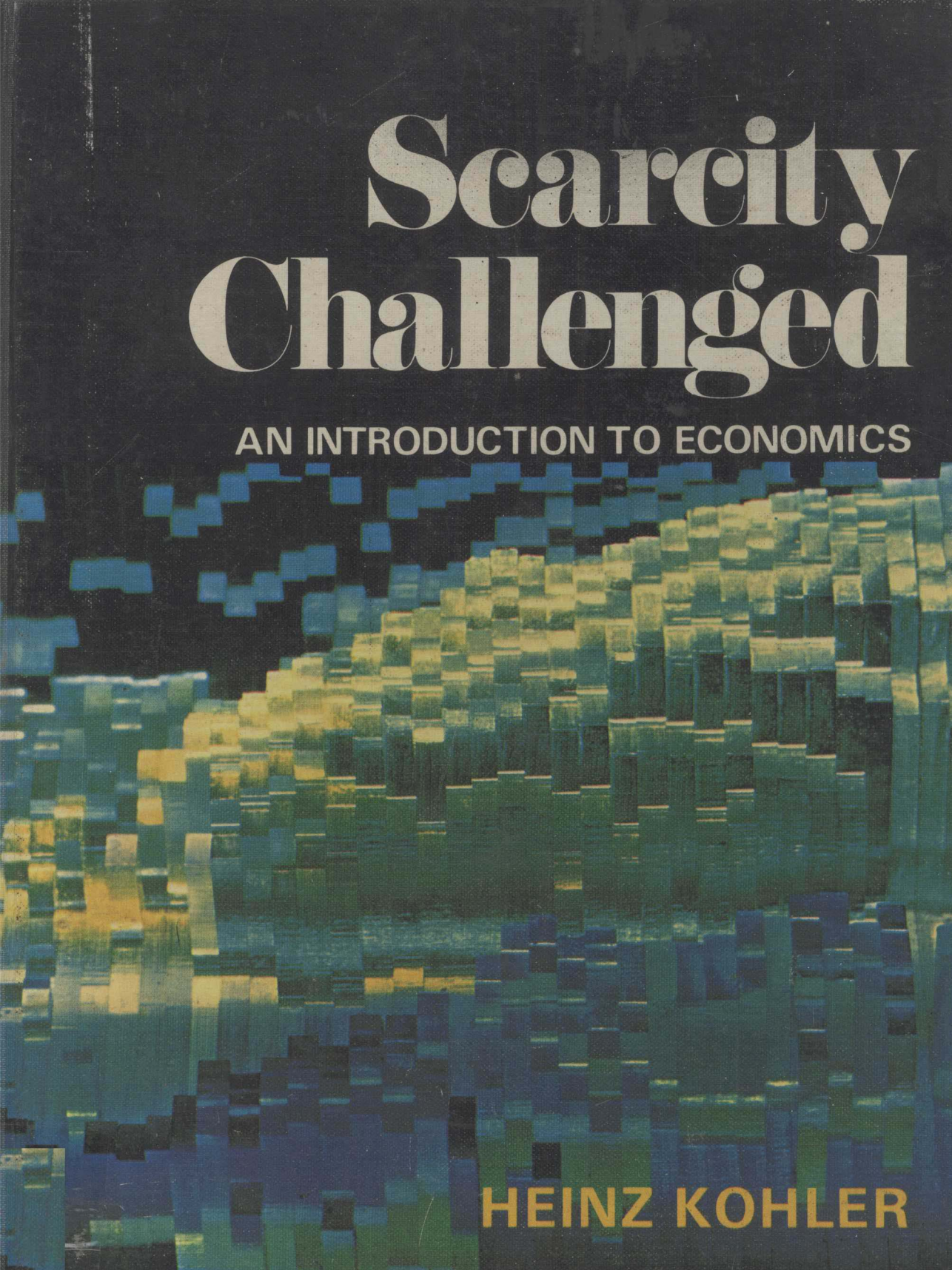
Scarcity Challenged

AN INTRODUCTION TO ECONOMICS



HEINZ KOHLER

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AN INTRODUCTION TO ECONOMICS

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To my children, Marjorie Ann and Victoria Rose

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PREFACE

WHY THIS BOOK WAS WRITTEN

I believe economics to be an exciting subject. In the United States hundreds of thousands of students are introduced to it every year. Yet it is my guess that most of them find it boring and dismally complicated. They are glad when it is over. They have not caught a glimpse of the enjoyment they might have had from the study of economics.

This probably happened because they were deluged with a mass of incoherent detail, which was designed to lay the groundwork for the training of professional economists. But most of those taking their first economics course will never take another one. Material that might be useful later on in an advanced course serves no purpose for these students but first to be crammed and then handed back at examinations. No wonder excitement is missing.

To make matters worse, beginners are typically swamped with language which contributes to confusion instead of understanding. At exams, they can hide behind the bulwark of jargon, while actually knowing nothing at all.

Although, in fact, things are not so simple, they can be made a lot simpler. There is no need for thousands of students to be dismissed from a study of economics, still unable to recognize or analyze some of the most important issues of our time. Some of these issues, after all, involve the peace and welfare of mankind. But students do get so dismissed, devoid of lasting knowledge, or unable to communicate to others what they do know. It is hoped that this book will help make an end to this state of affairs.

AN IMPORTANT FIRST LESSON

Some of the trouble cannot be solved except by way of exhortation. It lies in the attitude with which students and teachers approach the study of economics. We are all human and, whether we choose to believe it or not, we are driven more by emotion than by anything else. This very effectively hinders our understanding of the world we wish to study. We are likely to have formed certain images of the world and are equally likely not to want them disturbed.

Consider how many people, though they have never studied economics, "know" that socialism is bound to be inefficient (and capitalism is not), that government deficits or a perpetually growing national debt must lead to national bankruptcy, that money must be backed by gold, or that another stock market crash must usher in another Great Depression. These are topics discussed frequently in newspapers and magazines, on radio and television, over lunch with one's friends and even in eloquent speeches by prominent people on the Senate floor.

Yet all these statements are wrong. They are typical of the hearsay and half-truths which dominate our minds as we approach the study of economics; typical of what makes this study so much more difficult. As Will Rogers is said to have put it, "The trouble isn't what people don't know, it's what they do know that isn't so."

We all have hearts, yet we are not heart specialists. Most of us drive cars, yet we know nothing of car manufacture. We are all part of the economy. Does that make us economists?

This is the first lesson students of economics have to learn: We do not know the truth by instinct. What we regard now as fantastic may in fact turn out to be true. What seems natural and obvious, such as the flatness of the earth, can easily be wrong.

Devotion to the truth, however, requires that right now, before we go on reading this book, we become conscious of our vested interest in being right. We must not capitulate before our prejudices, or give in to the oppressive hand of dogma. Unless we are willing to expose ourselves to new points of view, to engage in dialogue rather than to preach and self-justify, we cannot learn anything.

HOW THIS BOOK IS TRYING TO HELP

Unless this first lesson has been learned, this book cannot hope to accomplish anything. But if we approach the study of economics with an open mind, the second major cause of difficulty, the incoherent presentation of the subject and the concentration on jargon and technical details, is much easier to overcome. Textbook and teacher can excite a student in his initial exposure to economics by concentrating on *important matters* and *presenting them clearly and in logical sequence.* This book will try to do just that.

The book concentrates on the elimination of scarcity and raises four main questions.

1. How can we achieve full employment of resources?
2. What must the economic system be like to be efficient as well?
3. How can we achieve economic growth?
4. What effects do various alternative means of achieving the former goals have on noneconomic aspects of life?

Anything relevant to these issues will be discussed whenever it fits logically into the framework.

It will be discussed, furthermore, in language that any person willing to pay attention can understand. I know from my own students that both concentration on essentials and understandable language are prerequisites for lasting enjoyment and knowledge.

A NOTE OF THANKS

There are many to whom I am greatly indebted. To Eugene Whitney go many thanks for straightening me out on a variety of points of presentation. As a layman who had to be convinced, he was more helpful than any economist could have been. I am also indebted in many small ways to my colleagues at Amherst College, and to Amherst College for providing me with a most congenial atmosphere in which to learn, teach, and write.

Most of all, I must thank that rarest of all jewels, Mrs. Dorothy Ives, who did the lion's share of typing and retyping, and did so without even growling. I also am grateful for smaller, but equally excellent contributions in the same field which came from Mrs. Mildred Buzicky and Mrs. Eleanor Starzyk. Last but not least, my wife was an ever-ready proofreader and a good one.

Heinz Kohler

Amherst, Massachusetts
January 1968

A NOTE TO THE TEACHER

Although authors have a certain self-interest in making this claim, this book really *is* different from all others presently available in the field of introductory economics. It is different, furthermore, not just for the sake of being different, but in order to bring about a genuine improvement in the teaching of elementary economics. There are three things new about this book. First, this book has a theme. Second, this book looks at the whole world. Third, this book cuts out irrelevant detail.

THIS BOOK HAS A THEME

Take a look at the title of this book. It is no accident that it is not called "Economics." Most other books with that title give the impression that everything that can possibly be placed under the heading of our discipline has been "thrown in" somewhere. As a result, students may learn a lot of technical detail, but they usually do not see how things hang together, nor do they come to appreciate what is important and what is not. If they are lucky and persistent enough (and do go on in economics), they will find out, of course, in graduate school at the latest.

This book, instead, picks up the theme of SCARCITY in the very beginning and never lets it out of sight. What one may do about scarcity is the theme which is fully and logically developed here. We can try to meet the challenge of scarcity, argues Part 1, by using given resources fully. Part 2 shows the additional possibilities inherent in paying attention to economic efficiency. Part 3 explores the issue of economic growth, of breaking out of the limitations imposed by *given* resources. Finally, Part 4 reminds us that there are other aspects to life than economics.

Within each of these major parts, great emphasis is placed on logical coherence. If we wish to explore avenues for full employment, says Chapter 2, we must agree on a meaning of the term. This enables us to gather data and study the facts about United States unemployment. It also makes us aware of different types of unemployment. Fluctuations in employment are mirrored by fluctuations in output. Chapters 3 and 4 develop the concept of the GNP in simple step-by-step fashion, starting with nothing more difficult than the accounting records of individual producers. Any GNP statement contains a great many hints pointing to theories of

output determination. Thus, in Chapter 5, the classical and Keynesian theories are contrasted and the latter is fully developed. (While the chapter uses the aggregate demand approach, an appendix presents the saving-investment approach.) Chapter 6 is highly unorthodox for the elementary level. It describes and analyzes business cycles (and forecasting) with the help of an accelerator-multiplier model, presented in simple numerical examples. I have found that students can gain a great deal by being made aware of the dynamic questions usually ignored in the Keynesian comparative static approach. Since we always draw policy conclusions from the Keynesian graphs, I think we owe it to our students to make them see that, quite apart from repeated autonomous changes in the real world, there may also be other reasons that prevent the economy from reaching, in reality, a new equilibrium GNP. This is shown with the use of period analysis which, although not true dynamics, is a step beyond comparative statics which elementary students are quite capable of taking. Being so prepared, they will have a much more realistic view of the possibilities of economic policy, and they will not be surprised that in reality things do not work out as easily as on textbook graphs. Why must they wait for graduate school to learn this? (Teachers will note that the "dynamic" discussion of Chapter 6 is fully integrated with the comparative static examples of Chapter 5.) Having thus been prepared, policy conclusions are presented to the student: monetary policy in Chapter 8, following a general introduction to money and banking in Chapter 7; and fiscal policy in Chapter 10, following a similar general treatment of government spending and taxing in Chapter 9. Chapter 11 presents materials which logically belong here, although they are never found together. Having been shown how fiscal-monetary policies may attempt to reach full employment without demand inflation, students are now aware of their limitations: The public may resist such policies, policy makers may make mistakes, the dynamics of the situation may preclude victory. Worse yet, as is stated in this chapter, there are other obstacles: Frictional and chronic unemployment as well as sellers inflation may not be responsive to such policies at all, balance of payments considerations may circumscribe them. Hence, in this chapter there is a discussion of federal programs to increase labor mobility, of wage-price guideposts, of exchange rates, and the international monetary mechanism. This may be a strange combination, but students will see the relevance to the main issue of fighting scarcity.

Chapter 15, in Part 2, contains a unique elementary presentation of the Pareto optimum. This extremely important step is usually not treated in other books at this level. As a result, students never see the relevance of microeconomics to the main issue of scarcity. After all, it is *not* obvious to the uninitiated that scarcity can be decreased still further, without the use of additional resources, after full employment has been reached. Chapter 15 does not mention monetary variables. It uses production-possibilities curves and indifference curves and similar tools to show the importance of economic, as opposed to technical efficiency, such as the equality among producers of relative marginal costs, among consumers of relative marginal utilities, and so on. Students are shown that such conditions are entirely *general*, applicable to any economy at any time. They are *not* given the impression, as is

done by other texts I know, that somehow "a price system," however imperfect, is synonymous with economic efficiency. Chapter 16 fully develops the model of perfect competition and supply and demand analysis. (Students had a preparation for the latter earlier in the context of discussing the bond market in Chapter 8 and exchange rates in Chapter 11.) In Chapter 17 students are shown how self-interest can be relied upon, *in perfect competition*, to bring about economic efficiency in equilibrium. However, externalities which may spoil the picture are also discussed. Chapter 18, in talking about the real world of imperfect competition, shows how equilibrium and economic efficiency may diverge, very much similar to the way equilibrium and full employment do. The text is careful not to draw unjustified policy conclusions from the model of perfect competition for the real world. (For example, how many texts refrain from advocating free trade for the real world *on the basis of* a prior discussion of the theory of comparative advantage and the assumption of perfect competition?) Chapter 19, finally, again gives away secrets often kept for graduate school: Since economic efficiency in the real world pertains only by accident, we are tempted to do something about it, but do not really know what. The conclusions of the theory of the second best are spelled out, and then, although there is admittedly no master plan to deal with economic inefficiency, all governmental policies affecting efficiency are discussed in this light: antitrust policy, potential tax-subsidy schemes as ways to get "closer to" perfect competition; agricultural, retail trade, foreign trade, and labor policies as attempts to foster imperfect competition. An honest answer is given. Economists do not know how to measure the degree of economic efficiency prevailing. They do not know what difference these policies make in the fight against scarcity. Students, however, know why economists are interested in these matters.

Part 3 continues the theme in examining the importance of economic growth. Part 4 addresses itself to questions of distributive justice and freedom. Such possible areas of conflict with economic policies should, I believe, never be ignored. Economists are fond of sneering at the engineers for arguing at times that "everything that can be done (technically) should be done." We should not fall into the same trap and argue for every possible governmental policy which can decrease scarcity. Somewhere there undoubtedly is a fine line where the wise use of power ends and its abuse sets in.

As a result of this unorthodox arrangement of the material, many of the standard chapters instructors expect to find in elementary texts seem to be missing here. This is true, yet no major part of economics has been omitted. To give one example, there is no section or chapter dealing with "The International Economy." Yet the balance of payments and exchange rates are discussed in Chapter 11 in the context of obstacles to domestic economic policies. The theory of comparative advantage appears in Chapter 15 as one of many economic efficiency conditions. The free trade argument (in perfect competition!) is deduced in Chapter 17, and the uncertainties about both the desirability of free international trade in the real world and the reduction of tariffs are treated in Chapters 18 and 19, respectively. Many other traditional subjects are thus spread throughout the text, but within the context of the theme.

THIS BOOK LOOKS AT THE WHOLE WORLD

Unlike any other elementary book, this book is not content with a final chapter on the socialist economy. To show students that the *same* economic problem haunts the whole of mankind and that there are *many* ways of dealing with it, there is not only discussion of underdeveloped countries, but there are also six chapters on the Soviet-type economy. They form an integral part of this book. This has been done because such a study can immeasurably increase the understanding of the tools of economic analysis applicable to the *United States* type economy.

Chapter 12, for example, introduces the difference between market economy and central planning. The discussion of input-output analysis in this chapter is ideally suited to review the discussion in previous chapters of intermediate versus final goods, of the two way of measuring GNP, of the profit and loss statement, and so on. The material can also be used later, in the discussion of economic development, to show why central planning does not have to be synonymous with government ownership of resources and physical commands. This chapter, as well as Chapter 13, prepares the ground for a much deeper understanding of the magnificent work of a price system, since it explains the enormous interdependence of an economy and the difficulties of dealing with it centrally.

In Chapter 14, the discussion of Soviet GSP (gross social product) reinforces the earlier one of the United States GNP. Students become increasingly aware of the importance of definitions, why they are all arbitrary, yet not unreasonable, and why they may differ over space and time. (This theme is continued throughout the book, covering such subjects as unemployment, money supply, balance of payments deficit, underdevelopment, poverty, and so on.) Students will be much less tempted to make unjustifiable international comparisons in the later discussion of Soviet versus United States growth or of underdevelopment.

Chapters 20 and 21, superficially, do nothing more than develop the Lange model of competitive socialism and relate to it present Soviet decentralization reforms. On a deeper level, they do much more. Not only do they reinforce the understanding of perfect competition and its efficiency, but they thoroughly teach the important distinction between market prices and prices in the generic sense and why the latter are essential guides in practice for efficient resource use anywhere. And such treatment seems eminently preferable to that obscure confusing appendix on "do we need interest and rent in socialism?"

However, those who have neither time nor desire to use the six "Soviet" chapters can easily omit Sections b of Parts 1 to 3. The remainder of the text is still an integrated whole.

THIS BOOK CUTS OUT IRRELEVANT DETAIL

As a quick look at the Table of Contents will show, this book has cut out a great many topics found in other introductory texts. This is necessarily an arbitrary matter.

The idea has been, however, to aim the book at the student, not the teacher, and to leave out everything not relevant to the immediate major theme described above. Alternative ways of saying the same thing have usually also been omitted.

An example of the former would be the omission of Clark's marginal productivity theory of distribution (its constant returns to scale assumption seemed too inapplicable to reality). An example of the latter would be the omission of *total* cost and revenue curves from the theory of the firm, since average and marginal curves, derived from numerical examples, could do the job as well.

The accompanying *Instructor's Manual* points out these omissions in detail and suggests when and where teachers might introduce them if they feel this is desirable. The Manual also contains detailed comments on each chapter and the likely pedagogical problems encountered, as well as many test items. There are also answers to all of the text questions for review and discussion.

The accompanying book of *Readings* brings together a great deal of material which can be used, as the teacher wishes, to supplement or expand upon the text.

Finally, the *Study Guide* is a self-help device for students. It warns of the major difficulties likely to be encountered. It contains a multitude of problems and objective tests, as well as answers to all of them.

A GUIDE TO THE STUDENT

This section serves two functions. Some students may be unfamiliar with the use of equations and graphs, which one cannot avoid in a thorough study of economics. Their meaning and use is described in the first section. Others may become very interested in a particular subject and wish to explore it further. The second section, therefore, provides a list of readily available references. Most of these are particularly helpful in finding up-to-date factual data.

Students should note the Glossary and the list of symbols at the end of this book. They will help in the study of the new TERMS listed at the end of each chapter, and in clearing up any problems encountered with the notation. In addition, a book of *Readings*, published together with the text, elaborates on the materials presented in the text and also explores other areas of economics. There is also a *Study Guide*, which is a self-contained self-help device for the student. It is keyed to the text and contains a chapter-by-chapter guide to possible problems likely encountered by beginners, as well as questions (with answers) for self-examination.

EQUATIONS AND GRAPHS

There is nothing difficult about equations and graphs. They are only shorthand ways of presenting information which could be described more laboriously in words.

Equations

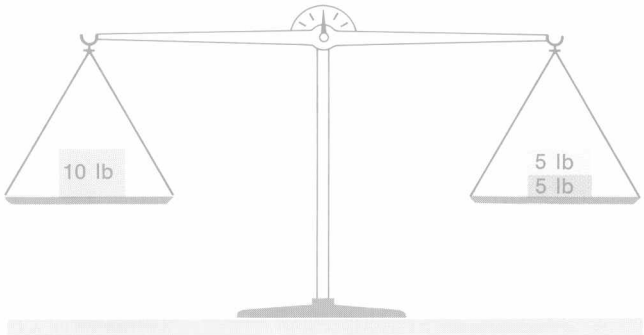
An equation is just what it says: an expression of equality of two items or groups of items. Think of a scale, as in Figure A. If you place a 10-lb weight on one side and two 5-lb weights on the other, it will balance. If you wish, you can write this in equation form as follows:

$$10\text{ lb} = 5\text{ lb} + 5\text{ lb} \qquad (1)$$

You can also be more formal. Denoting 10 lb by the symbol a and 5 lb by the symbol b, you can write:

$$a = b + b \qquad \text{or} \qquad a = 2b \qquad (2)$$

Figure A.



And this is all there is to equations. Of course, we can manipulate them in many ways. Essentially we can do four things: add, subtract, divide, or multiply. Yet as long as we do the same thing on both sides of the equation (or the scale), the equation will still hold (the scale will still balance).

Adding. Suppose we add 3-lb weights to both sides of the scale. Then we would have one 10-lb weight plus one 3-lb weight on the left, and two 5-lb weights plus one 3-lb weight on the right—thirteen pounds on both sides. The scale balances, and Equation (1) changes to:

$$10\text{ lb} + 3\text{ lb} = 5\text{ lb} + 5\text{ lb} + 3\text{ lb} \tag{3}$$

If we want to be more formal and call 3 lb by the symbol c, we get [instead of Equation (2)]:

$$a + c = b + b + c = 2b + c \tag{4}$$

Subtracting. Suppose we subtract 7 lb from both sides of the scale. On the left, we have to replace the 10-lb weight, on the right the two 5-lb weights, by 3-lb weights. The scale balances and Equation (1) changes to:

$$10\text{ lb} - 7\text{ lb} = 5\text{ lb} + 5\text{ lb} - 7\text{ lb} \tag{5}$$

More formally, denoting 7 lb by the symbol d, we have:

$$a - d = b + b - d \qquad \text{or} \qquad a - d = 2b - d \tag{6}$$

Dividing. Suppose we divide both sides of the scale by 10. On the left, we have to replace the 10-lb weight, on the right the two 5-lb weights, by 1-lb weights. The scale again balances. Equation (1) becomes:

$$\frac{10\text{ lb}}{10} = \frac{5\text{ lb} + 5\text{ lb}}{10} \tag{7}$$

or, formally,

$$\frac{a}{10} = \frac{b + b}{10} \qquad \text{or} \qquad \frac{a}{10} = \frac{2b}{10} \tag{8}$$

Multiplying. Suppose we multiply both sides of the scale by 5. On the left, we place five (instead of one) 10-lb weights; on the right, we place five (instead of one) sets of two 5-lb weights. The scale still balances. Equation (1) reads:

$$10\,\text{lb} \times 5 = (5\,\text{lb} + 5\,\text{lb}) \times 5 \tag{9}$$

or, formally,

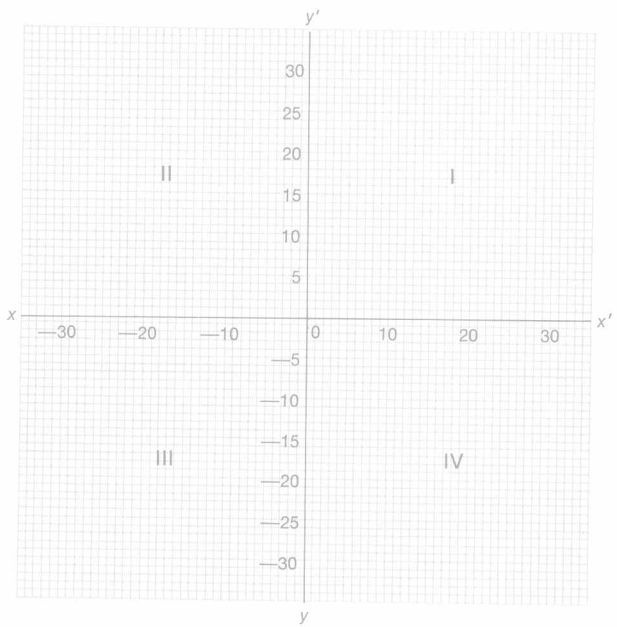
$$a \times 5 = (b + b) \times 5 \qquad \text{or} \qquad 5a = (2b) \times 5 \qquad \text{or} \qquad 5a = 10b \tag{10}$$

Conclusion. This is all you have to know about equations. Any equation says only that the item or items on the left equal those on the right. You may do anything you like to the items on one side, as long as you do the same to the items on the other side. The equation will remain intact. Many such equations are used in this book, especially in Part 1. Whenever you cannot understand how one equation, such as (10) above, emerged from another, such as (2) above, just figure out what was done to it. There must have been an addition, subtraction, division, or multiplication on both sides (unless changes on one side, as adding 10 and 4, were exactly offset by opposite and equal changes on the same side, as deducting 8 and 6).

Graphs

Graphs are not any more difficult to understand than equations. Graphs are drawn on squared paper, as in Figure B. The paper is divided by a horizontal axis, such as line xx' (also called the *abscissa*), and a vertical axis, such as line yy' (also called the *ordinate*) into four "quadrants," labeled I through IV. Note that the two axes

Figure B.



intersect at right angles at a point called the "origin," and always labeled 0. Each axis has a scale of numerical values. On the vertical scale, or ordinate, all values above 0 are positive, those below 0 are negative. On the horizontal scale, or abscissa, all values to the right of 0 are positive, those to the left are negative. The origin thus counts as zero.

We have drawn Figure B so that equal distances from 0 on both the horizontal and vertical axes represent equal units (each small square both horizontally and vertically equals one unit). But it does not have to be this way. In fact, the horizontal and vertical axes often use different units of measurement (see Figure C). The important thing is that once the unit of measurement has been chosen for either the horizontal or vertical axis, it must remain consistent for that axis. We may label the fifth unit toward x' on the horizontal axis 3,000 if we like, but then the tenth unit must be 6,000 (instead of 10), the fifteenth 9,000 (instead of 15).

In this book we will only be concerned with relationships among variables which lie in the first and fourth quadrants (I and IV). That is, one of the variables will always be positive (measured from 0 toward x'), while the other may be positive (0 toward y') or negative (0 toward y). Thus you will never find any graphs containing quadrants II and III. Most of them, in fact, will only contain quadrant I.

Let us be specific. Suppose we want to graph the information found in Table A.

Table A

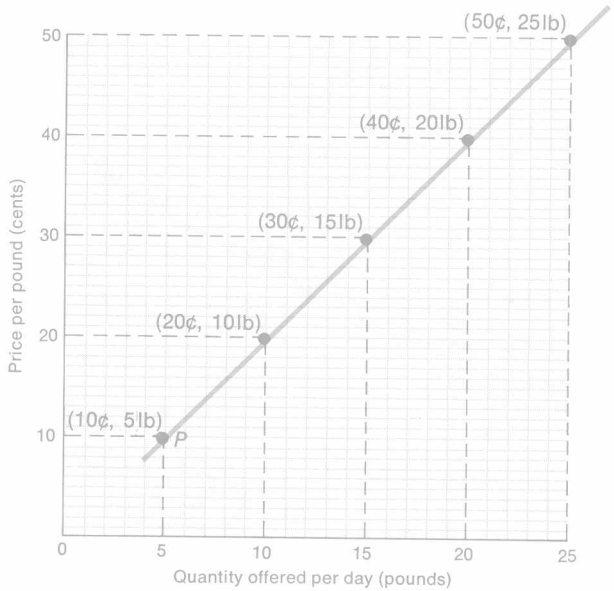
Price per pound, apples (cents)	Quantity of apples offered for sale per day (pounds)
10	5
20	10
30	15
40	20
50	25

All we have to do is put the two column headings on the axes of a graph and locate the five sets of price-quantity data given in the table (See Figure C).

It is perfectly arbitrary which column heading goes on which axis. However, let us follow tradition and put price on the vertical axis. Now we draw perpendiculars from the relevant points on the two axes; their meeting point is a point on our graph. For example, to graph the 10 cent–5 lb combination, we draw a perpendicular across the vertical axis at 10 cents and across the horizontal axis at 5 lb. They meet at P. We proceed in the same way for all other points for which we have specific information.

If we can be sure that the same relationship between price and quantity offered also holds between those points (that, numerically, price *always* equals double quantity as it does in Table A), we can connect all points in Figure C by a straight line and conclude, for instance, that 12.5 lb would be offered at a price of 25 cents.

Figure C.



(Can you locate the point?) In fact, if we call price by the symbol P, and quantity by the symbol Q, we get an equation [just like (2) in the section on equations] stating that $P = 2Q$. Or, dividing both sides by 2, we can say that

$$\frac{P}{2} = Q$$

that is, quantity is, numerically, always equal to $\frac{1}{2}$ price.

In fact, Figure C is a graph of an equation. All equations can be graphed, and all graphs can be stated in equation form, although some will be much more complicated than here, especially when we deal with curves rather than straight lines.

All graphs in this book are representations, as in Figure C, of numerical data, as in Table A. Just look at the labels on the axes (and if you ever graph anything, do not forget to put in the labels), and you will know what the column headings of the corresponding table must have been.

Slope. There is one further matter which is important, the meaning of the term "slope." Again, this is not difficult. You have often walked up the slope of a hillside; that is, you have gained altitude while going forward. This is all that slope means. Imagine the straight line in Figure C to be the profile of a hill you are climbing. Slope is simply an exact measure of how much higher you go as you go forward.

Suppose you want to go from P to S in Figure D. In the process you go forward by 5 and upward by 10. Then we say that the slope is

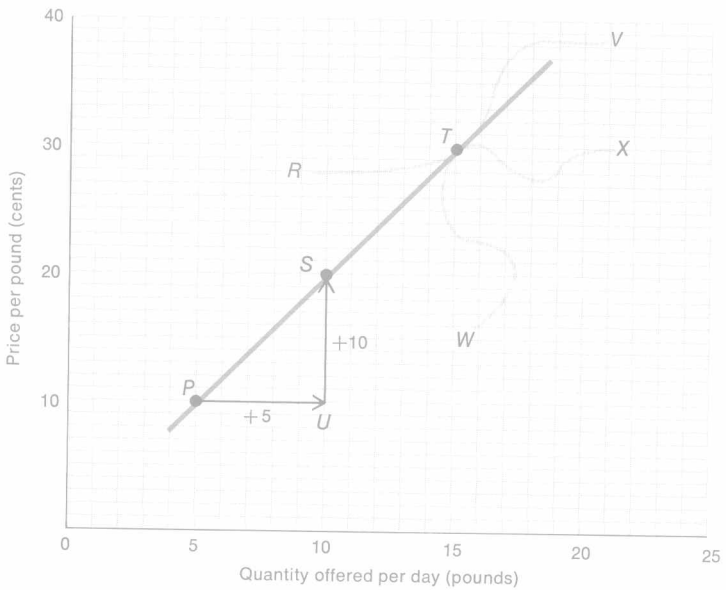
$$\frac{+10}{+5} = 2$$

For every 1 unit you go forward, you go up by 2.[1] In our equation ($P = 2Q$) the number 2 represented the slope. This, then, is a general rule for finding the slope of a straight line: Form a right triangle, as *PSU* under the straight line (a triangle of any size will do) and relate its altitude (here, *SU*) to its base (here, *PU*). Altitude over base (measured not in inches, but in whatever units the axes indicate) equals slope.

Should you ever wish to measure the slope at a particular point on a curve (there is no such thing as the slope *of* a curve, since it changes from point to point), you can follow a similar procedure. Say, you wish to measure the slope at *T* of curve *RTV* in Figure D. Just draw a tangent to the curve through the point in question, such as line *PST*. (A tangent is a straight line just touching and not intersecting a curve at one point.) Then form a right triangle underneath the tangent (anywhere, such as *PSU*). Relate the triangle's altitude to its base; that is the slope of the tangent and of the curve at the point of tangency (here, at *T*). What do you think is the slope at *T* of curve *WTX*?

Slopes can, of course, also be negative. This occurs when going forward makes you go down. The same principles apply.

Figure D.



[1] Note that, measured in inches, distance *PU* equals distance *SU*, yet identical distances are representing different units on the two axes.