

Chapter 15 / 30

Rent, Interest, Profits, And Capitalization

Chapter Objectives

After you have completed this chapter you should be able to differentiate between rent, interest, and profits, and describe their determinants; and explain the capitalization process through which income streams are translated into wealth.

Chapter Review: Key Points

1. *Economic rent* exists whenever resource owners receive more than the minimum required for them to supply given amounts of the resource.
2. Land has a unique economic characteristic-is fixed in supply. Thus, its supply curve is perfectly inelastic, and all payments for the use of land are pure rent. Land rents vary by location and particular physical characteristics, such as fertility or stores of minerals.
3. Land is not unique in generating economic rents. Any resource paid more than the minimum required to elicit its availability also generates economic rents.
4. "Single taxers" inspired by Henry George propose a 100 percent tax on land rent as a single tax to finance all government spending. They argue that taxing this unearned surplus would not distort the allocation of land, and thus would not hinder economic efficiency. The *single-tax proposal* suffers from: (a) inability to finance the entire public sector, (b) administrative problems in distinguishing land values arising out of improvements made by owners from rent as an unearned surplus, and (c) reduced incentives for landowners to put their land to the best possible uses if rent is taxed away.
5. Economic rent promotes economic efficiency by providing resource owners with incentives to put their assets to the most valuable uses.

6. *Nominal interest rates* are the percentage annual premiums paid to borrow funds. Interest rates on financial instruments vary according to: (a) risk, (b) maturity, and (c) liquidity. The interest rate normally means the rate on a long-term riskless bond.
7. In the long run, *real* (purchasing power) *interest rates* depend on: (a) premiums required to induce savers to delay consumption, (b) desires for liquidity, and (c) the productivity of capital. These factors determine interest rates through markets for *loanable funds*.
8. *Pure economic profits* are the residual after adjusting accounting profits for the opportunity cost of resources provided by a firm's owners. Profit may arise from *monopoly power*, bearing business *uncertainty*, or *innovation*.
9. Profits are a driving force in a capitalist economy, channeling resources to their most productive uses and stimulating progress as entrepreneurs innovate and endure business uncertainty. Profits induce efficiency; competitive firms that do not produce at the lowest possible cost will suffer economic losses.
10. *Present values* are the sums of the discounted values of future income that may be expected from owning an asset. The present value of an asset and its price will be identical in equilibrium. If the present value exceeds price, then the asset is a profitable investment because the expected rate of return exceeds the interest rate. *Capitalization* is the process whereby prices gravitate toward present values of assets.

Matching Key Terms and Concepts

- | | |
|----------------------------|---|
| ___ 1. single tax movement | a. Income per period as a percentage of investment. |
| ___ 2. economic rents | b. The prime motivation for innovation. |
| ___ 3. interest rates | c. Income generated for landowners because of reduced transaction costs. |
| ___ 4. rate of return | d. When probabilities are known of realizing certain outcomes. |
| ___ 5. location rents | e. Corporate bonds. |
| ___ 6. capitalization | f. Based on the idea that land rents are unearned surpluses. |
| ___ 7. perpetuity | g. A promise to pay a specified amount annually, forever. |
| ___ 8. economic profit | h. The percentage annual premiums paid to ultimate capital suppliers for the use of money. |
| ___ 9. debt capital | i. Transforming income streams into wealth. |
| ___ 10. risk | j. The area above a resource supply curve but below the market price. |

True/False Questions

- ___ 1. The supply of land is perfectly elastic in the long run.
- ___ 2. Location rents are more important in explaining the high prices of farm land than the prices of land in urban centers.
- ___ 3. Reductions of transportation costs for customers and resource suppliers are the major sources of location rents.
- ___ 4. A single tax of 100 percent of land rents would easily generate sufficient revenues to replace all other taxes.
- ___ 5. Property taxes would influence resource allocations more than would pure land taxes that generated identical tax revenues.
- ___ 6. Equilibrium investment occurs when total profits are maximized because rates of return exceed interest rates by the largest possible amounts.
- ___ 7. A corporation that issues stock instead of bonds to raise money for new investments relies on debt capital.
- ___ 8. New capital formation is enhanced when people increasingly sacrifice liquidity or delay their consumption.
- ___ 9. The more liquid a financial asset, the greater tends to be its expected rate of return.
- ___ 10. Expanded financial investment in an economic sector tends to promote economic investment in that sector.
- ___ 11. Capitalists are rewarded with profits, while entrepreneurs are the recipients of interest incomes.
- ___ 12. Widespread industry profits indicate that society would gain by channeling more resources into that industry.
- ___ 13. Frank Knight argued that riskbearing is a surer way than dealing with uncertainty for individuals to gain economic profits.
- ___ 14. Inventors are far more important to the dynamic process of capitalism, according to Joseph Schumpeter, than are the entrepreneurs who merely produce and distribute innovations.
- ___ 15. Monopoly profits stimulate long run economic efficiency.
- ___ 16. If the rate of return on an asset equals the interest rate, then the price of the asset just equals its present value.
- ___ 17. Prices of perpetuities rise when interest rates rise.
- ___ 18. Expected economic profits from an asset cannot be capitalized into wealth in the same way as are economic rents.
- ___ 19. The present value of an asset exceeds its current price whenever its rate of return exceeds the market rate of interest.
- ___ 20. Vigorous competition for profit opportunities cause the expected profits from most investments to be approximately zero.

Standard Multiple Choice

Each question has a single best answer.

- ___ 1. Land values attributable to the ways particular sites reduce transportation costs are known as:
- location rents.
 - transportation rents.
 - short-term quasi-rents.
 - parcel posts.
 - transaction rents.
- ___ 2. If you lease a building for five years and quickly achieve profits because it is located conveniently for potential customers:
- you could still receive all of the pure profits that could be anticipated if you sold your business with a sublease at the end of the second year.
 - your rent would probably be raised when the lease ran out.
 - the owner evidently underestimated the building's location rents.
 - similar firms would likely open businesses near you.
 - all of the above.
- ___ 3. Owners of resources other than land receive rents that are equal to the area below the:
- consumer surplus rectangle generated by price discrimination.
 - resource price line but above the resource supply curve.
 - supply curve and out to the quantity of resource sold.
 - total cost curve but above the total revenue curve.
 - marginal cost curve but above the average variable cost curve.
- ___ 4. The main instigator of the single-tax movement was:
- British Prime Minister Lloyd George.
 - John Stuart Mill.
 - Henry George.
 - Henry David Thoreau.
 - David Ricardo.
- ___ 5. Taxes on pure economic rents:
- pose especially severe problems for economic efficiency.
 - reduce the incentives to put resources to their best uses.
 - could easily replace all other forms of taxation.
 - have much stronger substitution than income effects.
 - are rapidly shifted forward to users of final products.
- ___ 6. Pure economic rents differ most from pure profits in that economic rents are:
- received by the owners of productive resources.
 - costs to the firm using the resources that generate them.
 - realized only in the short run, but not in the long run.
 - a major cause of cost-push inflation.
 - All of the above.

- ___ 7. Interest rates on given securities will be lower the:
- shorter the period to maturity.
 - greater the risk involved.
 - less liquid the asset is.
 - greater the expected rate of inflation.
 - greater is the face value relative to the market price.
- ___ 8. Market interest rates are least related to the:
- willingness of people to defer consumption (to save) if they are rewarded for doing so.
 - desires of people for liquidity.
 - marginal productivity of new capital relative to its price.
 - par values of stocks relative to their current prices.
 - current prices of bonds relative to their face values.
- ___ 9. The monetary premiums paid per period as a percentage of the cost of a financial investment is known as the:
- real rate of return.
 - nominal rate of interest.
 - rate of capitalization.
 - financial elasticity coefficient.
 - real rate of interest.
- ___ 10. Economic profits are:
- signals that society desires more resources in an industry.
 - rewards to successful innovators.
 - capitalized as wealth if they can be expected over time.
 - a residual to a firm's owners for bearing uncertainty.
 - All of the above.
- ___ 11. Owners of corporate stock receive pure economic profit only to the extent that the rates of return realized from owning the stock exceed the:
- interest rate that would have been generated by other financial investments carrying similar risks.
 - immediate gratification available by not delaying consumption.
 - funds saved by taking advantage of tax loopholes.
 - discount rate offered by exchange rate depreciation.
 - rate of arbitrage available in real estate investments.
- ___ 12. According to Frank Knight, unlike uncertainty, risk is:
- totally unpredictable.
 - a major source of pure economic profits.
 - possible to estimate so that firms can adjust appropriately.
 - impossible to account for when making rational decisions.
 - unimportant to entrepreneurs who seek profits through innovation.
- ___ 13. The rate of return for an asset which costs \$1,500 today and pays \$1,800 a year from now is:
- 5 percent.
 - 10 percent.
 - 15 percent.
 - 17.5 percent.
 - 20 percent.

- ___14. When the likelihood of a certain event cannot reasonably be predicted, business decisionmakers are confronted by:
- random selection.
 - uncertainty.
 - stochastic probability.
 - moral hazards.
 - risk.
- ___15. That profit functions as an incentive for innovation was among the key contributions to economic thought by:
- Karl Marx.
 - Frank Knight.
 - Joseph Schumpeter.
 - Adam Smith.
 - Alfred Marshall.
- ___16. Securities annually paying specific amounts forever are:
- stocks.
 - perennials.
 - royalties.
 - perpetuities.
 - renewals.
- ___17. Investment is NOT necessarily in equilibrium if:
- after adjusting for risk, liquidity, and time to maturity, all income-producing assets yield the same returns.
 - all prices exactly equal their corresponding present values.
 - the average expected rates of return on all investments equal the market rate of interest.
 - the risks for all investments are equal, regardless of their rates of return.
 - the market interest rate on loanable funds and the rates of return on existing capital are all equal.
- ___18. The current worth of an income stream after discounting it by the interest rate is known as the:
- present value.
 - discount rate.
 - rate of return.
 - perpetuity.
 - internal interest rate.
- ___19. If the rate of return on an asset exceeds the interest rate:
- its present value exceeds its price.
 - the market is moving away from equilibrium.
 - you should sell the asset as quickly as possible.
 - economic rent is being realized by the resource supplier.
 - current purchase of the asset would be unprofitable.
- ___20. If the price of each of these assets is \$1,000 and the interest rate is 10 percent, investment is most justified for:
- a perpetuity paying \$90 annually.
 - a machine with a 3 year life that is leasable for \$1 per day.
 - an income stream paying \$500, \$400, and \$300, respectively, at the ends of each of the next three years.
 - a bond paying \$1,300 two years from today.
 - an asset with a rate of return calculated at 8.5 percent.

Chapter Review (Fill-In Questions)

1. _____ is any payment greater than the _____ necessary to secure the social use of a resource.
2. Many resources other than land generate economic rent, which is the area _____ the price line for a resource but above its _____.
3. All _____ can also be considered economic rent since it is an unearned surplus. Pure profits are residuals after all opportunity costs to firms are deducted from their _____.
4. Profits are signals that society would like _____ resources devoted to a particular type of production. These desires may be frustrated if _____ power is present, but competition generally causes profitable industries to grow until all profits are eliminated.
5. Joseph _____ emphasized profits as incentives for _____, which is another of the functions of profit.
6. Frank Knight emphasized profit as a pure residual after all costs are deducted from revenue. After concluding that risk involves reasonably certain _____ of certain events, Knight reasoned that entrepreneurs could make such adjustments as buying _____ against undesirable events; hence, risk was a cost of doing business. However, totally unpredictable events create _____ as a source of profit according to Knight.
7. Profit is a reward for bearing _____, or for _____ new products or production techniques; it is also a _____ directing the allocation of resources to their most valuable uses.
8. Using revenues expected over time and the interest rate, the _____ of an asset can be computed as _____.
9. In equilibrium, _____ equals price and the _____ equals the interest rate.

Unlimited Multiple Choice

Each question has from zero to four correct responses.

- ___ 1. Economic rents are realized whenever resource:
- supply curves are perfectly elastic to society as a whole.
 - payments are the minimums needed to secure current quantities.
 - coordination by entrepreneurs yields them pure economic profits.
 - market supplies are less than perfectly elastic.
- ___ 2. Supplies of loanable funds tend to grow when households:
- delay consumption out of current income.
 - feel more secure and reduce the average liquidity of their assets.
 - begin to expect higher rates of return on new investments.
 - seek bigger mortgages because they want to buy bigger houses.
- ___ 3. The present value of an asset rises when the expected:
- interest rate falls.
 - total fixed income stream is spread over a longer period.
 - future costs and revenues in each period rise by equal amounts.
 - number of years rises for which a given annual income is expected.
- ___ 4. Likely consequences of high rates of economic profit being realized by innovative firms in an industry include:
- imitation of successful innovators by other firms.
 - adoption by other firms of any cost-cutting innovations.
 - hikes in the incomes of owners of vital resources.
 - a rise over time in the prices consumers pay.
- ___ 5. Opportunity costs to the society as a whole include:
- pure economic profits.
 - pure economic rents.
 - the wages required before people will provide labor services.
 - interest payments.

Problems

Problem 1

Jane, Lynn, and Tanya are all paid \$100,000 annually as doctors in an urban medical clinic. The minimum salaries that each woman would have been willing to accept are, respectively, \$35,000, \$60,000, and \$100,000.

- a. What does Jane's economic rent equal? _____
- b. What does Lynn's economic rent equal? _____
- c. What does Tanya's economic rent equal? _____

Problem 2

Determine the real rate of interest in the following questions.

- a. The nominal interest rate is 12% and the inflation rate is 7%. The real rate of interest is? ____
- b. The nominal interest rate is 15% and the inflation rate is 4%. The real rate of interest is? ____
- c. The nominal interest rate is 6% and the inflation rate is 9%. The real rate of interest is? ____

Problem 3

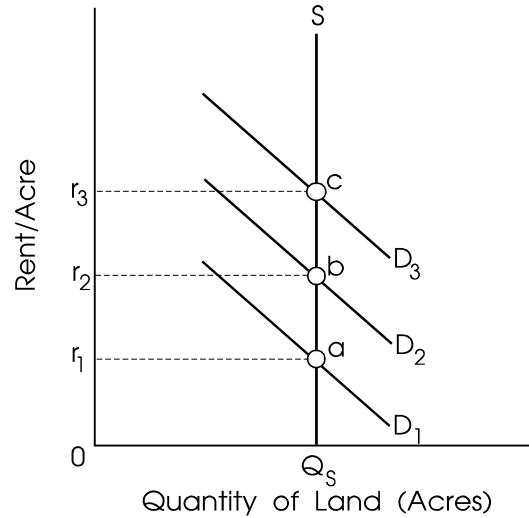
Determine what interest rate you would charge a borrower in the following questions.

- a. The expected rate of inflation is 5%, and you want a 6% real return. You will charge? _____
- b. The expected rate of inflation is 8%, and you want a 5% real return. You will charge? _____
- c. The expected rate of inflation is -5%, and you want a 7% real return. You will charge? _____

Problem 4

This figure shows a market for raw land. Use this information to answer the following true/false questions.

- ___ a. If the demand for raw land is D_2 , total economic rent is equal to area $0r_2bQ_s$.
- ___ b. As the demand for raw land changes, the economic rent on land varies as well.
- ___ c. If demand for raw land is D_2 and a tax per acre of ab is imposed, economic rent will rise by area r_1r_2ba .
- ___ d. If demand for raw land rises from D_2 to D_3 and a tax per acre of bc is imposed simultaneously, net economic rent to the owner stays constant.
- ___ e. A tax on raw land affects the supply because economic rent is reduced.



Problem 5

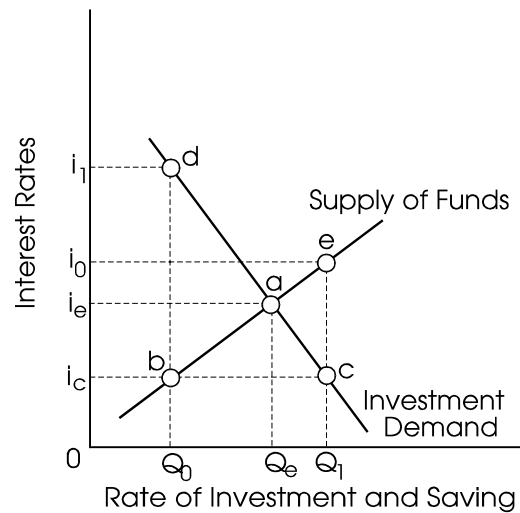
Determine the rate of return for the following questions.

- a. What is the rate of return on a \$20,000 investment that yields \$25,000 in one year? _____
- b. What is the rate of return on a \$12,000 investment that yields \$16,000 in one year? _____
- c. What is the rate of return on a \$8,000 investment that yields \$8,500 in one year? _____
- d. What is the rate of return on a \$4,000 investment that yields \$4,300 in one year? _____
- e. What is the rate of return on a \$4,000 investment that yields \$4,500 in one year? _____
- f. Rank investments a-e from highest to lowest rate of return. _____
- g. If you had \$20,000 to invest, which investment option(s) would you choose? _____
Why? _____

Problem 6

This figure depicts the supply and demand curves for the loanable funds market. The equilibrium interest rate is i_e , and i_c denotes a ceiling interest rate imposed by the federal government. Use this information to answer the following true/false questions.

- ___ a. The demand for loanable funds is negatively sloped in part because of diminishing marginal returns to investment.
- ___ b. At point a, the expected rate of return on the marginal investment project is equal to the interest rate ceiling established by the government.
- ___ c. The present value of the Q_0 th unit of investment is greater than the present value of the Q_1 th unit of investment, assuming that both units bear the same price.
- ___ d. At interest rate i_c , the quantity demanded is equal to the quantity supplied of loanable funds.
- ___ e. At point a, the expected rate of return on the Q_e th unit of investment is equal to the interest rate that would be established by the unhindered interaction of supply and demand.
- ___ f. A shortage of loanable funds exists in the loanable funds market when the interest rate ceiling is i_c .
- ___ g. Allocative efficiency requires the loanable funds market to be at equilibrium point a.



- ___ h. Market mechanisms efficiently allocate loanable funds to the investment opportunities yielding the highest rates of return when the interest rate is pegged by the government at i_c .
- ___ i. The expected rate of return on the Q_0 th unit of investment is less than the opportunity cost of the Q_1 th unit of investment, expressed in percentage terms.
- ___ j. Society would realize a net welfare gain if the interest rate were allowed to rise to the equilibrium rate i_e .

Problem 7

Interest rates and asset prices vary inversely. The following examples give you a chance to use discounting to compute present values. The letter R denotes the net revenue in each year; subscripts indicate its time period; and i denotes the market interest rate used to compute discounted present values of the assets.

- a. $i = 10\%$, $R_0 = 0$, and $R_1 = 200$. Present discounted value = _____.
- b. $i = 5\%$, $R_0 = 0$, and $R_1 = 200$. Present discounted value = _____.
- c. $i = 20\%$, $R_0 = 0$, $R_1 = 200$, $R_2 = 400$, and $R_3 = 600$. Present discounted value = _____.
- d. $i = 10\%$, $R_0 = 0$, $R_1 = 200$, $R_2 = 400$, and $R_3 = 600$. Present discounted value = _____.
- e. $i = 5\%$, $R_0 = 0$, $R_1 = 100$, $R_2 = 200$, $R_3 = 400$, $R_4 = 500$, and $R_5 = 1,000$.
Present discounted value = _____.
- f. $i = 10\%$, $R_0 = 0$, $R_1 = 100$, $R_2 = 200$, $R_3 = 400$, $R_4 = 500$, and $R_5 = 1,000$.
Present discounted value = _____.

Problem 8

Winnings from state lotteries are subject to federal, state, and local income taxes, and payments to big winners are typically spread across twenty year periods without interest. Suppose you lived in an area where total income taxes were 40 percent, and you won \$5 million in today's lottery.

- a. How much would you receive (after taxes) annually from the lottery commission? _____
- b. If interest rates were 10 percent annually, how much would someone be willing to pay you today for the rights to next year's check? _____ For the rights to the check you are scheduled to receive two years from now? _____
- c. Has winning this lottery made you a millionaire? (A millionaire has a current net worth (present value) of more than \$1,000,000.) _____ Why? _____

ANSWERS

Matching

1. f
2. j
3. h
4. a
5. c
6. i
7. g
8. b
9. e
10. d

True/False

- | | |
|-------|-------|
| 1. F | 11. F |
| 2. F | 12. T |
| 3. T | 13. F |
| 4. F | 14. F |
| 5. T | 15. F |
| 6. F | 16. T |
| 7. F | 17. F |
| 8. T | 18. F |
| 9. F | 19. T |
| 10. T | 20. T |

Multiple Choice

- | | |
|-------|-------|
| 1. a | 11. a |
| 2. e | 12. c |
| 3. b | 13. e |
| 4. c | 14. b |
| 5. b | 15. c |
| 6. b | 16. d |
| 7. a | 17. d |
| 8. d | 18. a |
| 9. b | 19. a |
| 10. e | 20. c |

Unlimited MC

1. cd
2. ab
3. ad
4. abc
5. cd

Chapter Review (Fill-In Questions)

1. Economic rent; minimum
2. below; supply curve
3. economic profit; total revenues
4. more; monopoly
5. Schumpeter; innovation
6. probabilities; insurance; uncertainty
7. uncertainty; innovating; signal
8. present value, $PV = \sum_{t=1}^n \frac{Y_t}{(1+i)^t}$
9. present value, rate of return

Problem 1

- a. \$65,000
- b. \$40,000
- c. \$0

Problem 2

- a. 5%
- b. 11%
- c. -3%

Problem 3

- a. 11%
- b. 13%
- c. 2%

Problem 4

- a. T
- b. T
- c. F
- d. T
- e. F

Problem 5

- a. 25%
- b. 33.3%
- c. 6.25%
- d. 7.5%
- e. 12.5%
- f. b, a, e, d, c
- g. Option a; this makes the most money for you even though it doesn't give as high of a return as option b.

Problem 6

- a. T
- b. F
- c. T
- d. F
- e. T
- f. T
- g. T
- h. F
- i. F
- j. T

Problem 7

- a. 181.82
- b. 190.48
- c. 791.67
- d. 963.15
- e. 1,817.07
- f. 1,519.16

Problem 8

- a. \$150,000
- b. \$136,363.63; \$123,966.94
- c. yes; the present value of your after tax winnings is greater than \$1 million.