

RE 310 – Principles of Real Estate

What Gives Value to Real Estate?

Practice Homework Problems – Solutions

Dr. Stanley D. Longhofer

- 1) Suppose you are a corporate real estate officer for McDonalds. What factors will you consider when deciding where to locate a new restaurant?

Any restaurant owner will want to evaluate where its potential customers are located and how a particular site will attract these customers. As a result, McDonalds is likely to consider the following factors in choosing a location for a new restaurant.

- Traffic counts on the intersections that are potential sites. Higher traffic counts mean more potential customers.
- Ease of access to the site. Just because there are a lot of cars that drive by doesn't mean that they will stop, especially if there are inadequate turning lanes, etc.
- Employment in the area around the site. This may be important for lunch traffic. How large of an area to consider depends on the particular location. For example, in a downtown site, the main consideration may be foot traffic. In a suburban location, most customers will drive.
- Population residing in the area around the site. This may be important for dinner traffic.
- Income levels of those who live/work in the area. Are the people who live and work around the site likely McDonald's customers?

- 2) Explain briefly how real estate markets differ from the classical perfect competition model. What does this imply about changes in real estate rents in response to demand or supply shifts? What does it imply about your ability to earn "above-normal profits" in real estate markets?

Real estate markets differ from the classical perfect competition model in several ways. First, and most importantly, each parcel of land is unique, meaning that there can never be a perfect substitute in the market. For example, only a limited number of parcels exist next to freeway interchanges, and parcels farther away will therefore command different prices. Second, private information abounds in real estate markets, giving those with inside information an advantage in the market. Third, the long gestation period for building real estate projects and the high transactions costs associated with selling real estate means that there is a distinct advantage to being first into a market.

All of this suggests that it is possible to earn "above-normal profits" in real estate, but only if you can foresee long-term trends and get in ahead of the rest of the market.

- 3) What is arbitrage? Is it possible in real estate?

Arbitrage is the act of trading assets to earn a riskless profit. Although it may be possible to earn above-normal profits in real estate, arbitrage is not possible. Risk is an inherent feature of real estate investments.

- 4) What are the key characteristics of perfectly competitive markets? Which of these break down for real estate markets? What impact does this have on price formation in real estate markets?

The central characteristics of perfect markets are:

- Many buyers and sellers without any market power;
- Perfect and symmetric information;
- Homogeneous goods;
- Free entry; and
- No transaction costs.

Only the first of these hold in real estate markets. As a result, changes in the amount of a particular type of space that are available are very slow to change to market conditions. If you can project demand changes far enough in advance, there is the possibility of earning above-normal returns, something that is not possible in perfect markets.

- 5) Suppose that downtown loft apartments suddenly became the most desirable residential space in the city? What impact would you expect to see in the downtown market in the short run (up to six months)? What would you expect to happen over the long term?

In the short term (up to six months or so), we would expect rents to rise dramatically and vacancy rates to decline. Over the longer term, as developers perceive that this trend will be permanent, old warehouses and other buildings will be transformed into additional loft apartments, allowing vacancy rates to return to a more-sustainable, “natural” level. Nevertheless, we would expect that rents will remain permanently higher than they were prior to the change in demand (but lower than they were after the short-run run up).

- 6) What is *market value* in the context of an appraisal? What are the key assumptions that go into this definition?

The market value of real estate is the most probable price that a property should bring in an open, competitive market in which market participants have typical bargaining power and information. This definition of market value assumes that:

- The market is open and competitive, so that the buyer and seller have including no inside information about the use or limitations of the property, and the property is exposed for a sufficient period of time on the market;
- The buyer and seller are typically motivated and informed; and
- There is no special financing or other market conditions that would alter the price of the property.

- 7) Describe the central idea or justification behind each of the three basic approaches to real estate appraisal.

The first is the sales comparison approach. This is based on the idea that the market value of a property will be close to recent sale prices of similar properties.

The cost approach is based on the idea that the value of a property will be related to the cost of replacing or reproducing it, minus any accrued depreciation.

The income capitalization approach recognizes the fact that the market value of a property should be related to the income streams the property can generate for its owner.

- 8) What is the difference between curable and incurable physical deterioration? Give an example of each.

Curable physical deterioration refers to items whose cost of replacement will be no greater than the value added by replacing them. Examples include completely worn out items such as paint, carpeting, HVAC, etc.

Incurable physical deterioration includes items that are partially worn out, but still have sufficient remaining useful life that the cost of replacement would exceed the value added by replacing them. Examples would include a 5-year old HVAC system or 2-year old carpeting, each with substantial remaining useful life.

- 9) A subject property has 1,800 square feet, 2 bedrooms, 1.5 baths, and is located on a 10,000 square foot corner lot. The proposed sale price is \$110,000.

A comparable property sold for \$120,000 one year ago. It has 2,000 square feet, 3 bedrooms, 2.5 baths, and sits on a 20,000 square foot interior lot.

The following adjustments are applicable:

House size: \$30 per square foot;

Bedrooms: \$1,750 each;

Lot size: \$15,246 per acre;

Bathrooms: \$2,500 each;

Lot locations: \$0.10 per square foot more for corner lots.

Market conditions: Market values have increased by approximately 3% over the last year.

Using this information, what is the indicated value of the subject property?

Begin with the sale price of the subject property, and then adjust this price to make it more like the subject.

Comparable sale price		\$120,000
Market condition adjustment (+3%)	+	3,600
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Market-adjusted normal sale price		\$123,600
Subject has 200 fewer square feet	-	6,000
Subject has 1 fewer bedroom	-	1,750
Subject has 1 fewer bathroom	-	2,500
Subject 10,000 square foot smaller lot	-	3,500
Subject has corner lot	+	1,000
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Indicated value of subject		\$110,850

10) A subject property has 2,000 square feet, 3 bedrooms, a 1 acre lot, brick exterior, and is in “good” condition. The proposed sale price is \$135,000.

A comparable property sold for \$125,000 three months ago. It has 4 bedrooms, 1,700 square feet, a ¼ acre lot, frame exterior, and is in “excellent” condition.

The following adjustments are applicable:

House size: \$25 per square foot;

Bedrooms: \$1,500 each;

Lot size: \$15,000 per acre;

Brick exterior: \$5,000 more than a frame exterior;

Excellent condition: \$2,000 more than “good” condition.

Using this information, what is the indicated value of the subject property?

Begin with the sale price of the subject property, and then adjust this price to make it more like the subject.

Comparable sale price		\$125,000
Subject has 300 more square feet	+	\$7,500
Subject has 1 fewer bedroom	-	\$1,500
Subject has ¾ acre larger lot	+	\$11,250
Subject has brick exterior	+	\$5,000
Subject is in “good” condition	-	\$2,000
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Indicated value of subject		\$145,250

11) The HVAC system in a commercial office building has a useful life of 20 years and its replacement cost is \$80,000. If the system is 15 years old, what is the incurable physical deterioration associated with this short-lived component?

$$SLPD = \$80,000 \times 15 / 20 = \$60,000.$$

- 12) Suppose the total reproduction cost of a building is \$750,000, its effective age is 5 years, its total economic life is 30 years, the reproduction cost of short-lived curable items is \$50,000, and the reproduction cost of the short-lived incurable items is \$100,000. What is the total long-lived physical deterioration for this building?

$$\text{LLPD} = (\$750,000 - \$150,000) \times 5 / 30 = \$100,000.$$

- 13) The GRM for duplexes in a particular part of town is 90. If a duplex generates gross rents of \$1,200 per month, what would be its indicated value using the income approach?

$$\text{Value} = \$1,200 \times 90 = \$108,000.$$

- 14) In order to expand a major arterial road, the city must condemn part of the land on which an apartment building now rests. Although the building itself will not need to be destroyed, the rents it will command will be reduced by approximately \$25 per month, per unit.

If the apartment building currently contains 12 units and the appropriate gross rent multiplier is 90, what is the external obsolescence the building will suffer due to the condemnation?

$$\text{Total rent loss} = \$25 \text{ per unit} \times 12 \text{ units} = \$300 \text{ per month, so the external obsolescence due to the condemnation will be } \$300 \times 90 = \$27,000.$$

Note that the gross rent multiplier is based on monthly gross rents, not annual.

- 15) The building for a small neighborhood retail center would cost \$1,500,000 to replace. This building has an effective age of 15 years, and a total economic life of 50 years. The land on which it lies has a value of \$250,000.

The only major short-lived components in the building are carpeting and fixtures. The replacement cost of these items is \$400,000, and they currently have 25% of their useful life remaining.

The property has no functional or external obsolescence.

- a) What is the total short-lived physical deterioration for this building?

$$\text{SLPD} = \$400,000 \times (1 - 0.25) = \$300,000.$$

- b) What is the total long-lived physical deterioration for this building?

$$\text{LLPD} = (\$1,500,000 - \$400,000) \times (15 / 50) = \$330,000.$$

- c) What is the value of the property as indicated by the cost approach?

$$\text{Value} = \$1,500,000 - \$300,000 - \$330,000 + \$250,000 = \$1,120,000.$$

- 16) The GRM for rental houses in a particular part of town is 80. If a house in this neighborhood generates gross rents of \$900 per month, what would be its indicated value using the income approach?

$$\text{Value} = \$900 \times 80 = \$72,000.$$