Income Approach to Value

Part C

2020 Level I Tutorials

Level I
Income Approach
Problem # 1
Determination of Net Operating Income

You are trying to determine the value of a small retail center containing 4,500 square feet of Net Leasable Area. There are three leasable spaces in the building, and at present two of the spaces are leased. You have determined the following information:

1.) Market rent for this type of space is $22 per square foot.
2.) The owner has $3,000 per year in miscellaneous income.
3.) The market vacancy rate is 4% and the market collection loss rate is 1%.
4.) Operating Expenses from the reconstructed operating statement are $30,500.
5.) The Reserve for Replacements is $5,000.

Determine the Net Operating Income (NOI) for the subject property.

Potential Gross Income (PGI)	
Vacancy and Collection Loss	
Miscellaneous Income	
Effective Gross Income (EGI)	
Operating Expenses	
Reserves for Replacements	
Net Operating Income (NOI)	

Level I
Income Approach
Problem # 1 Answer
Determination of Net Operating Income

Potential Gross Income	$99,000
Less: Vacancy and Collection Loss	($4,950)
Add: Miscellaneous Income	$3,000
Effective Gross Income	$97,050
Less: Operating Expenses	($30,500)
Less: Reserve For Replacements	($5,000)
Net Operating Income	$61,550

Net leasable area of 4,500 Square feet times $22/Square Foot	$99,000
Vacancy loss rate of 4% plus Collection loss rate of 1% times PGI	($4,950)
Add miscellaneous income (given)	$3,000
Effective Gross Income (EGI)	$97,050
Less expenses (given)	($30,500)
Less reserves for replacements (given)	($5,000)
Net Operating Income (NOI)	$61,550

Income Approach

- **Capitalization Rates** express the relationship between income and value.
- Proper selection of a capitalization rate is necessary in order to produce a valid value estimate.
- A small difference in the capitalization rate will result in estimates of value differing by thousands of dollars.

Income Approach

- Following are examples of different capitalization rates associated with the same yearly income.
- Assume NOI of $100,000. We will apply an 8%, 10%, and 12% Capitalization Rate to this figure to demonstrate the effect of the Capitalization Rate. (MV=NOI/Rate)
- $100,000/.08 = $1,250,000
- $100,000/.10 = $1,000,000
- $100,000/.12 = $ 833,333
- As you can see the lower the Cap Rate the higher the value

Income Approach

- Capitalization Rate can be composed of various rate components. These components are:
  - **Discount Rate** – allows for return **on** the investment
  - **Recapture Rate** – allows for return **of** the investment
  - **Effective Tax Rate** – allows for payment of the property taxes on the investment

Income Approach

- **Discount Rate** – percentage that allows for return on the investment
- The discount rate reflects the compensation necessary to attract investors to give up liquidity, defer consumption, and assume the risks of investing. It is the rate of return on total property investment to meet investment requirements.

Income Approach

- Discount Rate Continued
- Three methods to determine:
  - Summation Method (build-up method)
  - Band-of-Investment Method
  - Market Comparison Method

Income Approach

- Recapture Rate – percentage that allows for return of the investment
- The recapture rate is the annual dollar requirement for returning to the investor a sum equal to the value of the improvements at the end of a given period of time. It is the annual offset against the depreciation on the improvements.

Income Approach

- Recapture Rate (Continued)
- Two methods to determine:
  - Reciprocal of the remaining economic life method
  - Market comparison method

Income Approach

- **Effective Tax Rate** – percentage that allows for payment of the property taxes on the investment
- The effective tax rate expresses the ratio between the property value and the current tax bill. Since we do not expense the property taxes in the reconstructed operating statement, they must be accounted for in the capitalization rate.

Income Approach

- Effective Tax Rate (Continued)
- Two methods to determine:
  - EAT formula method
  - Market comparison method

Income Approach

- Once we have the three rate components, we can then develop a capitalization rate to use in the IRV formula.
- The capitalization rate we develop must match the income we are capitalizing. In other words, whatever the investor needs to take out of the income, we need to include in the cap rate

Income Approach

- There are three types of capitalization rates:
  1. Land Cap Rate (R_L) – used when we are capitalizing land income.
  2. Improvement (Bldg.) Cap Rate (R_I) – used when we are capitalizing building/improvement income.
  3. Overall Capitalization Rate (R_O) or (OAR) – used when we are capitalizing the income to the total property.

Income Approach

- Land Cap Rate (R_L) – used when capitalizing land income
- Developed by adding together the Discount Rate and the Effective Tax Rate

  - If the Discount rate is 8% and the Effective Tax Rate is 1.2%, the Land Cap Rate would be 9.2% (8% + 1.2%)

Income Approach

- Improvement (Bldg.) Cap Rate (R_I) – used when capitalizing improvement (building) income.

- It is developed by adding together the Discount Rate, the Effective Tax Rate, and the Recapture Rate

Income Approach

- Example:
  - If the Discount Rate is 8%, the Effective Tax Rate is 1.2% and the Recapture Rate is 2%, the Improvement Cap Rate is 11.2%

  - (8% + 1.2% + 2% = 11.2%)

Income Approach

- Overall Capitalization Rate (R_O) or (OAR) – used when we are capitalizing the income to the total property.
- Developed by weighting the land cap rate and the improvement cap rate by the land-to-building ratio.

Income Approach

- Example:
  - Land-to-building ratio is 1:4 (20% land, 80% building) (The land to building ratio is based on the contributory value of Land and Building, respectively to the total value of a property. Market research must be done to establish this relationship. Sales of properties will be researched and analyzed as to what percent of the total value of the sale is attributable to each part of land and improvement. The resulting values then establish the land-to-building ratio.)
  - If the land cap rate is 8% and the building cap rate is 12%, the OAR is calculated as follows:
    - Land Cap Rate = 8% x 20% = 1.6%
    - Bldg. Cap Rate – 12% X 80% - 9.6 %
    - OAR is 1.6% + 9.6% or 11.2%

Income Approach

- A second method of developing an overall cap rate is to determine it directly from the market by analyzing comparable property using the IRV formula.
  - I ÷ V = R
  - NOI ÷ Sale Price = Overall Rate

Income Approach

- For example, we know that our NOI is $45,100 and our Sale Price was $400,000. Our OAR would be 11.275%

  - $45,100 ÷ $400,000 = 11.275% or 11.3% rounded

Income Approach

- Once you have the appropriate capitalization rate, it is merely a matter of plugging it in to the IRV formula and capitalizing the NOI for the property into an indication of the property's value using the income approach.

Income Approach

- Remember the IRV formula:
  - I ÷ R = V
  - NOI ÷ Cap Rate = Market Value

  - If the NOI is $49,500 and the Cap Rate is 11%, the market value is $450,000.
  - ($49,500 ÷11% = $450,000)

Income Approach

- Capitalization methods are different ways of mathematically combining income streams and capitalization rates to arrive at a conclusion of value by the income approach.
- They can be divided into two categories:
  - Direct Capitalization Methods
  - Yield Capitalization Methods (we will not be discussing these)

Income Approach

- Direct Capitalization Methods
- Direct capitalization methods use an estimate of one year's income and directly converts it into an indicated value.
  - Uses the IRV or VIF formulas
  - The direct methods are: Overall Capitalization Rates and Gross Income or Gross Rent Multipliers

Income Approach

- We just discussed, and you just determined an overall cap rate, so we are going to spend the rest of the time talking about the Gross Income/Gross Rent Multipliers.

Income Approach

- Gross Income/Gross Rent Multipliers
- This is also a simple method of capitalization. It uses the VIF formula and converts one year's (or one month's) effective gross income (EGI) into value by multiplying it by a factor.
- The factor is called a multiplier, and can be either a Gross Income Multiplier (GIM) or a Gross Rent Multiplier (GRM)

Income Approach

- I x F = V
- EGI x GIM = Market Value

- If our EGI = $60,000 and our GIM = 7, the indicated value of our property would be $420,000

Income Approach

- **Gross Income Multipliers (GIM)** are developed for most commercial properties such as office buildings, shopping centers, warehouses, and large apartment complexes.
- **Gross Rent Multipliers (GRM)** are developed for residential properties such as single-family, duplexes, triplexes, etc. (IC 6-1.1-4-39 (3)(c))

Income Approach

- **Gross Income Multipliers (GIM)** are developed from comparable properties' **annual** effective gross income and are applied to the subject property's **annual** effective gross income.

Income Approach

- **Gross Rent Multipliers (GRM)** are developed from comparable properties' **monthly** effective gross income and are applied to the subject property's **monthly** effective gross income.

Income Approach

- **<u>Gross Income Multipliers (GIM) Formula:</u>**
  - Sale Price ÷ Annual EGI = GIM

  - Example:
    - Comp #1 $420,000 ÷ $70,000 = 6.0
    - Comp #2 $520,000 ÷ $88,100 = 5.9
    - Comp #3 $630,000 ÷ $103,300 = 6.1

Income Approach

- This tells us that investors are paying approximately six (6) times the annual effective gross rent for these properties.

Income Approach

- Gross Income Multiplier Application:
  - I x F = V
  - Annual EGI x GIM = Market Value

  - Example:
  - Subject property's annual EGI is $90,000, and the GIM is 6.
  - The indicated market value would be $540,000 ($90,000 x 6 = $540,000)

Income Approach

- Gross Rent Multiplier (GRM) Formula:
  - Sale Price ÷ Monthly EGI = GRM

  - Example:
  - Comp #1 $48,000 ÷ $450 = 106.7
  - Comp #2 $50,500 ÷ $470 = 107.4
  - Comp #3 $53,000 ÷ $495 = 107.1

Income Approach

- This tells us investors are paying approximately one hundred seven (107) times the monthly effective gross rent for these properties.

Income Approach

- Gross Rent Multiplier (GRM) application:
- I x F = V
- Monthly EGI x GRM = Market Value

- Subject property's monthly EGI is $500 and the GRM is 107.
- The subject property's indicated market value is $53,500 ($500 x 107)

Income Approach

- Generally, when working with GIM's and GRM's you will select the one that is most like your subject property. That is why it is important to select the proper comparables. If, while working the following problems, you do not know which comparable is most like your subject property the median would normally be a good method to use to select the proper GIM or GRM.

Level I
Income Approach
Problem # 2 (A)
Gross Rent Multiplier Problem

The subject property is a single family dwelling which is rented for $475 per month. The market rent is also $475 per month. Develop a GRM from the following data and use it to calculate a possible indication of value.

Sales

	1	2	3	4	5
Sale Price	$60,000	$72,000	$65,000	$62,000	$68,000
Monthly Rent (EGI)	$425	$520	$460	$450	$490
GRM					

Level I
Income Approach
Problem # 2 (A) Answer
Gross Rent Multiplier Problem

The subject property is a single family dwelling which is rented for $475 per month. The market rent is also $475 per month. Develop a GRM from the following data and use it to calculate a possible indication of value.

Sales

	1	2	3	4	5
Sale Price	$60,000	$72,000	$65,000	$62,000	$68,000
Monthly Rent (EGI)	$425	$520	$460	$450	$490
GRM	141.2	138.5	141.3	137.8	138.8

GRM = Sales Price divided by the Monthly Rent (EGI)
Median is 138.8
Possible indication of value: Market rent of $475 times 138.8 = $65,930 rounded to $65,900

Level I
Income Approach
Problem # 2 (B)
Gross Income Multiplier Problem

The subject property produces Gross Annual Effective Gross Income of $72,000. sales of comparable properties rendered the following. Based upon this information calculate a Gross Analysis of rents and Income Multiplier (GIM) and then calculate indication of value for subject property.

Sale	Sale Price	EGI	Gross Income Multiplier
1	$675,000	$75,000	
2	$600,000	$68,000	
3	$720,000	$85,700	
4	$750,000	$87,500	
5	$650,000	$73,000	

Gross Income Multiplier Range

Estimated value of subject property:

Value using Low range (Low range is the lowest of the GIMs)	
Value using High range (High range is the highest of the GIMs)	
Value using Median	

Level I
Income Approach
Problem # 2 (B) Answer
Gross Income Multiplier Problem

The subject property produces Gross Annual Effective Gross Income of $72,000. sales of comparable properties rendered the following. Based upon this information calculate a Gross Analysis of rents and Income Multiplier (GIM) and then calculate indication of value for subject property.

Sale	Sale Price	EGI	Gross Income Multiplier
1	$675,000	$75,000	9.0
2	$600,000	$68,000	8.8
3	$720,000	$85,700	8.4
4	$750,000	$87,500	8.6
5	$650,000	$73,000	8.9

Gross Income Multiplier Range
8.4
8.6
8.8
8.9
9.0

GIM = Sale Price divided by the EGI

Possible indicated range of value:

Subject property EGI of $72,000 times low range =	8.4	$604,800
Subject property EGI of $72,000 times high range =	9.0	$648,000
Subject property EGI of $72,000 times median range =	8.8	$633,600

Level I
Income Approach
Problem # 3(a)
Belle River Office Building
Determine PGI, EGI, and NOI

You are appraising an office building in the Belle River complex. The building is three stories high and contains 20,000 square feet on each floor. The net leasable area on each floor is 17,500 square feet. There are three offices on each floor, but the square footage per office varies with the client. The leases have been entered into at various times over the past four years. The current rent roll is as follows:

First Floor	Area	Total Rent Paid
Thomas and Associates	3,750	$ 69,375
Katz, Katz, and Doggz	8,250	$ 123,750
Kelley Engineering	5,500	$ 88,000
Second Floor		
Second Job Agency	4,000	$ 72,000
Paperman Publishing	9,200	$ 142,600
Vacant	4,300	$ -
Third Floor		
Silverman and Goldman	8,000	$ 128,000
Leland Entertainment	3,000	$ 51,000
Media Heaven Ad Agency	6,500	$ 110,500

In researching the market, you have found that recently negotiated office rent in the same type location is running $20.10 per square foot.

What is the Potential Gross Income for your subject property?

In researching the rents, we also found that our vacancy rate was identical to the market vacancy rate. What is the vacancy rate for the subject property?

The market collection loss for office space in this area is 1.2%. Using this rate develop a vacancy and collection loss rate for the subject building.

Using the above information, what is the Effective Gross Income of the subject?

Level I
Income Approach
Problem # 3(a) Answers
Belle River Office Building
Determine PGI, EGI, and NOI

PGI

17,500 sq. ft. NLA on each floor; complex has 3 floors

17,500 x 3 =	52,500	sq. ft.

Market Rent is $20.10 per sq. ft.

$20.10 x 52,500 =	$1,055,250

Vacancy Rate

There is one vacant office of 4,300 sq. ft.

4,300 ÷ 52,500 =	8.2%

Vacancy and Collection Loss Rate (V&C)

Vacancy Rate is 8.2% and the Collection Loss Rate is 1.2%

8.2% + 1.2% =	9.4%

EGI

PGI = $1,055,250 and the V&C = 9.4%
No Miscellaneous Income is listed

PGI	$1,055,250
- V&C	-$99,194
+ Misc. Inc.	0
= EGI	$956,056

Level I
Income Approach
Problem # 3(b)
Belle River Office Building
Determine PGI, EGI, and NOI

The property management company of Bell River Complex (from slide 142) has furnished you with this operating statement. Upon further analysis, you have determined that the operating statement is incorrect for ad valorem purposes. Reconstruct the operating statment using information from slide 143 (PGI, V&C, and EGI), remove any improper expenses listed below, and find the correct NOI for the property.

Belle River Office Building
Operating Statement as filed

Potential Gross Income	$ 785,225.00	
Less: Vacancy and Collection Loss 8.2%)	$ (64,388.00)	
Add: Miscellaneous Income	0	
Effective Gross Income		$ 720,837.00
Less operating expenses:		
Management Fees (10% of EGI)	$ (72,084.00)	
Property Taxes	$ (28,457.00)	
Lawn Care	$ (2,300.00)	
Supplies/Maintenance	$ (7,248.00)	
Maintenance Salaries/Benefits	$ (28,340.00)	
Common Lighting	$ (1,345.00)	
Water and Sewer	$ (6,573.00)	
Electricity	$ (11,965.00)	
Gas	$ (15,996.00)	
Liability Insurance	$ (7,100.00)	
Debt Service	$ (173,900.00)	
Snow Removal	$ (1,100.00)	
Income taxes	$ (61,230.00)	
Donation to City Festival	$ (500.00)	
Christmas party for tenants	$ (1,345.00)	
Casualty Insurance (3 year policy)	$ (845.00)	
Membership in trade association	$ (1,500.00)	
Flower fund	$ (734.00)	
Total operating expenses		$ (422,562.00)
Less Reserve for Replacements		$ (22,500.00)
Net Operating Income		$ 275,775.00

Level I
Income Approach
Problem # 3(b) Answer
Belle River Office Building
Determine PGI, EGI, and NOI

First Floor		Area	Market Rent	PGI	
Thomas and Associates		3,750	$20.10	$75,375	
Katz, Katz and Doggz	17,500	8,250	$20.10	$165,825	
Kelley Engineering		5,500	$20.10	$110,550	
Second Floor					
Second Job Agency		4,000	$20.10	$80,400	
Paperman Publishing	17,500	9,200	$20.10	$184,920	
Vacant		4,300	$20.10	$86,430	
Third Floor					
Silverman & Goldman		8,000	$20.10	$160,800	
Leland Entertainment	17,500	3,000	$20.10	$60,300	
Media Heaven Advertising Agency		6,500	$20.10	$130,650	
	Total Net Leasable Area =	52,500		$1,055,250	**PGI**
POTENTIAL GROSS INCOME				$1,055,250	**PGI**
LESS: VACANCY LOSS AND COLLECTION LOSS				($99,194)	
ADD: MISCELLANEOUS INCOME				$0	
EFFECTIVE GROSS INCOME				$956,056	**EGI**
LESS: OPERATING EXPENSES					
MANAGEMENT FEES (10% OF EGI)				($95,606)	
LAWN CARE				($2,300)	
SUPPLIES/MAINTENANCE				($7,248)	
MAINTENANCE SALARIES/BENEFITS				($28,340)	
COMMON LIGHTING				($1,345)	
WATER & SEWER				($6,573)	
ELECTRICITY				($11,965)	
GAS				($15,996)	
LIABILITY INSURANCE				($7,100)	
SNOW REMOVAL				($1,100)	
CASUALTY INSURANCE 3 YR POLICY--PRO RATE 845/3				($282)	
MEMBERSHIP IN TRADE ASSOCIATION				($1,500)	
RESERVE FOR REPLACEMENTS				($22,500)	
NET OPERATING INCOME				$754,201	**NOI**

NLA Vacancy Rate	
4300/52500	8.2%
Collection Rate Loss	1.2%
V & C Rate Loss =	9.4%

PGI	$1,055,250
VAC & COLL LOSS	9.4%
V&C $ Amount =	$99,194.00

Income Approach
Practice Problem # 1
Developing NOI and Cap Rates

Potential Gross Income	$150,000
Vacancy and Collection Loss	10%
Operating Expense	$25,000
Christmas Gift	$2,500
Property Value	$800,000
Loan to value ratio	0.4

The above is given to you, develop the NOI and the Overall Capitalization Rate.

Net operating Income _____

Overall Cap Rate _____

Income Approach
Practice Problem # 1 Answer
Developing NOI and Cap Rates

PGI	$150,000
V & C Loss ($150,000*10%)	-$15,000
Misc Inc	$0
Effective Gross Income	$135,000
Operating Expense (Given)	-$25,000
Net operating Income	$110,000
Net operating Income	**$110,000**
Overall Cap Rate (Income/Value=Rate)	13.8%