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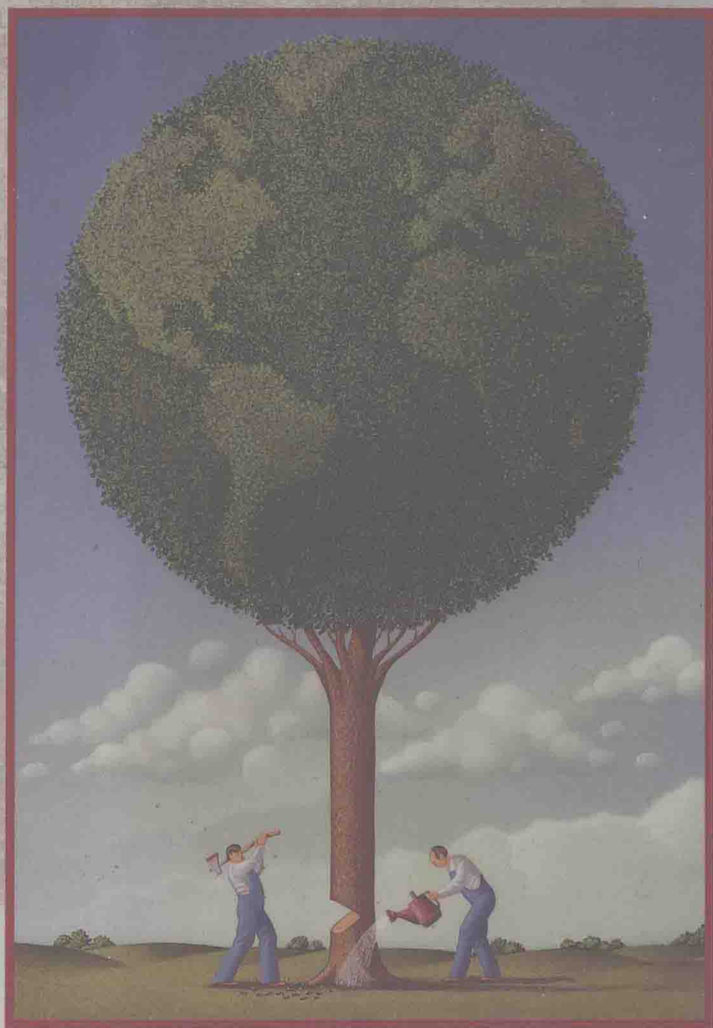
Third Edition

PRINCIPLES OF



MICROECONOMICS

STUDY GUIDE

Thomas M. Beveridge

Study Guide

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Third Edition

PRINCIPLES OF MICROECONOMICS

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Preface

This study guide has been developed to accompany *Principles of Microeconomics*, by Karl Case and Ray Fair. For students using Case and Fair's *Principles of Economics* (Chapters 1 – 39), the corresponding chapter numbers appear in parentheses. When referring to specific pages, the *Microeconomics* reference is given first. I have devised this guide to help you as you learn the concepts that are presented in the text; if used consistently throughout your course, the guide can enable you to master the material in what is likely to be your first economics course. In addition, you'll be given opportunities to learn how to apply these concepts in a variety of situations. Most economists stress the need to develop competence in three major areas—the application of economic concepts to real-world situations, the interpretation of graphs, and the analysis of numerical problems. This guide gives you practice in developing these important skills.

I believe that learning how to apply concepts creates a better and more long-lasting understanding of the material than mere memorization. A reasonable goal for a non-economics major is to have absorbed enough insight to understand the microeconomic content of an article in a publication like *The Wall Street Journal* or *Newsweek.*

STUDY GUIDE CONTENTS

The Study Guide contains one chapter for each chapter in the text. In general, each chapter has seven sections and an answers and solutions section.

- The *Objectives: Point by Point* section tells you what you should be able to accomplish after you've studied the material. It gives a summary of the chapter's important ideas. You'll find some extra applications and examples, and some specific learning tips, too. Each point includes some multiple choice questions, so that you can monitor how well you're understanding the concepts.
- The *Tips and Learning Suggestions* section contains examples and "helpful hints" that are more general than the "tips" found in the first section. Concepts that may prove to be particularly troublesome are covered here. Many of these "tricks" and memory aids have been suggested to me by students.
- The *Matching Definitions* section is the first of the practice sections. Definitions from the textbook are given—you should match them with the appropriate term. If you fail to define a word correctly, refer to the textbook immediately. You won't master economics if you can't speak the language.
- *Exercises and Problems* provide opportunities to practice the skills—graphing, numerical analysis, application of concepts—presented in the text. Go through this section thoroughly. These exercises give you an opportunity to try your hand at using economic principles and practices—often in fairly complex situations. Do the problem sets in the textbook, too.

- The *True-False Questions* and *Multiple Choice Questions* are quite tough. Think of each multiple choice question as four true-false statements; don't just decide on the one "right" answer—determine why the other three options are wrong.
- The *Short Answer and Discussion Questions* cover more general issues than the other practice sections. You probably will be able to find pros and cons for many of the issues raised, and this is good. It shows that you're developing a good grasp of economic reasoning. For good or for bad, economic issues seldom have clear-cut answers. If you can see only one side of an issue—look again!
- The *Answers and Solutions* feature numerical and graphical solutions. Be aware, though, that—as in the discussion questions—real-world analysis is much more difficult to condense into such a simple form.

STUDY RECOMMENDATIONS

I recommend the following procedure for using this guide to improve your effective understanding and use of the key principles and practices from the text.

1. Read the textbook chapter. There is no substitute for this step! Ideally, you should do this before the material is presented in class; in any case, <u>don't</u> wait until the day before your prof has scheduled a test! Use the *Point by Point* section of the Guide to identify the key issues and to test your knowledge.
2. Attend class regularly. In study after study, researchers have shown that regularity of class attendance is the single best predictor of performance.
3. Now that you're acquainted with the material, check the *Tips and Learning Suggestions* section of the Guide to polish your understanding.
4. Complete the practice sections to test your ability to utilize key concepts. If you fail to complete an exercise correctly, even after having seen the answers, reread the text. If you're still stuck, ask your prof for clarification.
5. Before a scheduled examination, read the *Point By Point* sections for review.

With a conscientious and consistent use of this Guide, you can improve your understanding of Economics and your ability to use and apply the concepts contained in this field of study. Learning can be interesting, as well as enjoyable.

This guide has been written with the hope that, after the final exam, it will have helped you to gain a better understanding of economic issues and analysis and of the exciting and challenging concerns that we must address in our contemporary world.

Best wishes to you with your study of economics. I hope that you will find it to be a rewarding and worthwhile experience, and that this Guide will stimulate you in your endeavors.

Please send any comments or suggestions about this study guide to me, care of Economics Editor, Prentice Hall, 113, Sylvan Avenue, Englewood Cliffs, NJ 07632.

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ACKNOWLEDGMENTS

I am grateful to the many students whose questions, through the years, have given me a better insight into the difficulties that arise when microeconomics is approached for the first time. The practice material included in this guide springs largely from such "after class" discussions.

Prentice Hall's "team"—Stephen Dietrich, David Shea, and Steve Rigolosi—provided ongoing encouragement. Steve merits an "A" in economics and tenacity. My gratitude is due to my anonymous reviewers whose suggestions have added much to the quality of the final manuscript.

A special acknowledgment is deserved by Pam Beveridge, who expertly designed and typeset this guide—since 1986 she has disguised her identity under our company name of *Threepenny Bits*. This Guide is dedicated to her, to my parents, to Andrew, our own "micro" economist, who did much to disrupt its production, and to Guinness, Tarheel, and (especially) Joe, to whom all lunches are free.

Contents

1 The Scope and Method of Economics

OBJECTIVES: POINT BY POINT

After completing this chapter, you should be able to accomplish the objectives listed below.

OBJECTIVE 1: Define economics.

Because of conditions imposed by nature and the choices previously made by society, resources are scarce. Economics studies how we choose to use these resources. In a sense, it is the "scientific study of choice."

(page 4)

Practice

1. Which one of the following best describes the study of economics? Economics studies:
   A. how businesses can make profits.
   B. how the government controls the economy and how people earn a living.
   C. how society uses its scarce resources to satisfy its unlimited desires.
   D. the allocation of income between different sectors of the economy.

   ANSWER: C. All of the options represent aspects of the study of economics. However, the most general statement is given in C—economics is the study of choice.

OBJECTIVE 2: State four reasons for studying economics.

A study of economics helps us to learn a way of thinking, to understand society, to understand national and global affairs, and to be an informed voter. Essential to the economic way of thinking is the concept of "opportunity cost"—choices involve forgoing some options. Accordingly, the applicability of the economic way of thinking is very extensive.

(page 5)

OBJECTIVE 3: Distinguish between the concepts of opportunity cost, marginal cost, and sunk costs.

"Marginal" is a frequently used term in economics and it's important to understand it right away. "Marginal" means "additional" or "extra." "Marginal cost," then, means "additional cost."

Suppose you've bought a non-returnable, non-transferable ticket to the zoo for $10. This is a sunk cost. You've paid whether or not you visit the zoo.

Let's change the example a little. Suppose you win a free admission to the zoo and decide to go this Saturday. The trip is not entirely free, however. You still have to bear some costs—travel, for example. There is certainly an additional cost (caused by the trip to the zoo). It is a marginal cost. Suppose you always buy lunch on Saturdays. The cost of lunch is not a marginal cost since you'd have had lunch whether or not you went to the zoo. In this sense, the cost of lunch is not contingent on the trip to the zoo—it's not an extra cost.

You choose to visit the zoo this Saturday. The opportunity cost is the value of the activity you would have undertaken instead—that is, the next most-preferred activity. Perhaps it might be playing a round of golf, or studying for a big economics test. The opportunity cost of the trip to the zoo is the value you attach to that one activity you would otherwise have chosen. (page 5)

> **TIP:** Any time you make a choice, remember that an opportunity cost is involved.

Practice

2. Your opportunity cost of attending college does not include:
   A. the money you spend on meals while at college.
   B. your tuition.
   C. the money you spend on traveling between home and college.
   D. the income you could have earned if you'd been employed full-time.

   ANSWER: A. You would have bought food whether or not you were at college. All the other expenses occur solely because of attending college.

3. Jean owns a French restaurant—*La Creme*. Simply to operate this week, he must pay rent, taxes, wages, food costs, and so on. This amounts to $1,000 per week. This evening, a diner arrives and orders some Chateau Neuf du Pape wine to go with her meal. Jean has none, and sends out to Wine World for a bottle. It costs $20, and Jean charges his guest $30. Which of the following is true for Jean?
   A. The marginal cost of the wine is $20.
   B. The marginal cost of the wine is $30.
   C. The sunk cost of the meal is $1,020.
   D. The sunk cost of the meal is $1,030.

   ANSWER: A. The sunk cost is the up-front expense of $1,000. The extra cost that Jean bears for buying the wine is $20.

4. ___________ may be defined as the extra cost associated with an action.
   A. Marginal cost
   B. Sunk cost
   C. Opportunity cost
   D. Action cost
   ANSWER: A. See p. 6

OBJECTIVE 4: Define market efficiency in terms of profit opportunities.

The rapid elimination of profit opportunities is a signal that a market is operating efficiently. The stock market is a good example. If a stock is priced "too low," there will be increased bidding and the price will be driven higher, eliminating the excess profits. At a farmers' market, Farmer Brown may charge 60¢ for a dozen eggs although the going rate is 50 cents. She might make excess profits for a while but, in an efficient market, this will not persist. (page 7)

OBJECTIVE 5: Make clear the difference between microeconomic and macroeconomic concerns.

Economics is split into two broad parts. Microeconomics focuses on the operation of individual markets and the choices of individual economic units (firms and households, for example). Macroeconomics deals with the broad economic variables such as national production, total consumer spending, and overall price movements. Economics also contains a number of subfields, such as international economics, labor economics, and industrial organization. (page 10)

Practice

5. **Macroeconomics** approaches the study of economics from the viewpoint of:
   A. individual consumers.
   B. the government.
   C. the entire economy.
   D. the operation of specific markets.
   ANSWER: C. Macroeconomics looks at the big picture—the entire economy.

6. **Microeconomics** approaches the study of economics from the viewpoint of:
   A. the entire economy.
   B. the government.
   C. the operation of specific markets.
   D. the stock market.
   ANSWER: C. Microeconomics examines what is happening with individual economic units (households and firms) and how they interact in specific markets.

OBJECTIVE 6: Distinguish between positive and normative economics.

Economists classify issues as either positive or normative. Positive questions explore the behavior of the economy and its participants without judging whether the behavior is good or bad. Positive economics collects data that describe economic phenomena (descriptive economics) and constructs testable—cause-and-effect—theories to explain the phenomena (economic theory). Normative economic questions evaluate the results of behavior and explore whether the outcomes might be improved. (page 12)

Practice

7. "Higher prices cause less to be demanded" is a _________ statement and indicates a ___________relationship.
   A. positive, positive
   B. positive, negative
   C. normative, positive
   D. normative, negative

   ANSWER: B. This is a positive statement, since the relationship can be tested. As one variable increases the other decreases—this is a negative relationship.

8. A difference between positive statements and normative statements is that:
   A. positive statements are true by definition.
   B. only positive statements are subject to empirical verification.
   C. economists use positive statements and politicians use normative statements when discussing economic matters.
   D. positive statements require value judgments.

   ANSWER: B. A positive statement is not necessarily true by definition and can be disproved by empirical verification.

OBJECTIVE 7: Explain the value of the *ceteris paribus* assumption within the context of economic modeling.

Economists (and other scientists) construct models—formal statements of relationships between variables of interest—that simplify and abstract from reality. Graphs, words, or equations can be used to express a model. In testing the relationships between variables within a model it is convenient to assume *ceteris paribus*, that all other variables have been held constant. (page 15)

Practice

9. "An increase in the price of shampoo will cause less shampoo to be demanded, *ceteris paribus.*" *Ceteris paribus* means that
   A. there is a negative relationship between the price and quantity demanded of shampoo.
   B. the price of shampoo is the only factor that can affect the amount of shampoo demanded.
   C. other factors may affect the amount of shampoo demanded but that these are assumed not to change in this analysis.
   D. the price of shampoo is equal for all buyers.

   ANSWER: C. The price of shampoo is equal for all buyers and there may be a negative relationship between the price and quantity demanded of shampoo, but *ceteris paribus* means that any other factors that may affect the amount of shampoo demanded are assumed to be constant.

OBJECTIVE 8: State the fallacies discussed in the text, giving examples, and explaining why such statements are fallacious.

Beware of false logic! The fallacy of composition involves the claim that what is good for one individual remains good when it happens for many. The fact that one farmer gains by having a bumper harvest doesn't mean that all farmers will gain if each has a bumper crop. The *post hoc, ergo propter hoc* fallacy occurs when we assume that an event that happens after another is caused by it. (page 16)

Practice

10. Which of the following is **not** an example of the fallacy of composition?
    A. Jane leaves work at 4:00 each day and avoids the rush-hour traffic at 5:00. Therefore, if businesses regularly closed at 4:00, all commuters would avoid the rush-hour traffic
    B. John stands up so that he can see an exciting football play. Therefore, if the entire crowd stands up when there is an exciting play, all spectators will get a better view.
    C. Since society benefits from the operation of efficient markets, IBM will benefit if markets become more efficient.
    D. Since Mary on her own can escape from a burning building by running outside, individuals in a crowded movie theater are advised to run outside when there is a fire.

    ANSWER: C. This example is arguing from the general to the specific. The fallacy of composition argues from the specific to the general.

OBJECTIVE 9: State and explain the four criteria used to assess the outcomes of economic policy.

Economists construct and test models as an aid to policy-making. Policy makers generally judge proposals in terms of efficiency, equity (fairness), growth, and stability. (page 19)

Practice

11. The nation of Arboc claims to have achieved an equitable distribution of income among its citizens. On visiting Arboc, we would expect to find that:
    A. each citizen receives the same amount of income.
    B. Arbocali residents believe that the distribution of income is fair.
    C. Arbocali residents believe that the distribution of income is equal.
    D. each citizen receives the amount of income justified by the value of his or her contribution to production.

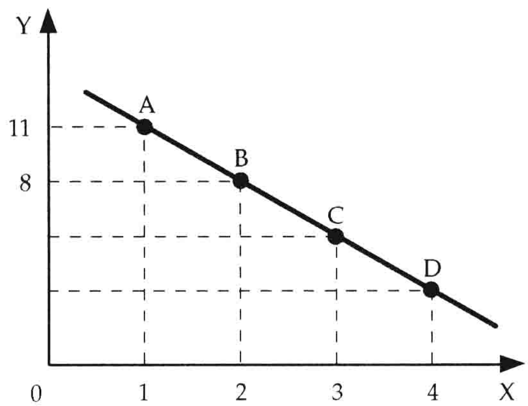
    ANSWER: B. Whether or not the distribution of income is equitable depends on what Arbocali citizens believe to be fair.

OBJECTIVE 10: Construct and interpret graphs.

Economic graphs depict the relationship between variables. A curve with a "rising" (positive) slope indicates that as one variable increases, so does the other. A curve with a "falling" (negative) slope indicates that as one variable increases in value, the other decreases in value. Slope is easily measured by "rise over run"—the extent of vertical change divided by the extent of horizontal change. (page 22)

Practice

Use the diagram below to answer the next four questions.



12. In the diagram above, the slope of the line is
    A. positive and variable.
    B. positive and constant.
    C. negative and variable.
    D. negative and constant.

ANSWER: D. The diagram shows a straight line—straight lines have a constant slope. Visually, or by using the "rise over run" formula, the relationship is negative because, as one variable increases in value, the other decreases in value.

13. The slope of line between Point A and Point B is
    A. 3.
    B. 1/3.
    C. -3.
    D. -1/3.
    ANSWER: C. Use the "rise over run" formula. The rise is -3 (from 11 to 8) and the run is +1 (from 1 to 2).

14. At Point D, the value of Y is
    A. -3.
    B. 3.
    C. 5.
    D. 2.
    ANSWER: D. As X "steps up" in value by 1, Y "steps down" in value by 3. At Point B, X has a value of 2 and Y has a value of 8. Moving to Point D, X increases by 2 and Y decreases by 6, from 8 to 2.

15. In the diagram above, when the line reaches the vertical (Y) axis the value of Y will be
    A. 3.
    B. 8.
    C. 11.
    D. 14.
    ANSWER: D. As X "steps down" in value by 1, Y "steps up" in value by 3. At Point A, X has a value of 1 and Y has a value of 11. X decreases by 1 and Y increases by 3, from 11 to 14.

TIPS AND LEARNING SUGGESTIONS

The Tips in the previous section were specially related to particular objectives. Here are some more general guidelines and suggestions that will help you master the material in this chapter.

1. **General Comment**
   Much of this chapter is devoted to setting out the framework of economics. Don't be overwhelmed and don't try to remember it all. Chapter 1 is simply a good place to gather together this information, which will be dealt with more fully as the chapters go by.

2. **Opportunity Cost and Marginalism**
   The "big concept" in this chapter is opportunity cost, with marginalism and efficiency a close second and third. You'll see all three repeatedly throughout the textbook. For practice on the concept of opportunity cost, try Exercise 1 below. For practice on marginal thinking, look at Exercise 2.

3. **Graphing**
   Economists almost automatically begin to scribble diagrams when asked to explain ideas, and you'll need to learn how to use some of the tools of the trade. Marginalism and the slopes of lines are often closely related. In economics, graphs often feature financial variables like "price," "the interest rate," or "income." Usually the dependent variable is placed on the vertical axis and the independent variable on the horizontal axis. In graphing economic variables, however, it's a pretty safe bet that the financial variable will go on the vertical axis every time. Exercises 3 and 4 offer some graphing practice.

4. **Graphing Revisited**
   Make a point of examining the graphs you see accompanying economics-based articles in the daily newspaper or news magazines. It's quite common to find examples of deceptive graphs, especially when variables are being compared over time. A graph comparing, say, the difference between government spending and tax revenues can be quite misleading if the vertical axis does not start at zero.

MATCHING DEFINITIONS

Match the term from the top list with its appropriate definition.

A. economics
B. opportunity cost
C. model
D. sunk costs
E. microeconomics
F. macroeconomics
G. *ceteris paribus*
H. fallacy of composition
I. *post hoc, ergo propter hoc*
J. positive economics
K. normative economics
L. trade-off
M. economic growth
N. inductive reasoning
O. descriptive economics
P. Ockham's razor
Q. marginal cost
R. equity
S. efficiency

___ 1. An assumption used to analyze the relationship between variables that supposes that all other variables remain unchanged.
___ 2. An increase in the total output per capita of an economy.
___ 3. An approach that investigates economic behavior and relationships without making judgments. It describes what is and how it works.
___ 4. An approach that analyzes the outcomes of economic behavior, evaluates them, and suggests improvements.
___ 5. An invalid argument that suggests that a condition which holds true for one individual will still hold true at the aggregate level.
___ 6. The study of economic behavior within individual households, firms, and markets.
___ 7. The study of how individuals and societies choose to use their scarce resources.
___ 8. What is forgone in order to receive a chosen alternative.
___ 9. The formal statement of a theory, often containing mathematical statements that specify the relationships between variables.
___ 10. The compilation of economic data that describe events and facts.
___ 11. The principle that irrelevant data should be omitted.
___ 12. The cost of producing one additional unit.
___ 13. The process of observing regular patterns from raw data and drawing generalizations from them.
___ 14. An invalid argument that suggests that because Event B happened after Event A, B was caused by A.
___ 15. The condition that prevails when the economy is producing what people want at the lowest possible cost.
___ 16. The study of the economic behavior of aggregates, such as employment, national income, or inflation.
___ 17. A situation in which the choice of one option precludes the choice of another.
___ 18. Costs that cannot be avoided, regardless of what is done in the future, because they have already been incurred.
___ 19. Another term for "fairness" or "justice."

EXERCISES AND PROBLEMS

1. Suppose you're asked to choose one job out of three. Job A pays $30,000; Job B, $20,000; and Job C, $15,000. In all other respects they are identical. Which would you choose? What is the opportunity cost of your choice? Is it rational to choose Job C? What is the opportunity cost of Job C?

2. Suppose you're offered three deals, each of which will give you $11 in return for $8. Your profit will be $3 in each case. *Deal A* is a straight swap—$11 for $8.

   Deal B involves four steps and you can quit at any point.

   Step 1. $5 in exchange for $2

   Step 2. $3 for $2

   Step 3. $2 for $2

   Step 4. $1 for $2

   What would you do? Go all the way through the four steps and collect a total of $3 profit? A better solution, stopping after two steps, would yield $4.

   Deal C also involves four steps.

   Step 1. $4 in exchange for $1

   Step 2. $4 for $2

   Step 3. $2 for $2

   Step 4. $1 for $3

   Would you collect your $3 profit or stop after two steps and gain $5?

   Moral: If the effects of extra (marginal) steps are assessed, you can raise your profits above $3. Without examining each step, the chance of greater profits would have been missed.

3. Using your own intuition, graph each of the following relationships in the space on the following page.

   a. height and weight of males.

   b. (on the same graph) height and weight of females.