STUDENT WORKBOOK FOR

PRINCIPLES OF

microeconomics

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Henderson
&
Poole

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Lexington, Massachusetts Toronto

Address editorial correspondence to:

D. C. Heath
125 Spring Street
Lexington, MA 02173

Published simultaneously in Canada.

Printed in the United States of America.

International Standard Book Number: 0-669-26923-9

10 9 8 7 6 5 4 3 2 1

PREFACE

This student workbook has been designed and written to help you, the student, master the economics presented by Vernon Henderson and William Poole in Principles of Macroeconomics. It is hoped that you will use the workbook wisely and economically.

To use the workbook economically, we suggest the following: Read the appropriate chapters in the Henderson/Poole text and study it carefully. Read the Preface in the Henderson/Poole text to help you develop a study plan. You can then use the workbook to pretest yourself and work on problem areas.

Each chapter begins with a list of important concepts. These lists follow the key terms listed at the end of each textbook chapter. Because terminology is so important in economics, you should write out a definition of each key term without referring back to the text. Then compare your definitions to those given in the Important Concepts section that starts each workbook chapter.

The second section in every workbook chapter is Summary and Objectives. If appropriate, the third section is Equations and Graphs. You should read over this material. Then you will be ready for more pretesting using the multiple choice, short answer, and essay questions provided in every chapter. After answering these questions, compare your answers to those given in the Solutions section of every chapter. Go over areas where you missed questions or your answers appear weak or incomplete. See your instructor if you still do not understand or are unsure.

The more mathematical and theoretical chapters have a section entitled Mathematical Problems and Extensions. As the title indicates, this is largely an enrichment section for the more mathematically oriented student or an economics major. Many of the problems require calculus. Unless your instructor instructs you otherwise, if you are the average college student you may not find it worthwhile to spend much time on this material. However, if you are mathematically inclined or a math, science, or engineering major, the math problems and extensions may be enlightening and an easy way to learn. For economics majors, the math problems and extensions are valuable in that they point toward the theory and technique that you will be expected to master in upper-division classes for majors.

Thanks to Pat Wakely and the D.C. Heath editorial staff for prompt and useful suggestions.

A. E. P.

CONTENTS

Part I: Introduction to Economics

1

The Discipline of Economics

Important Concepts

1. Barter economy: an economy in which goods are exchanged for one another without the use of money.

2. Production: the process of using man-made capital, raw materials and natural resources, and labor as inputs to create goods and services.

3. Distribution: the determination of who gets how much and what part of an economy's output of goods and services.

4. Consumption: the use of goods and services or the enjoyment of using goods and services.

5. Scarce goods: goods that require the use of valuable resources in their production.

6. Free goods: goods that require no productive resources and are available in unlimited supply to anyone who wants them.

7. Outputs: the goods and services an economy produces.

8. Inputs: the productive resources an economy uses in the production of outputs.

9. Capital: the productive resources consisting of land, which encompasses all natural resources, and reproducible capital, which encompasses all man-made resources like machinery, buildings, and tools.

10. Entrepreneurship: a special kind of labor referring to the innovation, organization, and risk-taking required to create new products and start new businesses.

11. Positive analysis: the scientific part of economics based on theory, logic, and empirical testing of evidence.

12. Normative analysis: the judgmental part of economics which considers what outcome or policy is desirable or best.

13. Assumption: a fact or theoretical condition taken as a given in an economic argument.

14. Economic person: the economist's simplifying, theoretical abstraction of a person whose sole goal is profit or benefit maximization.

15. Good: any physical item or any service of value.

16. Price: the amount paid for a single unit of a good.

17. Market: the entire enterprise of buying and selling a good at a particular location or at many dispersed locations.

18. Microeconomics: the study of individual economic entities like households, firms, or markets.

19. Macroeconomics: the study of entire economies like nations or the world.

20. Partial analysis: the study of a particular market under the assumption that conditions in all other markets remain fixed.

Chapter Summary and Objectives

1. Contrast the concepts of scarce and free goods.

A good that requires valuable resources for its production is called scarce; the resources required to produce a scarce good can include labor, man-made capital, like machinery and buildings, and natural resources like land and energy. A free good is one that does not require productive resources and is

available in unlimited supply to anyone who wants it. Goods can be free in one geographic location but scarce in another; for example, water to grow crops is free in the tropics but scarce in the desert. Goods can also be free at one point in time but not at another; for example, clean air was a free good in California 200 years ago but is becoming increasingly scarce with a greater population and more industries.

2. Define the meaning of economics and the discuss the three fundamental problems it studies.

Economics is a social science that deals with the production, distribution, and consumption of wealth; economists summarize basic economic problems with three questions: what goods should be produced, how should they be produced, and for whom should they be produced. Since most goods are scarce, and human desire for most goods is unlimited, choices must be made as to how finite resources will be used to produce a finite set of goods. These choices include the decision of which goods to make, what resources and production techniques will be used to make these goods and who will receive what goods and how much of them. These decisions may involve government in some role as a spokesman for society and can lead to heated debate among economists and among citizens. As such, economics involves sociology and psychology as well.

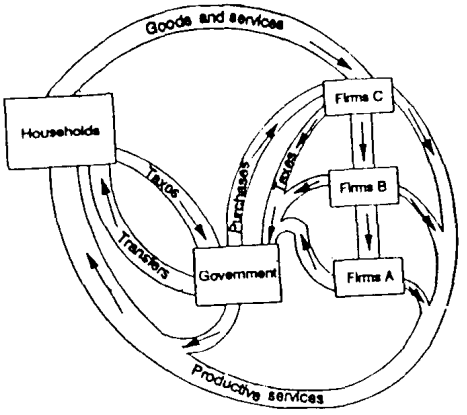
3. Discuss the methodology which economists use to solve problems.

Economists break down their analyses of economic conditions or policies into two areas: positive analysis and normative analysis. Positive analysis is scientific in nature and involves the use of economic models. Positive analysis, and scientific inquiry in general, begins with a statement of an hypothesis or theory designed to explain economic behavior. Assumptions are generally made to simplify a problem so that it is solvable; these assumptions take a fact or theoretical condition as a true given in the inquiry into a problem. For example, the economic person as a profit-maximizer is one such simplifying assumption. The economist then proceeds to deduce conclusions about economic behavior from the hypothesis using logic, mathematics, or computer models. Once a conclusion is formulated, it must be tested against available empirical evidence. If the evidence supports the conclusion, the theory is accepted; if the evidence does not support the conclusion, the hypothesis must be reexamined and the simplifying assumptions must be reconsidered. Once a conclusion is reached, the economist must apply normative analysis to determine whether the outcome of the developed theory is desirable or what policies would be best to achieve a desirable outcome. Normative analysis thus requires judgments not only by the economist but by society collectively and perhaps by individual citizens. As a result, the process of economic inquiry is never ending since social judgments and economic conditions continually change.

4. Illustrate the organization of a market economy as depicted by the circular flow diagram.

The circular flow diagram depicts the flow of goods and services and money among firms, households, and government. It also helps to explain the interdependence of markets, that a purchase or sale in one market can effect a purchase or sale in another. The circular flow diagram is reproduced in Figure 1. Notice that for every flow of goods or services, there is an offsetting flow of money. Even government purchases goods from firms and productive services from households, as well as serving as the transfer agent for transfer payments through taxes.

Figure 1



QUESTIONS AND PROBLEMS

Multiple Choice Questions

1. Which of the following is a barter exchange?
   a. Joan purchases an Audi for $20,000.
   b. Sylvia purchases a Big Mac in Moscow for 15 rubles.
   c. Susan tutors Bill for one hour in economics and Bill tutors Susan for one hour in Biology.
   d. Gary buys an apartment in Tokyo for 14 million yen.
   e. Terry pawns her television for $150.

2. Which of the following goods is the least scarce?
   a. Arable land in the United States.
   b. California seedless grapes.
   c. Automobile insurance policies for a convicted drunk driver.
   d. Sunlight for use in solar generators.
   e. Money.

3. Which of the following statements is positive?
   a. Interest rates are too high.
   b. Inflation causes unemployment among middle class workers.
   c. Oil prices are too low to encourage exploration in the United States.
   d. The federal government should hire all unemployed, middle-class workers.
   e. State government should spend more on education.

4. Capital includes all of the following except:
   a. land
   b. machinery
   c. factory buildings
   d. uranium ore deposits
   e. entrepreneurship.

5. In applying the scientific method to economics, the economist must
   a. never make any simplifying assumptions.
   b. test theories using evidence from the real world.
   c. assume that the statistical evidence is in error if the theory does not predict accurately.
   d. use computer simulation in formulating theories.
   e. be certain of a prediction for it to be useful.

6. In helping to formulate a public policy to combat unemployment, the economist must
   a. apply positive analysis and examine benefits and costs given normative judgments.
   b. always suggest some job creation program to satisfy politicians.
   c. ignore the normative judgements of society at large.
   d. suggest that state government finance any solution .
   e. take the least costly approach to solving the problem.

7. A macroeconomist would be concerned with which of the following?
   a. The price of a computer system.
   b. Labor relations at IBM.
   c. Prediction of next year's inflation rate.
   d. Next year's production of Honda cars.
   e. The wheat harvest in Kansas.

8. The economic person would
   a. never donate to charity.
   b. always attempt to maximize profit.
   c. immediately raise prices when a competitor raises prices.
   d. pay employees as low a wage as possible.
   e. never pay employees an overtime rate.

9. All of the following transactions would be included in the circular flow diagram except:
   a. Sam's purchase of a new television.
   b. John's receipt of his unemployment compensation check.
   c. IBM's sale of a microcomputer to Apple Computer.
   d. Jackie's cleaning up her apartment.
   e. Rose's payment of her income taxes.

10. The government in a capitalist economy might do all of the following except:
    a. attempt to reduce unemployment.
    b. collect taxes from its citizens.
    c. regulate shipment of dangerous chemicals to protect citizens.
    d. see that an elected official is re-elected.
    e. expend necessary funds for a national defense.

11. Partial analysis
    a. permits an economist to study conditions of a particular market assuming no other conditions are changing.
    b. is so unrealistic as to never provide useful predictions.

c. is only used in macroeconomics.
d. can only be applied in a mixed economy.
e. allows the economist to assume that all prices will rise at the same rate next year.

12. If Janet trades her carton of milk for two of Joey's bags of potato chips, then the barter price of a bag of potato chips is
a. a half-carton of milk.
b. a carton of milk.
c. two cartons of milk.
d. a half-bag of potato chips.
e. a bag of potato chips.

13. A good is free if
a. it can be picked up off the ground and sold for money.
b. it requires no productive resources and is available in unlimited supply.
c. no one wants it.
d. is given away at a market.
e. there is more of it than anyone wants.

14. "Inflation is too high because crude oil is in short supply." This statement is
a. purely normative.
b. purely positive.
c. positive and normative.
d. neither positive nor normative.
e. an example of partial analysis.

15. The output of one firm
a. can be the input of another firm.
b. is always sold to households.
c. must be distributed by the government.
d. is always sold to the government.
e. would be studied by a macroeconomist.

Short Answer Questions

1. Why are most goods "scarce"? Can you suggest any examples of goods that are always free?

2. What are the three basic questions that every economy must answer?

3. Distinguish between land and reproducible capital.

4. Distinguish between labor and entrepreneurship.

5. What is positive analysis? What is normative analysis? Why is positive analysis generally thought of as easier than normative?

6. What is managerial economics? Provide examples of decisions that fall under this area of study.

7. What is meant by "interdependence of markets"? How does this interdependence make partial analysis more difficult?

8. Distinguish between microeconomics and macroeconomics. Can the two areas be entirely separated?

9. What do economists mean by the "economic person"? In what ways is the economic person nonexistent?

10. What is a mixed economy? What nations currently fit this description?

Essay Questions

1. What is a barter economy? Why is an economy that uses money preferable?

2. You have probably heard your parents wish "for the good old days." Ask your parents and grandparents if the good old days were really better from an economic standpoint and analyze their responses.

3. Technology and science have progressed markedly since World War II; most people would agree that their lives have improved as a result of the progress. Why then does economic scarcity still exist?

4. Suppose a law was passed that prohibited economists from using partial analysis. What would happen to economic research?

5. Reproduce the circular flow diagram, with a government sector, from memory. Modify it to include a financial sector which makes loans to businesses, households, and government.

Solutions

Multiple Choice Solutions

1. (c) The exchange is of one service for another. All other possible answers involve money.

2. (d) Sunlight is a free good since it is available in unlimited supply without the use of productive resources.

3. (b) The statement is based on an economy theory but involves no judgment. All other possible answers involve a judgement as suggested by phrases like "too low," "too high," or "should."

4. (e) Entrepreneurship is not a natural resource or reproducible capital but a risk-taking, innovative activity performed by individuals or firms.

5. (b) The economist should always test theories using available evidence and revise theories as necessary.

6. (a) The economist must produce a policy with positive analysis and then weigh the costs and benefits given normative judgements.

7. (c) The inflation rate applies to the economy as a whole.

8. (b) By definition, the economic person attempts to maximize profit.

9. (d) Jackie's cleaning up of her apartment is not an exchange among households and firms.

10. (d) Government does not have the role of ensuring that elected officials stay in office (although it may sometimes appear that it does).

11. (a) Partial analysis permits the economist to simplify the study of one market while holding other conditions constant.

12. (a) Since one carton of milk is traded for two bags of potato chips, one bag of potato chips has a barter price of one-half carton of milk.

13. (b) A good is free if it requires no productive resources to produce and is available in an unlimited quantity to anyone.

14. (c) The statement contains the normative judgement that inflation is too high and the positive analysis that crude oil is in short supply is a cause of higher inflation.

15. (a) The output of one firm if often the input for another. Electricity is a common example.

Short Answer Solutions

1. Most goods are scarce because most require the use of productive resources in their production; further, there is not an unlimited supply of most goods to anyone who wants them. Examples of free goods include air, but not necessarily clean air, sunlight, and oxygen, which is produced in abundance by plants.

2. The economy must answer the questions of what goods to produce, how to produce them, and who gets them.

3. Land is the economist's term for all natural resources, including land, mineral deposits, crude oil, water, etc. Reproducible capital is man-made capital such as machinery, buildings, and tools. Both are typically needed as inputs to production of goods and services.

4. Labor is the economist's term for all effort, physical or mental, put forth by humans in the production of goods and services. Entrepreneurship is a special type of labor referring to the innovation, creativity, organization, and risk-taking that helps to create new products or businesses.

5. Positive analysis is the scientific investigation of causation and correlation of economic phenomena; it answers the "what ought to happen" question concerning economic relationships and policy. Normative analysis is the judgement of whether an economic outcome is desirable or the best possible; it answers the "what should happen" question concerning economic relationships and policy. Positive analysis is generally easier to justify to an audience because it involves the scientific method, and logic.

6. Managerial economics is the application of economic principles, usually microeconomic, to business decisions. The quantity and price of a firm's output, the kinds and quantity of a firm's inputs and the wage paid to them, and whether a firm should expand or go out of business are examples of managerial decisions.

7. Interdependence of markets refers to the complex interconnections among economic decisions between one household and another, between one firm and its suppliers of inputs or competitors in outputs, between households as sources of inputs or purchasers of outputs, and firms as employers or sellers of outputs, and between government and firms or households. Partial analysis attempts to simplify the study of one market by assuming conditions in all other markets are constant. If the market under study is heavily interdependent with others, the results of partial analysis may be very sensitive to the assumption of constancy of other market conditions.

8. Microeconomics is the study of an individual economic entity such as a household, firm, or single market. Macroeconomics is the study of an entire economy as a single unit. The two areas are inseperable as the collective decisions of households and firms largely determine the course of the overall economy. Similarly, national or global economic events can affect an individual household's or firm's economic decisions.

9. The economic person is the economist's concept of an individual who operates solely to maximize profit, wealth, or benefits in his economic decision-making. Such a person is non- existent in that other goods almost always enter the decision- making process; philanthropy, enjoyment of work, and raising a family are three ecamples of behavior which the economic person might not undertake. The study of the economic person nevertheless helps to explain the economic decisions of many households and firms.

10. A mixed economy is one in which most economic decisions are made in decentralized markets but with government oversight of business practices through regulation. Most nations fall into this category.

Essay Points of Inclusion

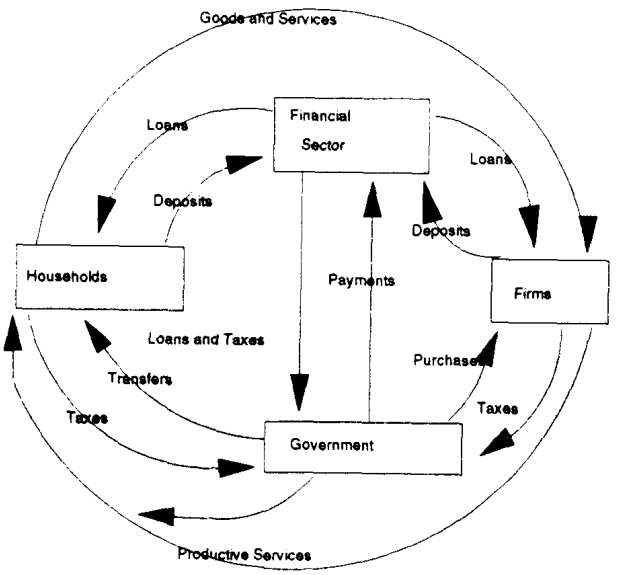
1. A barter economy is one in which goods are exchanged for one another without use of money. The difficulty with a barter economy is that a double coincidence of wants must appear: Jack must have a product that Jill wants and vice versa. Further, agreeing on a barter price can be difficult; for example, Jill might offer Jack two chickens for his goat, but if Jack only wants one chicken, how can Jill get half a goat?

2. Your parents and grandparents probably admitted that they are better off today in economic terms. A variety of new products have become available that makes day-to-day living easier and increases the standard of living. New technology has made life better but perhaps more complicated than it used to be. Some goods have increased more in price than income has, but, on balance, it is likely "the good old days" weren't that great by today's standards.

3. Economic scarcity still exists because few goods are available in unlimited supply to anyone and few goods can be produced without the use of capital and labor. An increasing standard of living generally means that more goods are available to more people. There are still people in our society who cannot afford the barest necessities like food and shelter; to these people, economic scarcity is all too real.

4. Economic research, particularly in microeconomics, would all but cease. Without partial analysis, it is virtually impossible to examine economic relationships in a single market. Admittedly, assumptions of partial analysis are simplifications of reality that usually result in less accurate predictions than if the assumptions were not made, but it would be impossible to generate almost any predictions without them, even with today's high-powered computing systems.

5. The financial sector makes loans to households, firms, and government by receiving deposits or loan payments from households and firms – and possibly from the government. The financial sector purchases goods from firms and productive services from households out of profits made on loans. Further, the financial sector also pays taxes to the government out of profits. One possible modified circular flow diagram appears below:



2

Resource Constraints and Economic Exchange

Important Concepts

1. Production possibilities frontier: the maximum amount of one good that can be produced for a given amount of production of another good.

2. Marginal analysis: exploration of the implications of making one or more very small changes in the value of a variable.

3. Opportunity cost: the amount of the next best alternative good that could have been produced using the resources to produce a given amount of a specified good.

4. Comparative advantage: the situation which exists in the production of a good when the producer could expand production at a lower opportunity cost in terms of reduced production of other goods than could any other producer.

5. Voluntary economic exchange: an exchange in which none of the parties involved is physically compelled to enter it.