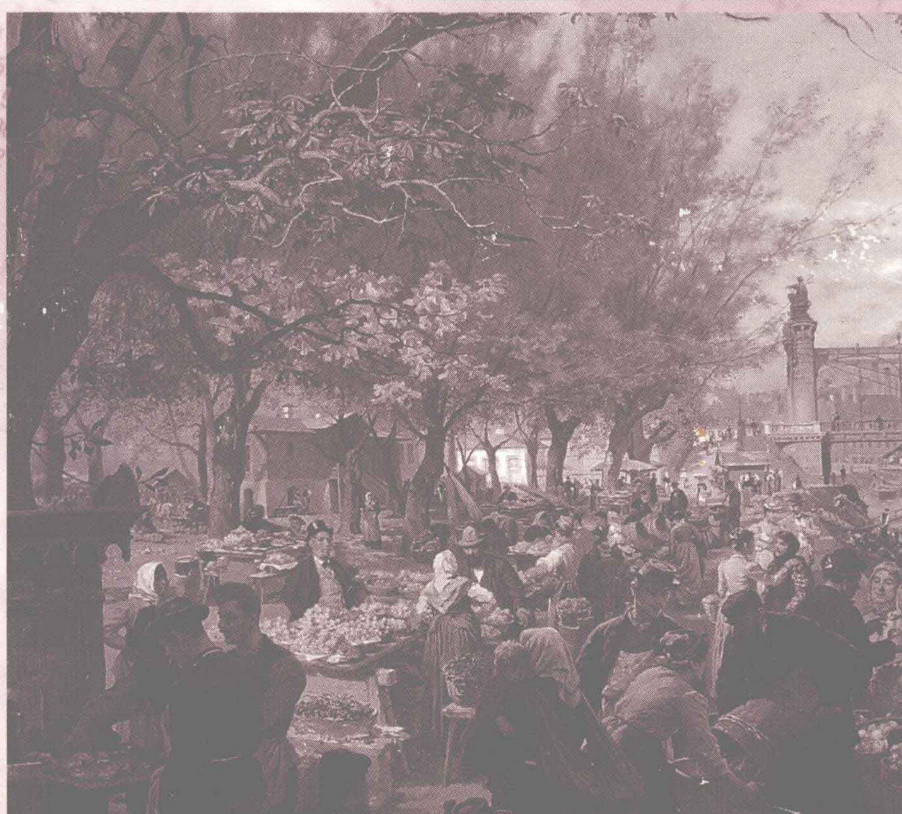
STUDY GUIDE

David R. Hakes

PRINCIPLES OF

Macroeconomics



N. Gregory Mankiw

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PRINCIPLES OF Macroeconomics

N. Gregory Mankiw
Harvard University

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One must learn by doing the thing;
For though you think you know it
You have no certainty, until you try.

Sophocles, c. 496-406 B.C.
Greek playwright
Trachiniae

PREFACE

This *Study Guide* was written to accompany N. Gregory Mankiw's *Principles of Macroeconomics.* It was written with only one audience in mind—you, the student. I recognize that your time is scarce, and you wish to use your time productively. Therefore, to utilize your time most efficiently, this *Study Guide* focuses strictly on the material presented in Mankiw's *Principles of Economics* and avoids the introduction of new material.

Objectives of the *Study Guide*

There are three broad objectives to the *Study Guide*. First, the *Study Guide* reinforces the text and improves your understanding of the material presented in the text. Second, it provides you with experience in using economic theories and tools to solve actual economic problems. That is, this *Study Guide* bridges the gap between economic concepts and economic problem solving. This may be the most important objective of the *Study Guide* because those students who find economics inherently logical often think that they are prepared for exams just by reading the text or attending lectures. However, it is one thing to watch an economist solve a problem in class and another thing altogether to solve a problem alone. There is simply no substitute for hands-on experience. Third, the *Study Guide* includes a Self-Test to validate areas of successful learning and to highlight areas needing improvement.

It is unlikely that you will truly enjoy any area of study if you fail to understand the material, or if you lack confidence when taking tests over the material. It is my hope that this *Study Guide* improves your understanding of economics and improves your test performance so that you are able to enjoy economics as much as we do.

Organization of the *Study Guide*

Each chapter in the *Study Guide* corresponds to a chapter in Mankiw's *Principles of Economics.* Each chapter is divided into the following sections:

- The Chapter Overview begins with a description of the purpose of the chapter and how it fits into the larger framework of the text. It contains learning objectives, a section by section chapter review, and some helpful hints for understanding the material. The Chapter Overview ends with terms and definitions. This part is particularly important because it is impossible for the text to communicate information to you or for you to communicate information to your instructor on your exams without a common economic vocabulary.

- Problems and Short-Answer Questions provide hands-on experience with problems based on the material presented in the text. The practice problems are generally multiple-step problems while the short-answer questions are generally based on a single issue.

- The Self-Test is composed of 15 True/False questions and 20 Multiple-Choice questions.

- The Advanced Critical Thinking section is a real world problem that employs the economic reasoning and tools developed in the chapter.

- Solutions are provided for all questions in the *Study Guide*. Explanations are also provided for False responses to True/False questions in the Self-Test.

Use of the *Study Guide*

I hesitate to suggest a method for using this *Study Guide* because how one best uses a study guide is largely a personal matter. It depends on your preferences and talents and on your instructor's approach to the material. I will, however, discuss a few possible approaches, and trial and error may help you sort out an approach that best suits you.

Some students prefer to read an entire chapter in the text prior to reading the *Study Guide*. Others prefer to read a section in the text and then read the corresponding section in the Chapter Overview portion of the *Study Guide*. This second method may help you focus your attention on the most important aspects of each section in the text. Some students who feel particularly confident after reading the text may choose to take the Self-Test immediately. I do not generally support this approach. I suggest that you complete all of the practice problems and short-answer questions before you attempt the Self-Test. You will receive more accurate feedback from the Self-Test if you are well prepared prior to taking it.

A study guide is not a substitute for a text any more than *Cliff Notes* are a substitute for a classic novel. Use this *Study Guide* in conjunction with Mankiw's *Principles of Economics*, not in place of it.

Final Thoughts

All of the problems and questions in this *Study Guide* have been checked by a number of accuracy reviewers. However, if you find a mistake, or if you have comments or suggestions for future editions, please feel free to contact me via e-mail at Hakes@UNI.edu.

Acknowledgments

I would like to thank Greg Mankiw for having written such a well thought-out text that it made writing the *Study Guide* a truly enjoyable task. I thank Anita Fallon, the Developmental Editor, for keeping the project on schedule by providing quick turnarounds on early drafts of the manuscript and by, among other things, absorbing stress rather than creating it.

Andrew John, the designated ancillary reviewer, helped plan the organization of the *Study Guide.* He also read the manuscript carefully and provided enormously useful comments and suggestions. The copy editor, Greg Sallee, also offered many helpful suggestions. Professors Mehdi Haririan, Mary Ann Hendryson, C. Denise Hixson, Arthur Meyer, and Timothy Perri checked the accuracy of the questions and answers and provided many helpful comments. Ken McCormick, a friend and colleague, provided constructive counsel throughout the project.

I would also like to thank Bob Harris, my co-author on the larger version of the *Study Guide* which accompanies the complete Mankiw text, for contributing Chapters 4-9 of the macro split of the *Study Guide.*

Finally, I would like to thank my family for their patience and understanding, and for never having said, "So, when do you think you'll be finished?"

David R. Hakes
University of Northern Iowa
June 1997

CONVERSION CHART FOR

Principles of Economics TO *Principles of Macroeconomics*

Contents

Chapter 1: Ten Principles of Economics

I. Chapter Overview

A. Context and Purpose

Chapter 1 is the first chapter in a three-chapter section that serves as the introduction to the text. Chapter 1 introduces ten fundamental principles on which the study of economics is based. In a broad sense, the rest of the text is an elaboration on these ten principles. Chapter 2 will develop how economists approach problems while Chapter 3 will explain how individuals and countries gain from trade.

The purpose of Chapter 1 is to lay out ten economic principles that will serve as building blocks for the rest of the text. The ten principles can be grouped into three categories: how people make decisions, how people interact, and how the economy works as a whole. Throughout the text, references will repeatedly be made to these ten principles.

B. Learning Objectives

In this chapter you will:

1. Learn that economics is about the allocation of scarce resources
2. Examine some of the tradeoffs that people face
3. Learn the meaning of opportunity cost
4. See how to use marginal reasoning when making decisions
5. Discuss how incentives affect people's behavior
6. Consider why trade among people or nations can be good for everyone
7. Discuss why markets are a good, but not perfect, way to allocate resources
8. Learn what determines some trends in the overall economy

After accomplishing these goals, you should be able to:

1. Define scarcity
2. Explain the classic tradeoff between "guns and butter"
3. Add up your particular opportunity cost of attending college
4. Compare the marginal costs and marginal benefits of continuing to attend school indefinitely
5. Consider how a quadrupling of your tuition payments would affect your decision to educate yourself
6. Explain why specialization and trade improve people's choices
7. Give an example of an externality
8. Explain the source of large and persistent inflation

C. Chapter Review

Introduction

Households and society face decisions about how to allocate scarce resources. Resources are *scarce* in that we have fewer resources than we wish. *Economics* is the study of how society manages its scarce resources. Economists study how people make decisions about buying and selling, and saving and investing. We study how people interact with one another in markets where prices are determined and quantities are exchanged. We also study the economy as a whole when we concern ourselves with total income, unemployment, and inflation.

This chapter addresses ten principles of economics. The text will refer to these principles throughout. The ten principles are grouped into three categories: how people make decisions, how people interact, and how the economy works as a whole.

1-1 How People Make Decisions

- *People face tradeoffs*: Economists often say, "There is no such thing as a free lunch." This means that there are always tradeoffs—to get more of something we like, we have to give up something else that we like. For example, if you spend money on dinner and a movie, you won't be able to spend it on new clothes. Socially, we face tradeoffs as a group. For example, there is the classic tradeoff between "guns and butter." That is, if we decide to spend more on national defense (guns), then we will have less to spend on social programs (butter). There is also a social tradeoff between efficiency (getting the most from our scarce resources) and equity (benefits being distributed fairly across society). Policies such as taxes and welfare make incomes more equal but these policies reduce returns to hard work, and thus, the economy doesn't produce as much. As a result, when the government tries to cut the pie into more equal pieces, the pie gets smaller.

- *The cost of something is what you give up to get it*: The *opportunity cost* of an item is what you give up to get that item. It is the true cost of the item. The opportunity cost of going to college obviously includes your tuition payment. It also includes the value of your time that you could have spent working, valued at your potential wage. It would exclude your room and board payment because you have to eat and sleep whether you are in school or not.

- *Rational people think at the margin*: Marginal changes are incremental changes to an existing plan. Rational decisionmakers only proceed with an action if the marginal benefit exceeds the marginal cost. For example, you should only go to another year of school if the benefits from that year of schooling exceed the cost of attending that year. A farmer should produce another bushel of corn only if the benefit (price received) exceeds the cost of producing it.

- *People respond to incentives*: Since rational people weigh marginal costs and benefits of activities, they will respond when costs or benefits change. For example, when the price of automobiles rises, buyers have an incentive to buy fewer cars while automobile producers have an incentive to hire more workers and produce more autos. Public policy can alter the costs or benefits of activities. For example, a luxury tax on expensive boats raises the price and discourages purchases. Some policies have unintended consequences because they alter behavior in a manner that was not predicted.

1-2 How People Interact

- *Trade can make everyone better off*: Trade is not a contest where one wins and one loses. Trade can make each trader better off. Trade allows each trader to specialize in what they do best, whether it be farming, building, or manufacturing, and trade their output for the output of other efficient producers. This is as true for countries as it is for individuals.

- *Markets are usually a good way to organize economic activity*: In a market economy, the decisions about what goods and services to produce, how much to produce, and who gets to consume them, are made by millions of firms and households. Firms and households, guided by self-interest, interact in the marketplace, where prices and quantities are determined. While this may appear like chaos, Adam Smith made the famous observation in the *Wealth of Nations* in 1776 that self-interested households and firms interact in markets and behave as if guided by an "invisible hand" to create desirable social outcomes. The prices generated by their competitive activity signal the value of costs and benefits to producers and consumers, whose activities unknowingly maximize the welfare of society. Alternatively, the prices dictated by central planners contain no information on costs and benefits, and therefore, these prices fail to efficiently guide economic activity. Prices also fail to efficiently guide economic activity when governments distort prices with taxes or restrict price movements with price controls.

- *Governments can sometimes improve market outcomes*: Sometimes government intervenes in the market to improve efficiency or equity. When markets fail to allocate resources efficiently, there has been *market failure*. There are many different sources of market failure. An *externality* is when the actions of one person affect the well-being of a bystander. Pollution is a standard example. *Market power* is when a single person or group can influence the price. In these cases, the government may be able to intervene and improve economic efficiency. The government may also intervene to improve equity with income taxes and welfare. Sometimes well-intentioned policy intervention has unintended consequences.

1-3 How the Economy as a Whole Works

- *A country's standard of living depends on its ability to produce goods and services*: There is great variation in average incomes in different countries at a point in time and in the same country over time. These differences in incomes and standards of living are largely attributable to differences in *productivity*. Productivity is the amount of goods and services produced by each hour of a worker's time. As a result, public policy intended to improve standards of living should improve education, generate more and better tools, and improve access to current technology. Government deficits depress growth because they absorb private saving which reduces society's investment in human capital (education) and physical capital (factories).

- *Prices rise when the government prints too much money*: Inflation is an increase in the overall level of prices in the economy. High inflation is costly to the economy. Large and persistent inflation is caused by rapid growth in the quantity of money. Therefore, policymakers wishing to keep inflation low should maintain slow growth in the quantity of money.

- *Society faces a short-run tradeoff between inflation and unemployment*: A reduction in inflation tends to increase unemployment. The short-run tradeoff between inflation and unemployment is known as the *Phillips curve*. When the government decreases the quantity of money in order to lower prices, many prices are *sticky* and don't fall right away. The smaller quantity of money reduces spending on output, so sales fall, and firms lay off workers. This effect is thought to be temporary. In the short run, policymakers may be able to affect the mix of inflation and unemployment by changing government spending, taxes, and the quantity of money.

D. Helpful Hints

1. Place yourself in the story. Throughout the text, most economic situations will be composed of economic actors—buyers and sellers, borrowers and lenders, firms and workers, and so on. When you are asked to address how any economic actor would respond to economic incentives, place yourself in the story as the buyer or the seller, the borrower or the lender, the producer or the consumer. Don't think of yourself always as the buyer (a natural tendency) or always as the seller. You will find that your role playing will usually produce the right response once you learn to think like an economist—which is the topic of the next chapter.

2. Trade is not a zero-sum game. Some people see an exchange in terms of winners and losers. Their reaction to trade is that, after the sale, if the seller is happy the buyer must be sad because the seller must have taken something from the buyer. That is, they view trade as a *zero-sum game* where what one gains the other must have lost. They fail to see that both parties to a voluntary transaction gain because each party is allowed to specialize in what it can produce most efficiently, and then trade for items

that are produced more efficiently by others. Nobody loses, because trade is voluntary. Therefore, a government policy that limits trade reduces the potential gains from trade.

3. An externality can be positive. Because the classic example of an externality is pollution, it is easy to think of an externality as a cost that lands on a bystander. However, an externality can be positive in that it can be a benefit that lands on a bystander. For example, education is often cited as a product that emits a positive externality because when your neighbor educates herself, she is likely to be more reasonable, responsible, productive, and politically astute. In short, she is a better neighbor. Positive externalities, just as much as negative externalities, may be a reason for the government to intervene to promote efficiency.

E. Terms and Definitions

Choose a definition for each key term.

Key terms:

3 Scarcity
13 Economics
7 Efficiency
1 Equity
14 Opportunity cost
12 Marginal changes
8 Market economy
6 "Invisible hand"
2 Market failure
10 Externality
15 Market power
5 Monopoly
4 Productivity
11 Inflation
9 Phillips curve

Definitions:

1. The property of distributing output fairly among society's members
2. A situation in which the market fails to allocate resources efficiently
3. Limited resources and unlimited wants
4. The amount of goods and services produced per hour by a worker
5. The case in which there is only one seller in the market
6. The principle that self-interested market participants may unknowingly maximize the welfare of society as a whole
7. The property of society getting the most from its scarce resources

8. An economic system where interaction of households and firms in markets determine the allocation of resources
9. The short-run tradeoff between inflation and unemployment
10. When one person's actions have an impact on a bystander
11. An increase in the overall level of prices
12. Incremental adjustments to an existing plan
13. Study of how society manages its scarce resources
14. Whatever is given up to get something else
15. The ability of an individual or group to substantially influence market prices

II. Problems and Short-Answer Questions

A. Practice Problems

1. People respond to incentives. Governments can alter incentives and, hence, behavior with public policy. However, sometimes public policy generates unintended consequences by producing results that were not anticipated. Try to find an unintended consequence of each of the following public policies.

   a. To help the "working poor," the government raises the minimum wage to $25 per hour. Raising minimum wage creates unemployment because employers can't pay high wage

   b. To help the homeless, the government places rent controls on apartments restricting rent to $10 per month. Rent control hurts people who are trying to find a home

   c. To reduce the deficit and limit consumption of gasoline, the government raises the tax on gasoline by $2.00 per gallon. The tax doesn't limit the consumption of gas

   d. To reduce the consumption of drugs, the government makes drugs illegal. People find ways to get the illegal drugs

   e. To raise the population of wolves, the government prohibits the killing of wolves. More wolves will mean more sheep will [illegible]

   f. To improve the welfare of American sugar beet growers, the government bans imports of sugar from South America. That hurts trade between U.S. and S.A. in other goods

2. Opportunity cost is what you give up to get an item. Since there is no such thing as a free lunch, what would likely be given up to obtain each of the items listed below?

   a. Susan can work full time or go to college. She chooses college. Susan gives up the wages she would get from working

   b. Susan can work full time or go to college. She chooses work. Susan gives up the education she would get and also the benefits of a degree

   c. Farmer Jones has 100 acres of land. He can plant corn, which yields 100 bushels per acre, or he can plant beans, which yield 40 bushels per acre. He chooses to plant corn. The more corn he plants, the less beans he'll get

   d. Farmer Jones has 100 acres of land. He can plant corn, which yields 100 bushels per acre, or he can plant beans, which yield 40 bushels per acre. He chooses to plant beans. The more beans he plants the less corn he'll get

   e. In (a) and (b) above, and (c) and (d) above, which is the opportunity cost of which—college for work or work for college? Corn for beans or beans for corn?__________

B. Short-Answer Questions

1. Is air scarce? Is clean air scarce?__________

2. What is the opportunity cost of saving some of your paycheck? The $ you could have spent on something

3. Why is there a tradeoff between equity and efficiency?__________

4. Water is necessary for life. Diamonds are not. Is the marginal benefit of an additional glass of water greater or lesser than an additional one carat diamond? Why?____

5. Your car needs to be repaired. You have already paid $500 to have the transmission fixed, but it still doesn't work properly. You can sell your car "as is" for $2000. If your car were fixed, you could sell it for $2500. Your car can be fixed with a guarantee for another $300. Should you repair your car? Why?________________

6. Why do you think air bags have reduced deaths from auto crashes less than we had hoped?____

7. Suppose one country is better at producing agricultural products (because they have more fertile land) while another country is better at producing manufactured goods (they have a better educational system and more engineers). If each country produced their specialty and traded, would there be more or less total output than if each country produced all of their agricultural and manufacturing needs? Why?____

8. In the *Wealth of Nations* Adam Smith said, "It is not by the benevolence of the baker that you receive your bread." What do you think he meant?________________

9. If we save more and use it to build more physical capital, productivity will rise and we will have rising standards of living in the future. What is the opportunity cost of future growth?____

10. If the government printed twice as much money, what do you think would happen to prices and output if the economy were already producing at maximum capacity?____

11. A goal for a society is to distribute resources equitably or fairly. How would you distribute resources if everyone were equally talented and worked equally hard? What if people had different talents and some people worked hard while others didn't?____

12. Who is more self-interested, the buyer or the seller?____________________

13. Why might government deficits slow a country's growth rate? ________________

III. Self-Test

A. True/False Questions

F 1. When the government redistributes income with taxes and welfare, the economy becomes more efficient.

T 2. When economists say, "There is no such thing as a free lunch," they mean that all economic decisions involve tradeoffs.

F 3. Adam Smith's "invisible hand" concept describes how corporate business reaches into the pockets of consumers like an "invisible hand."

F 4. Rational people act only when the marginal benefit of the action exceeds the marginal cost.

F 5. The United States will benefit economically if we eliminate trade with Asian countries because we will be forced to produce more of our own cars and clothes.

T 6. When a jet flies overhead, the noise it generates is an externality.

F 7. A tax on liquor raises the price of liquor and provides an incentive for consumers to drink more.

T 8. An unintended consequence of public support for higher education is that low tuition provides an incentive for many people to attend state universities even if they have no desire to learn anything.

_____9. Sue is better at cleaning and Bob is better at cooking. It will take fewer hours to eat and clean if Bob specializes in cooking and Sue specializes in cleaning than if they share the household duties evenly.

_____10. High and persistent inflation is caused by excessive growth in the quantity of money in the economy.

_____11. In the short run, a reduction in inflation tends to cause a reduction in unemployment.

_____12. An auto manufacturer should continue to produce additional autos as long as the firm is profitable, even if the cost of the additional units exceed the price received.

_____13. An individual farmer is likely to have *market power* in the market for wheat.

_____14. To a student, the opportunity cost of going to a basketball game would include the price of the ticket and the value of the time that could have been spent studying.

_____15. Workers in the United States have a relatively high standard of living because the United States has a relatively high minimum wage.

B. Multiple-Choice Questions

1. Which of the following involve a tradeoff?
   a. buying a new car.
   b. going to college.
   c. watching a football game on Saturday afternoon.
   d. taking a nap.
   e. All of the above involve tradeoffs.

2. Tradeoffs are required because wants are unlimited and resources are
   a. efficient.
   b. economical.
   c. scarce.
   d. unlimited.
   e. marginal.

3. Economics is the study of
   a. how to fully satisfy our unlimited wants.
   b. how society manages its scarce resources.
   c. how to reduce our wants until we are satisfied.
   d. how to avoid having to make tradeoffs.
   e. how society manages its unlimited resources.