

STUDY GUIDE

to accompany

**Krugman/Wells
microeconomics**

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Study Guide

by Cunningham, Kelly, and Olney
to accompany

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Preface

This Study Guide is designed for use with *Microeconomics* by Paul Krugman and Robin Wells. It is intended to help you evaluate your understanding of the material covered in the textbook and thereby reinforce the key concepts you need to learn. For each chapter of the textbook, the Study Guide provides an introduction, fill-in-the-blank chapter review, learning tips with graphical analysis, twenty multiple-choice questions, and four to five comprehensive problems and exercises. Answers as well as explanatory solutions can be found at the end of each chapter.

Students often use an answer section to simply check if they have gotten the “right” answer. We caution you to use the answer section accompanying each chapter with an eye to getting the highest possible value from the exercises provided. In economics, the reasoning used in coming to conclusions and correctly modeling the problems are as important as coming to an accurate answer. We have provided explanations for each problem in order for you to check that your understanding of the concepts has been appropriately applied.

The study of economics has the potential of altering the way you evaluate and understand the world. We feel that your use of this guide will help you in your study of basic microeconomics principles and will provide a jumping-off point for further study in the economics field.

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chapter 1

First Principles

In this chapter, the authors identify four principles that underlie the choices individuals must make given scarce resources, as well as five principles that describe how individual choices interact. The principles focus on the ideas of choice, scarcity, trade-offs, gains from trade through specialization, and efficiency in markets. Over the course of the book, we will see that these nine principles serve as the foundation for economic analysis.

How Well Do You Understand the Chapter?

Fill in the blanks using the terms below or circle the correct answer to complete the following statements. Terms may be used more than once. If you find yourself having difficulties, please refer back to the appropriate section in the text.

benefits	exploit	margin	scarce
capital	gains	marginal	side effects
choice(s)	government	market(s)	specialization
economy	how much	market failure	specializes
efficiency	human	maximum	standards
efficient	incentives	natural	trade
efficiently	income	opportunities	trade-off
either-or	individual	opportunity	
equilibrium	interaction(s)	opportunity cost	
equity	limited	resource(s)	

- Individual 1) _____—making a decision about what to do and what not to do—is at the heart of every economic issue. Individuals choose among a 2) _____ number of alternatives—limited because resources are 3) _____. The decisions individuals make are made in an environment that is shaped by the decisions and choices that other individuals make. So although economics is at heart about 4) _____ choice, in order to understand how market economies behave we must also understand how my choices affect your choices and vice versa; we must understand economy-wide 5) _____.
- Individuals must make choices because resources are 6) _____. Scarcity of resources occurs because there are not enough resources available to satisfy every productive use. A general list of resources would include land, labor, and 7) _____. A(n) 8) _____ is anything that can be used to produce goods and services. We distinguish between 9) _____ resources, which include labor, skill, and intelligence,

and 10) _____ resources, which include resources from the physical environment, such as minerals and natural gas. When individuals decide what they should buy, they are constrained by 11) _____ and time, but this merely reflects an economy that is constrained in what it can produce by 12) _____ resources.

- When we choose between two choices, we make an 13) _____ choice based on the real cost of the choices. The real cost of any item is its 14) _____ cost: what you must give up in order to get the item. Every 15) _____ we make has an opportunity cost: choosing an item or activity implies not choosing some other item or activity. The 16) _____ of my choice can be measured in terms of what I have given up.
- Some choices we make are not either-or issues but are matters of 17) _____. These decisions are made at the 18) _____ by comparing the costs and 19) _____ of doing a little bit more of an activity versus doing a little bit less. The study of these kinds of trade-offs at the margin is called 20) _____ analysis.
- Individuals make decisions guided by the principle that they should 21) _____ opportunities to make themselves better off. In fact, this principle of people taking advantage of all 22) _____ to make themselves better off is the basis of all predictions by economists about economic behavior. People respond to 23) _____; a change in incentives will alter people's behavior.
- A(n) 24) _____ is a system for coordinating the productive activities of many people. In a market economy there 25) _____ is/is not _____ a coordinator arranging the activities of people. Each individual's opportunities, and hence choices, 26) _____ do/do not _____ depend to a large extent on the choices made by other people. For us to understand a market economy, we must understand the interactions of our individual 27) _____.
- We enjoy higher 28) _____ of living when we interact with one another through trade. 29) _____, in which each person provides a good or service that other people want in return for goods and services that the individual wants, enables people to get more of what they want than would be possible if each individual was self-sufficient. There are 30) _____ from trade that arise from 31) _____—a situation where different individuals engage in different tasks. It is critical for us to understand that the economy as a whole can produce more when each person 32) _____ and then trades with other people.

- All ³³⁾ _____ move toward equilibrium. An economic situation is in equilibrium when ³⁴⁾ no/some/all individual(s) would be better off doing something different. The fact that markets move in a predictable way toward ³⁵⁾ _____ allows us to understand economic interactions.
- We can use the principle that resources should be used as ³⁶⁾ _____ as possible to achieve society's goals as a standard for evaluating an economy's performance. An economy's resources are used efficiently when they are used in a way that fully exploits all ³⁷⁾ _____ to make everyone better off. An economy is efficient if it ³⁸⁾ is/is not possible to make someone better off without making someone else worse off. An efficient economy produces the ³⁹⁾ _____ gains from trade that are possible from the available resources.
- Efficiency is not the only criterion for evaluating an economy. People also care about issues of fairness, or ⁴⁰⁾ _____. Usually there is a ⁴¹⁾ _____ between equity and efficiency; policies that promote ⁴²⁾ _____ usually entail a cost of decreased efficiency, while policies that promote ⁴³⁾ _____ usually entail a cost of decreased equity.
- In general ⁴⁴⁾ _____ achieve efficiency. In a(n) ⁴⁵⁾ _____ economy where individuals are free to choose what to consume and what to produce, people will choose to take advantage of all ⁴⁶⁾ _____ to make themselves better off.
- It is possible for the ⁴⁷⁾ _____ outcome to be inefficient and for ⁴⁸⁾ _____ to occur. When markets fail to achieve efficiency, ⁴⁹⁾ _____ intervention can improve society's welfare. Government policies can provide incentives to change how society's resources are used in order to move society closer to an ⁵⁰⁾ _____ outcome. Markets fail primarily because there are ⁵¹⁾ _____ of individual actions that the market does not take into account; because some beneficial trades are prevented by individuals attempting to capture a greater share of ⁵²⁾ _____; or because some goods, by their nature, will not be produced at the ⁵³⁾ _____ level by the market.

Learning Tips

TIP: Studying economics requires learning both new vocabulary and a new way of thinking.

“Resource” has a particular meaning in economics: it is something that is used to produce something else. Resources are “scarce” for the simple reason that there is not an unlimited supply of time, people, land, and so on. In other contexts, both “resource” and “scarce” may have different meanings. But in economics—to paraphrase Lewis Carroll—we use a word to mean just exactly what we mean it to mean.

TIP: Opportunity cost is at the core of most discussions in economics.

Every activity has an opportunity cost—there is always something we have given up in order to do that activity. What we give up may be quite valuable or it may be inconsequential. But because resources—including time and money—are limited, it is always necessary that we give up something in order to get something else. The opportunity cost of an activity is everything we give up: both the monetary costs of the activity and the forgone opportunity to do something else.

TIP: In economics we assume that people exploit opportunities to make themselves better off.

When someone is presented with two choices—one of which will improve their health and one of which will harm their health—in economics we assume that if everything else is the same, the individual will choose to improve their health. Similarly, if they are presented with two choices that are distinct only in that one choice increases standard of living and the other harms it, economics assumes the individual will choose the increased standard of living. Every discussion in this textbook starts from this assumption, that people exploit opportunities to make themselves better off.

Multiple-Choice Questions

1. The real cost of going to a movie on Saturday night includes
 - a. the cost of the movie ticket.
 - b. the cost of the popcorn and soda you buy at the movie theater.
 - c. the value to you of whatever activity you would have done had you chosen not to go to the movie.
 - d. all of the above.
2. When Ross decides whether he should eat another dessert, economics says he
 - a. only considers the price of the dessert.
 - b. compares the benefits and costs of eating another dessert.
 - c. considers how much additional exercise he will need to do to avoid gaining weight from eating the dessert.
 - d. considers whether he can do so without anyone else noticing.
3. In making choices people find that
 - a. resources are scarce and that they cannot do everything or have everything that they would like.
 - b. the real cost of a choice is what you must give up in order to enjoy that choice.
 - c. people make choices that will make them better off.
 - d. all of the above are true.
4. Which of the following statements is true?
 - a. If people were less wasteful we could eliminate problems due to scarcity of resources.
 - b. People usually make choices without regard to the additional benefits and costs of those choices.
 - c. People consider the opportunity costs of choices.
 - d. The incentives, or the rewards for certain types of behavior, rarely influence people's decisions at the margin.

5. Specialization in production and trade
 - a. increases the amount of goods and services available in an economy.
 - b. benefits only the economically stronger nation.
 - c. reduces opportunity costs of production to zero.
 - d. may eliminate any problems posed by scarce resources.
6. Which of the following statements is true?
 - a. Resources should be used as equitably as possible in order to achieve society's goals.
 - b. There is a tendency for markets to move toward equilibrium.
 - c. Government intervention in markets never improves society's welfare.
 - d. Trade may make one nation worse off.
7. When a market is not in equilibrium
 - a. there will be a tendency for the market to continue to not be in equilibrium unless there is government intervention.
 - b. there are opportunities available to people to make themselves better off.
 - c. it must be because the government has intervened in the market, resulting in the market's failure to reach equilibrium.
 - d. no individual would be better off doing something different.
8. We know that resources are being used efficiently when
 - a. scarcity is no longer an issue.
 - b. an economy utilizes every opportunity to make better people off.
 - c. there are still gains from trade available.
 - d. we achieve equity.
9. The concept of equity focuses on
 - a. how to produce the maximum possible output from a given amount of resources.
 - b. how governments can intervene to make markets work better.
 - c. the issue of fairness.
 - d. the amount of physical plant and equipment an employer owns.
10. Government intervention in a market can improve society's welfare when
 - a. the market outcome is equitable.
 - b. the market fails to provide certain goods.
 - c. the market outcome is efficient.
 - d. we have exploited all opportunities to make people better off.
11. When people interact in markets we know that
 - a. we may move further from equilibrium.
 - b. some participants will be worse off.
 - c. this interaction must increase economic efficiency.
 - d. this interaction must achieve equity.
12. People respond to incentives because
 - a. markets move toward equilibrium.
 - b. incentives act as rewards that encourage people to behave in certain ways.
 - c. incentives exploit opportunities to make people better off.
 - d. incentives exploit opportunities to make people worse off.

13. When individuals decide how much of an activity they should do,
- this is an example of marginal analysis.
 - this involves a comparison of the trade-off between the costs and benefits of doing more of the activity.
 - they are making a decision at the margin.
 - all of the above.

Problems and Exercises

Read each question carefully and then write your answers in the space provided or on a separate sheet of paper.

- Using the list of principles of individual choice below, explain which principle(s) each of the following situations illustrates.
 - Resources are scarce.
 - The real cost of something is what you must give up to get it.
 - "How much?" is a decision at the margin.
 - People usually exploit opportunities to make themselves better off.
 - To attend your economics lecture at 9:00 in the morning, you miss breakfast.
 - To decide whether you should work one more hour per week, you compare the benefits from that additional hour of work to the costs of giving up an hour of exercise each week.
 - To decide whether you should get one more hour of sleep or attend your economics lecture this week, you compare the benefits of attending the lecture to the costs of not allocating that time to additional sleep.
 - Your professor offers extra credit and reports that many students in your class have taken advantage of that opportunity.
 - A bicycle shop in town offers a much lower price for a bike tune-up than their competitors. Appointments for tune-ups at the shop fill up quickly.
- Using the list of principles below, explain which principle(s) of interaction each of the following situations illustrates.
 - There are gains from trade.
 - Markets move toward equilibrium.
 - Resources should be used as efficiently as possible to achieve society's goals.
 - Markets usually lead to efficiency.

- a. A bicycle shop owner and his landlord meet to negotiate their rent contract for the next year. After meeting, the shop owner agrees to extend his lease for two years instead of one year, while the landlord agrees to give him a 10% discount on his rental charge in exchange for the longer lease.
 - b. The Ricardos are choosing between eating at home and going to a restaurant for dinner. If they go to a restaurant, it will cost \$25 to feed their family of four. If they stay home, the cost of the groceries will be \$13.50. They estimate that the time preparing the meal is worth \$5.00. The family stays home.
 - c. At the Shopper's Paradise, the checkout lines are rarely different in length.
 - d. At the university library, a student can check out books with a human librarian or through an automated scanner. The automated scanner is faster than a librarian, but it is often unreliable and can't perform certain transactions. (For example, if an individual owes fines to the library, they will need to see the librarian to settle those fines.) No one uses the automated scanner until there are at least five individuals in line for the librarian.
3. For each of the following situations identify the nature of the market failure and provide examples of how government interaction can improve society's welfare when market failure occurs.
- a. While manufacturing its product, a firm generates a substantial amount of pollution. This pollution does not affect the firm, but it causes a community located downwind to experience higher levels of respiratory disease.
 - b. Research and development at a firm has the potential to significantly improve human health but, because their research costs exceed the firm's direct benefits, they do not conduct the research.
 - c. Land developers refuse to set aside land for parks and nature trails, so the new developments in a community do not offer these amenities.

Answers to How Well Do You Understand the Chapter

- | | | |
|----------------------|--------------------|--------------------|
| 1. choice | 19. benefits | 37. opportunities |
| 2. limited | 20. marginal | 38. is not |
| 3. scarce | 21. exploit | 39. maximum |
| 4. individual | 22. opportunities | 40. equity |
| 5. interactions | 23. incentives | 41. trade-off |
| 6. scarce | 24. economy | 42. equity |
| 7. capital | 25. is not | 43. efficiency |
| 8. resource | 26. do | 44. markets |
| 9. human | 27. choices | 45. market |
| 10. natural | 28. standards | 46. opportunities |
| 11. income | 29. trade | 47. market |
| 12. scarce | 30. gains | 48. market failure |
| 13. either-or | 31. specialization | 49. government |
| 14. opportunity | 32. specializes | 50. efficient |
| 15. choice | 33. markets | 51. side effects |
| 16. opportunity cost | 34. no | 52. resources |
| 17. how much | 35. equilibrium | 53. efficient |
| 18. margin | 36. efficiently | |

Answers to Multiple-Choice Questions

- The real cost of going to a movie on Saturday night is what you must give up in order to go out. This opportunity cost includes the price of the movie ticket, the cost of the soda and popcorn that one gets to nibble on while watching the movie, and the forgone chance to do something else that evening. **Answer: D.**
- In this case, the best answer is the one that captures the essence of the economic approach to eating dessert: answer B focuses on the comparison of benefits to costs. We can see that the other answers only consider some aspect of the benefit or cost. **Answer: B.**
- All of the statements are true: since resources are scarce, people must choose among alternative uses of those resources; opportunity cost measures the real cost of choosing something; and people do opt to do those things that make them better off. **Answer: D.**
- Resources are not scarce because of wastefulness but because they are limited in quantity. People do consider the additional benefits and additional costs when making choices, and these decisions at the margin are influenced by incentives. The only statement that is true is that people do consider opportunity costs when making choices. **Answer: C.**

5. Specialization in production and trade increases total production and allows for greater levels of consumption in all countries, not just the economically stronger nation. However, it does not eliminate opportunity costs or the scarcity of resources. **Answer: A.**
6. Markets tend toward equilibrium. Resources should be used as efficiently as possible, rather than as equitably as possible, to achieve society's goals. Government can improve society's welfare, and trade never makes any nation worse off. **Answer: B.**
7. When markets are not in equilibrium there are unexploited opportunities to make at least one person better off while making no one else worse off. Given that people always act to make themselves better off, the market will move toward equilibrium. **Answer: B.**
8. Resources are efficiently used when every opportunity to make people better off has been exploited. At that point, there are no longer any gains from trade. Resources are still scarce but are used efficiently. **Answer: B.**
9. Equity focuses on fairness. **Answer: C.**
10. When markets fail, government intervention can increase welfare. A good may not be produced by an individual firm because the marginal costs exceed the marginal benefits; yet, if side effects were considered, the good should be produced. When this happens, the government can provide the good. **Answer: B.**
11. The only statement that is true about interaction in markets is that it must increase efficiency. **Answer: C.**
12. Incentives are the rewards that people receive when they engage in certain activities. Answers C and D seem attractive as potential answers but are nonsensical: an incentive cannot exploit, or take advantage of, an opportunity. **Answer: B.**
13. All of the statements are true: individuals when deciding how much of an activity to do should compare the costs and benefits of doing just a little bit more of the activity. This comparison of "just a little bit more" is what is meant by making a decision at the margin; it is an example of marginal analysis. **Answer: D.**

Answers to Problems and Exercises

1. a. This statement illustrates principles (i) and (ii). Since resources—in this case, time—are scarce, it is impossible to do everything: you can either eat breakfast or attend class (i). The real cost of something is what you must give up to get it; in this case, the real cost of attending the lecture is the breakfast you could have eaten (ii).
- b. This statement illustrates principles (i), (ii), and (iii). Resources are scarce; therefore, choices must be made as to how to use those scarce resources (i). The real cost of working is measured by what is given up: in this case, exercise (ii). "How much?" is a decision at the margin: you decide how much work you should do each week by comparing the benefit of an additional hour of work to the cost (the lost exercise) of an additional hour of work (iii).
- c. This statement illustrates principles (i), (ii), and (iii). Resources are scarce; you must choose between sleep and attending the lecture (i). The real cost of the lecture is measured by what you must give up in order to get the lecture; you give up sleep (ii). "How much?" is a decision at the margin: you decide whether you should sleep an extra hour or attend the lecture by comparing the benefit of an extra hour of sleep to the cost (the lecture you must give up) of attending the lecture (iii).

- d. This statement illustrates principles (iii) and (iv). “How much?” is a decision at the margin: students electing to do the extra credit consider the marginal benefit of doing the work to the marginal cost and conclude that the marginal benefit is greater than the marginal cost (iii). People usually take advantage of opportunities to make themselves better off; many students perceive that doing the extra credit will help their grade and that failure to do the extra credit will hurt their grade (iv).
 - e. This statement illustrates principles (i) and (iv). Resources are scarce, and our choices reflect our valuation of how best to use those scarce resources; people choose to tune up their bikes since they view it as a good use of their scarce resources (i). People usually take advantage of opportunities to make themselves better off; since this is a bargain for those who can get appointments, people will try to take advantage of the offer (iv).
2. a. This statement illustrates principles (i), (ii), (iii), and (iv). Since both the shop owner and the landlord agree to this new rental agreement, it must be the case that the new lease is beneficial to both parties. The landlord gets the certainty of an occupied building for a longer period of time, while the shop owner gets the certainty of a business address and a reduced rent. This illustrates that there are gains from trade (i), that markets lead to efficiency (iv) and tend toward equilibrium (ii), and that resources should be used as efficiently as possible (iii).
- b. This statement illustrates principles (iii) and (iv). The Ricardos recognize that the cost of eating out exceeds the cost of eating at home. Since these costs reflect the opportunity costs of eating, this family chooses to eat at home since this choice leaves them better off (they have \$6.50 they can spend on other goods and services each time they forgo eating out). This illustrates that the real cost of something is what you must give up to get it and that resources should be used as efficiently as possible. The family can clearly compare the costs of eating at home to the costs of eating out due to the existence of markets; this enables them to decide on the most efficient use of their resources (iii) due to a market outcome that is efficient (iv).
 - c. This statement illustrates principles (ii), (iii), and (iv). Markets move toward equilibrium; since it is not an equilibrium for some checkout lines to have shorter waits than other checkout lines, we can anticipate that people will distribute themselves across the various checkout lines until the wait is approximately equal in all checkout lines (ii). In addition, checkout lines with equal waiting time imply an efficient use of resources since no reallocation of waiting shoppers will result in a reduction in waiting time for shoppers (iii). Lastly, this efficient use of resources occurs through the natural market mechanism: markets tend toward efficiency (iv).
 - d. This statement illustrates principles (ii), (iii), and (iv). The decision to use the automated scanner or the librarian takes into account the kind of transaction the individual must do (e.g., if an individual owes fines to the library, they will want to see the librarian to settle those fines since they cannot do that with the automated scanner), as well as the relative checkout speeds of the two choices. Individuals recognize that the automated scanner is quicker than waiting in line once there are at least five people in line. This illustrates the concept that markets move toward equilibrium (ii). It also illustrates the efficient use of resources, since people choose their line based on their perception of the optimal strategy for reducing their waiting time (iii and iv).
3. a. The firm fails to take into account the side effects of their production on the community. Government intervention in the form of establishing fines for pollution or enacting laws to curb certain undesirable behavior could help the market achieve a more efficient outcome.

- b. Market failure occurs because beneficial research is not undertaken, since the firm considers only *their* costs of this research and *their* benefits from the research and ignores the health benefits to others. The market does not take into account the side effects (the benefits received or costs incurred by those outside the firm) of their decisions. Government intervention to subsidize the research expenditures could alter the incentives firms face with regard to undertaking research.
- c. Developers will not provide parks and nature trails because they do not directly benefit from them. Since parks and nature trails benefit everyone, they need to be provided by the government. The government could establish laws or provisions to ensure that certain amounts of natural resources are considered off-limits for development.

chapter 2

Economic Models: Trade-offs and Trade

This chapter introduces our first three economic models. Models are simplified representations of reality that allow us to hold everything else constant while examining the effect of a single change on an economic outcome. The production possibility frontier model illustrates the principles of scarcity, opportunity cost, specialization and trade-offs, and efficiency. The model of comparative advantage examines the gains from trade. The circular-flow diagram helps economists analyze the monetary transactions taking place in the economy as a whole.

How Well Do You Understand the Chapter?

Fill in the blanks using the terms below to complete the following statements. Terms may be used more than once. If you find yourself having difficulties, please refer back to the appropriate section in the text.

absolute advantage	expenditures	less	production possibility frontier
barter	factor markets	models	simplified specialization
better	feasible	money	specialized straight trade-offs
change	flows	normative economics	transactions
circular-flow	forecasts	opportunities	two
comparative advantage	gains from trade	opportunity cost(s)	
constant	goods and services	other things equal	
economy	households	outward	
efficiency	income	physical	
efficient	increase	points	
	labor	positive economics	

- A model is a 1) _____ description of the real world designed to help us understand the real world 2) _____. In our economic models we will focus on how a 3) _____ in just one factor affects an economic outcome. We call this the 4) _____ assumption.
- The three 5) _____ developed in this chapter are the production possibility frontier model, a model that helps economists think about the 6) _____ every economy faces; the comparative advantage model, which illustrates the 7) _____; and the circular-flow diagram, which helps economists analyze the monetary 8) _____ that occur in the economy as a whole.