Reflection Questions

Please consider the following questions before class begins:

- Is it easier or harder to appraise a school building instead of a single-family home?
- What makes real estate different from other types of financial assets?
- What property characteristics can create significant differences in value?

Readings

- *Chapters 7 & 8* of Real Estate Principles: A Value Approach, Ling and Archer.

- *Chapter 10* of Real Estate Finance and Investments, Brueggeman and Fisher.

Upcoming assignments

- PS2 now live and **due on February 15th (extended deadline)**

- First case study assigned on Thursday February 15th **due on March 5th**

Homework 1 commentary

- Solutions now posted – I'll provide some discussion in Thursday's class.

- **Submission policies**
  - Late Gradescope submission will be more enforced next time – Ask Doug or TAs for technical guidance.
  - Please, please look at the PDF you are uploading

Today's class

- Brief reflection on last lecture – market research

- Real estate valuation: **Sales comparison approach**

Valuation of real estate – The sales comparison approach

HADM 4200, Spring 2024

Professor Lauri Kytömaa

Review - When do we need to value real estate?

For all sorts of transactions!

- Acquisitions or sales
- Renovation, abandonment, demolition
- Site development
- Property used as collateral for a loan
- Property taxes

Review –
Who is going to use appraisal information?

- Buyers & Sellers
- Corporate acquisitions, mergers or dissolutions
- Courts
  - Divorces, eminent domain cases, settlements of estates, and bankruptcy
- Mortgage lenders
- Local government

Review - Differentiating value concepts

Market value

- Most probable selling price under "normal" market conditions

Investment value

- Property value to a *particular* investor – willingness to pay
- Buyer investment value vs seller investment value

Transaction price

- Actual price observe on a sold property

Review - Why do we have estimate market value?

- Real estate **assets are all unique** and it is not always possible to compare them to each other
  - Physical property, land, location, future expectations

- Large investment which is much more **illiquid** than other financial products

- In general, there are **many imperfections** in the real estate market, which means that prices are **not set in perfect competition**

Review - Valuations process under USPAP

1. Identify the Appraisal Problem
2. Determine the Required Scope of Work
3. Collect Data and Describe Property
4. Perform Data Analysis
5. Determine Land Value
6. Apply Three Approaches to Valuation
7. Reconcile Indicated Values from Valuation
8. Report Final Value Estimate

Last time (virtually)

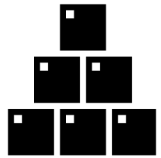
Review - Market research: Numerous competing factors

- Need to access to work, amenities, transportation networks
  - Location!

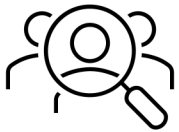
- Non-location factors depends on our asset
  - *Housing: Style, floorplan, size, financing available*
  - *Retail: Tenant mix, parking facilities, visibility, store dimensions*
  - *Offices: Visibility, design, amenities and services, communications services*

Review - Market segmentation

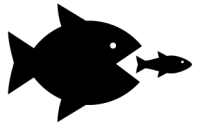
1. **What is the product space?**
   - Defining features of buildings, location, services



2. **Who are our customers?**
   - Differences in income, tastes, time



3. **Who is our competition?**
   - Comparables, customer substitution patterns



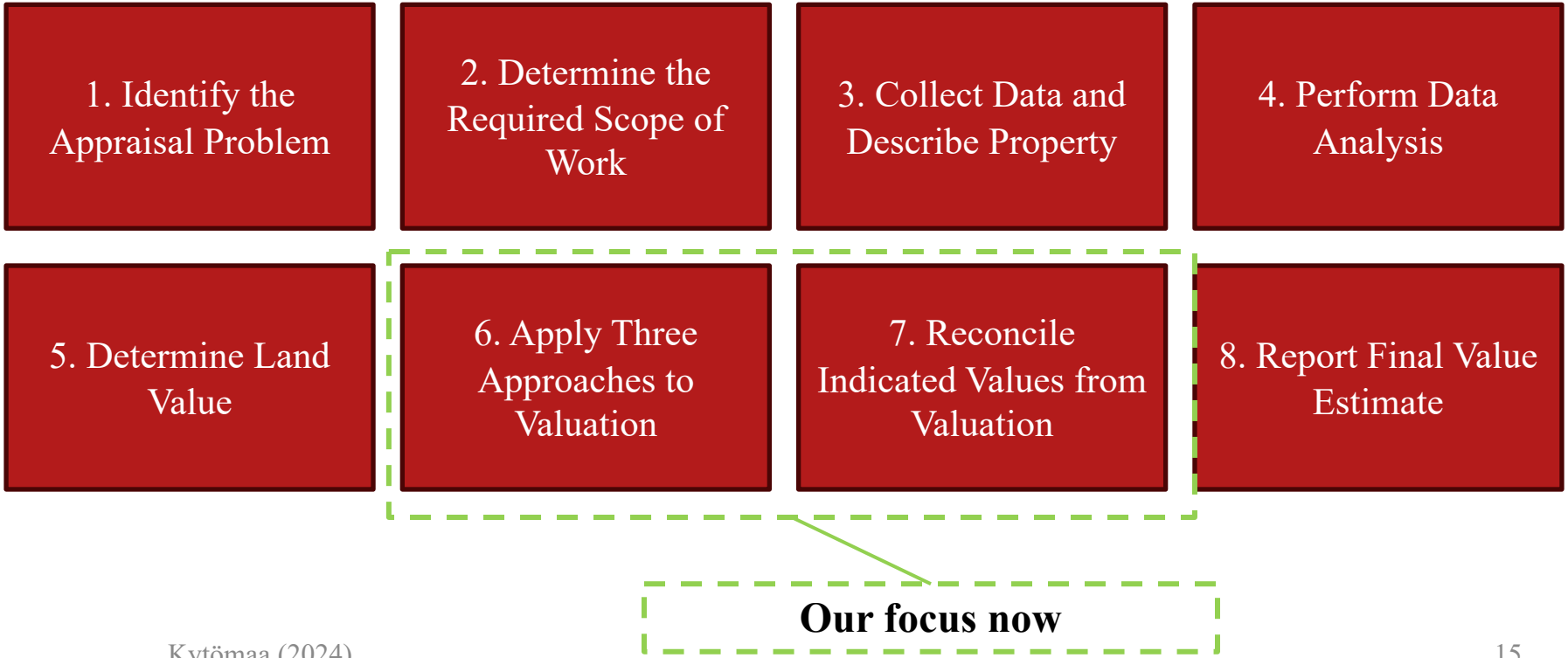
Broad concepts that must be tailored to the relevant market

Review - Market segmentation

With a definition for the specific market, move to a more quantitative analysis on both the demand and supply-side:

1. **Prices:** Rental rates (apartments), revenue per room (hotels)
2. **Quantities:** Existing capacity in the market
3. **Measures of demand:** Airport arrivals, event attendance, foot traffic, parking usage
4. **Assumptions on future usage:** How will market change? How well will your property fare?
5. **Cost of construction/entry**: How much is a hotel license? Where can we acquire a property? Will it be a new build or a renovation?

Valuations process under USPAP



Three approaches to valuation

Sales comparison approach	Cost approach	Income approach
Common approach for **residential property**	When reliable comparable sales or income **data are absent**	Common approach for **income-producing** commercial property

Appraisal method examples

Small Community Church

Storage facility

Single-family home

School

Kytömaa (2024)

Image Source: www.vecteezy.com

Three approaches to valuation

Sales comparison approach	Cost approach	Income approach
Today Feb. 6th	Thursday Feb. 8th	Next week Feb. 13th

Might need to read ahead for homework!

Sales comparison approach to valuation

- Valuation approach that uses **other similar property transactions** to generate a valuation for target property
- Under competitive conditions, **close substitutes should sell for a similar price**

<u>For group discussion:</u> What could undermine this approach to valuation?

Bonus – What is an example of a non-competitive condition?

Image Source: www.vecteezy.com

Seattle Zillow walk-through

- 8041 D Mary Avenue NW
  - $779,900
- 6523 24th Avenue NW UNIT C
  - $675,000
- 9257 Ashworth Avenue N UNIT E
  - $744,950

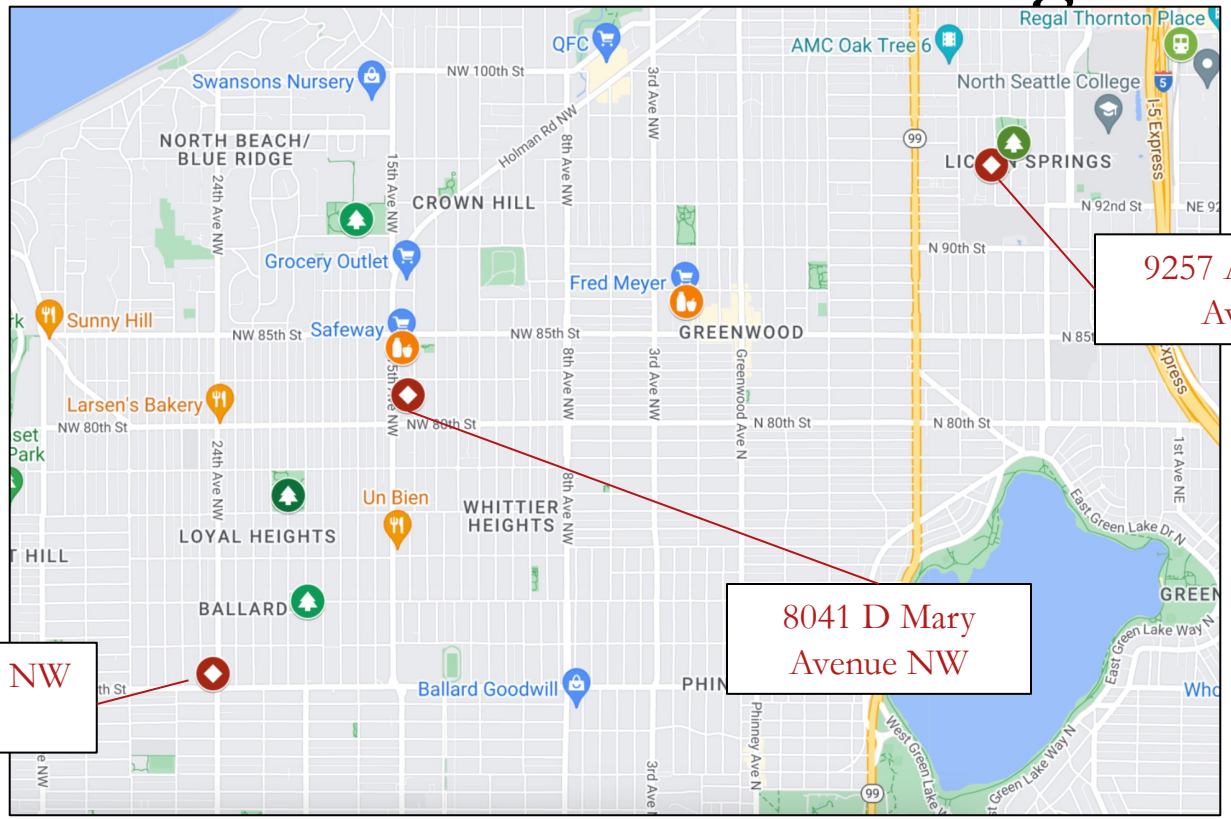
What sets these properties apart?

Seattle Zillow walk-through

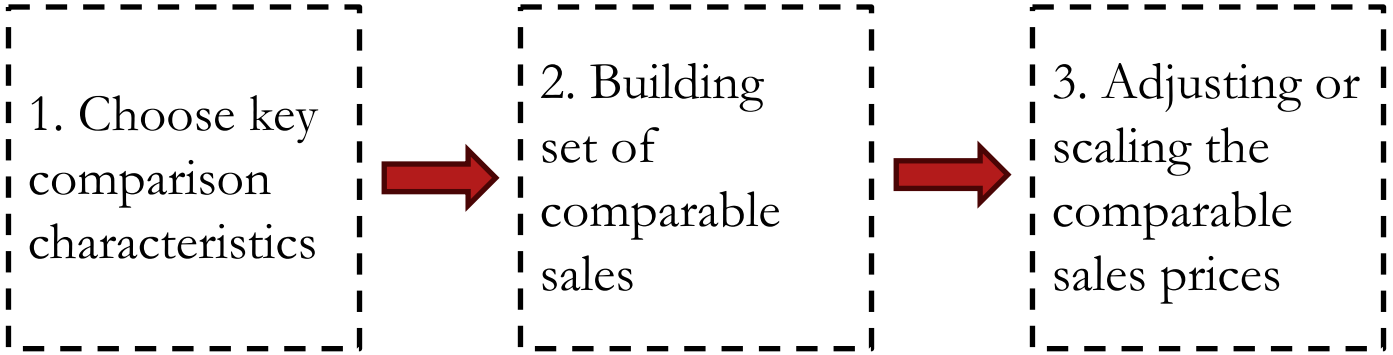
Grocery store

Metro

Park



Comparison approach process



Finally: within the comparison approach – we also want to make a **reconciliation to compute our indicative value**

Two main areas of comparable sales adjustments

- Transactional adjustments - made first
- Property adjustments

Comparable sales: Transactional adjustments

Concern the nature & terms of the deal

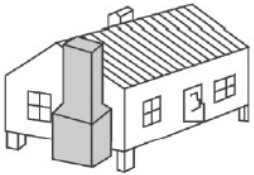
- Property rights conveyed
  - If buyer of comparable purchased a different legal estate, should be dropped
- Financing terms
  - Below rate financing
- Conditions of sale (arm's length or not?)
  - Parents sell to daughter
- Expenditures made immediately after purchase
  - Buyer probably received price concession
- Market conditions
  - Changes in values since sale of comparable

Comparable sales: Property adjustments

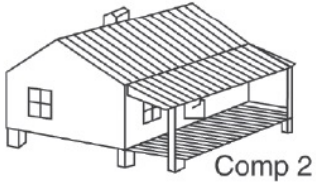
- Location – How easy is this to judge?
- Physical characteristics
- Economic characteristics (not applied to residences)
  - Important economic characteristics of income producing properties: operating expenses, lease terms, tenant mix
- Use
  - If comparable use if different from best use of subject, better not use as a comparable
- Non-realty items (personal property)
  - Furniture
  - Sound/stereo/TV equipment

Physical property adjustments

Focus on physical home, chimney and front-porch



Target property

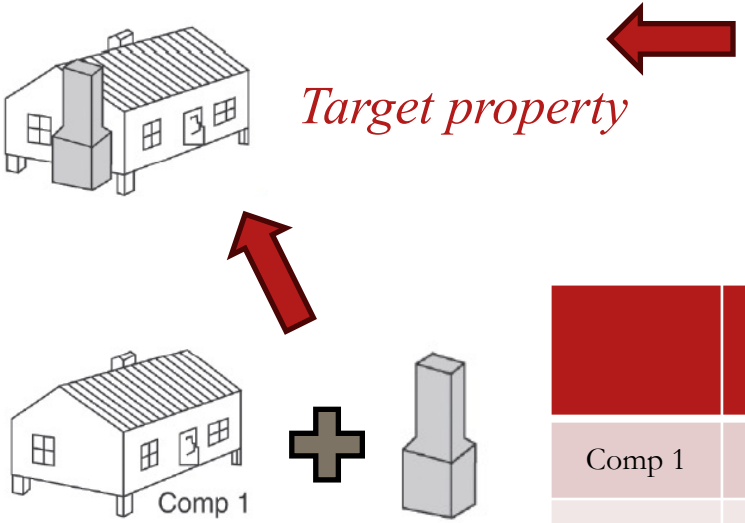


Comp 2 – No chimney but has front porch

Comp 1 – No chimney

Physical property adjustments

Focus on physical home, chimney and front-porch



	Existing Valuation	Chim. value	Porch value	Adjusted comparable sales price
Comp 1	$200,000	+$950	- $0	$200,950
Comp 2	$205,000	+$950	- $2,000	$203,950

Finding comparable sales

- Data sources:
  - Public records (e.g., county property tax assessor)
    - Alachua County (www.acpafl.org)
  - Multiple listing service (MLS)
  - Private vendors (title companies, others)
    - CoStar for commercial properties (www.costar.com)
    - Real Capital Analytics (RCA: www.rcanalytics.com)
    - Zillow (https://www.zillow.com/), RedFin (https://www.redfin.com/)
- Importance of personal relationships

Price indices for market condition updates

- **Freddie Mac**

www.freddiemac.com/research/indices/house-price-index.html

- **Federal Housing Finance Agency (FHFA)**

www.fhfa.gov/DataTools/Downloads/Pages/House-Price-Index.aspx

- **S&P CoreLogic Case-Shiller Home Price Indices**

http://us.spindices.com/index-family/real-estate/sp-case-shiller

- **National Association of Realtors**

www.realtor.org/research/research/metroprice

Practice: Repeat sale analysis

- We can use repeat-sales analysis to get a sense of market condition changes over time

- Say that: property sold for $100,000 ten months ago and has sold for $125,000 today:
  - **Growth:** $125,000 - $100,000 = $25,000 price growth
  - **Change per month:** $25,000/(10 months) = 2,500
  - **Monthly increase as share of original price:** $2,500/$100,000 = 0.025 (2.5%)

Practice: Repeat sale analysis

What we need for this calculation where:

Months since previous sale (mo.)	Previous sale price (SP_1)	Current sale price (SP_2)	Change per month ($SP_2 - SP_1$)/mo.	Monthly rate of increase (Change per month)/SP_1
10	$100k	$125k	($125k – $100k)/10 = $2,500	$2,500/$100k = 0.025

Practice: Repeat sale analysis

- We don't just want to use a single property to get the market rate information
- In practice, we would average mange of these monthly rate increase together. We want to average the rates across many properties:
  - **Three property average: [**(% change per month Prop A) + (% change per month Prop B) + (% change per month Prop C)]/3

Practice: Repeat sale analysis

Now try for yourself:

	Months since sale	Previous sale price	Price today	Change per month	Monthly rate of increase
Prop A	24	$201k	$210k		
Prop B	11	$200k	$205k		
Prop C	47	$125k	$175k		

Practice: Repeat sale analysis

Now try for yourself:

	Months since sale	Previous sale price	Price today	Change per month	Monthly rate of increase
Prop A	24	$201k	$210k	9k/24 = $375	
Prop B	11	$200k	$205k	5k/11 = $455	
Prop C	47	$125k	$175k	50k/47 =$1,064	

Practice: Repeat sale analysis

Now try for yourself:

	Months since sale	Previous sale price	Price today	Change per month	Monthly rate of increase
Prop A	24	$201k	$210k	9k/24 = $375	$375/$201k = 0.19%
Prop B	11	$200k	$205k	5k/11 = $455	$455/$200k = 0.23%
Prop C	47	$125k	$175k	50k/47 =$1,064	$1,064/$125k = 0.85%

Review Exhibit 7-4 in the L&A text for another example!

Practice: Full comparable adjustment

A comparable property sold six months ago for $150,000. The adjustments for the elements of comparison are as follows:

- **Financing terms:** -$2,600
- **Market conditions:** +8 percent
- **Physical characteristics:** +$12,500
- **Other conditions of sale:** 0

Making the adjustments in the order they are listed above, what is the comparable's final adjusted sale price?

Practice: Full comparable adjustment

Adjustment	Amount
Financing terms	-$2,600
Market conditions	+8 percent
Physical characteristics	+$12,500
Other conditions of sale	$0

Item	Amount
Transaction price	$150,000

Practice: Full comparable adjustment

Adjustment	Amount
~~**Financing terms**~~	~~-$2,600~~
Market conditions	+8 percent
Physical characteristics	+$12,500
Other conditions of sale	$0

Item	Amount
Transaction price	$150,000
Adjustment for financing terms	**-$2,600**
Adjusted price	$147,400

Practice: Full comparable adjustment

Adjustment	Amount
~~**Financing terms**~~	~~$2,600~~
~~**Market conditions**~~	~~+8 percent~~
Physical characteristics	+$12,500
Other conditions of sale	$0

Item	Amount
Transaction price	$150,000
Adjustment for financing terms	**-$2,600**
Adjusted price	$147,400
Market condition adjustment (Adjusted price X 0.08)	**+$11,792**
Adjusted price	$159,192

Practice: Full comparable adjustment

Adjustment	Amount
~~**Financing terms**~~	~~$2,600~~
~~**Market conditions**~~	~~+8 percent~~
~~**Physical characteristics**~~	~~+$12,500~~
Other conditions of sale	$0

Item	Amount
Transaction price	$150,000
Adjustment for financing terms	**-$2,600**
Adjusted price	$147,400
Market condition adjustment (Adjusted price X 0.08)	**+$11,792**
Adjusted price	$159,192
Adjustment for physical characteristics	**+$12,500**
Adjusted price	$171,692

Sequence of adjustments to sale price of comparable

Sale price of comparable	
Transaction adjustments:	
Adjustment for property rights conveyed	+/−
Adjusted price	
Adjustment for financing terms	+/−
Adjusted price	
Adjustment for conditions of sale	+/−
Adjusted price	
Adjustment for expenditures immediately after purchase	+/−
Adjusted price	
Adjustment for market conditions	+/−
Adjusted price	
Property adjustments for	
Location	+/−
Physical characteristics	+/−
Economics characteristics	+/−
Use	+/−
Nonrealty components	−
Final adjusted sale price	

Source: Ling & Archer Chapter 7

Might have many adjustments in practice

Elements of Comparison	Subject	Comp Sale 1	Comp Sale 2	Comp Sale 3
Sale price of comparable		$169,900	$167,200	$157,100
Transaction adjustments				
Adj. for property rights conveyed	Fee simple	0	0	0
Adjusted price		$169,900	$167,200	$157,100
Adjustment for financing terms	Conventional	0	0	0
Adjusted price		$169,900	$167,200	$157,100
Adjustment for conditions of sale	Arm's length	0	0	0
Adjusted price		$169,900	$167,200	$157,100
Adjustment for expenditures immediately after purchase		0	0	0
Adjusted price		$169,900	$167,200	$157,100
Adjustment for market conditions	Today	0	1,500	1,900
Adjusted price		$169,900	$168,700	$159,000
Property Adjustments for				
Location	Suburban	0	0	0

Source: Ling & Archer Chapter 7

Bonus - Statistical methods for valuation

Note: This section will not be in course assessment

Statistical methods for valuation

- Example: *Freddie Mac: Home Value Suite*
  https://sf.freddiemac.com/tools-learning/home-value-suite/overview
- Based on model developed using millions of sales
- Uses complex multiple regression models
- Regression is used to predict value of subject property

Multiple regression analysis (MRA)

- For (large) sample of transactions, regress transaction prices on a set of property characteristics
- Time-series variation in transaction prices controlled for with time "dummy" variables
- Save estimated coefficients on property characteristics
- Multiply estimated coefficients by characteristics of the "subject" property
- Predicted price is the estimated value of subject property
- This is what Zillow & others do

Regression-Based Appraisal

Price (Y) = $B_0 + B_1\ x_1 + B_2\ x_2 + B_3\ x_3 + \ldots\ B_n\ x_n + e$

- Regression often estimated with millions of sale observations
- X_1, X_2, X_3, etc. are characteristics of properties in the sample of sales
  - e.g., size, age, quality, location
- $B_1 \ldots B_n$ are estimated coefficients representing dollar value contributed toward price **per unit of x_i**
- B_i may be the value of having a particular attribute if x_i is a 0/1 dummy/attribute variable (e.g., pool or not)

Estimated Regression Model Statistics

X variables	β est.	t-stat
Sq. ftg.	64.06	22.32
Age (in years)	-0.01	4.59
Site size (in acres)	35,000.92	3.23
Constant	1,034.99	14.12

$R^2 = .89$, F-stat = 69.74, Dep. Var. = Value

Dependent variable (Y) is sale price…equation is estimated with a sample of comparable sales transactions

How are the coefficient estimates (the *Bs)* interpreted?

Use Coefficient Estimates to "Predict" Value of Subject Property

X variables	β est.	Subject Stats	β x Subject
Sq. ftg.	64.06	2,000	$128,120
Age	-0.01	25 (yrs)	-0.25
Site size	35,000.92	1 (acre)	$35,001
Constant	1,034.99		$1,035

Indicated value of the subject property: $164,156