearer and more accurate analysis.