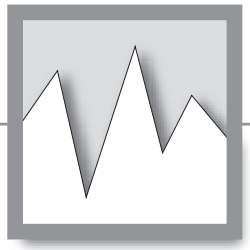

Economics

for South African students

FOURTH EDITION

Philip Mohr, Louis Fourie
and associates

Van Schaik
PUBLISHERS

Published by Van Schaik Publishers
1064 Arcadia Street, Hatfield, Pretoria

First edition 1995
Second impression 1996
Third impression 1997
Fourth impression 1998
Fifth impression 1998
Sixth impression 1999
Seventh impression 1999
Eighth impression 2000
Ninth impression 2000
Second edition 2000
Second impression 2001
Third impression 2002
Fourth impression 2003
Third edition 2004
Second impression 2004
Third impression 2004
Fourth impression 2005
Fifth impression 2005
Sixth impression 2006
Seventh impression 2007
Fourth edition 2008
Second impression 2008
Third impression 2009

ISBN 978 0 627 02712 3

Commissioning editor Lydia Reid
Production manager Werner von Gruenewaldt
Editorial manager Daleen Venter
Copy editor & proofreader Yvonne Kemp
Cover design by Gisela van Garderen
Cover image Digital Source Image Library
Illustrations by Jon Inggs
Typeset in 9.3 on 11 pt Century Old Style by Pace-Setting & Graphics
Printed and bound by Interpak Books, Pietermaritzburg, South Africa

NOTE TO LECTURERS

Contact the marketing department at marketing@vanschaiknet.com or on (012) 342 2765 for a CD-ROM with a test bank and a Microsoft PowerPoint slide show that accompanies this book.

NOTE TO STUDENTS

Visit our supplementary website to *Economics* (*for South African students*) at *learnactive.co.za*

With the help of Trydian Interactive (Pty) Ltd, an e-learning development company, a supporting website has been developed for this textbook. The aim of the website is to give students further guidance as they work through the concepts and content covered by the textbook.

The website is supplementary to the textbook and is not a compulsory element for the completion of your studies, but it is a powerful resource.

Where can I find the website?

The supporting website is part of Trydian Interactive's *learnactive.co.za* e-learning solution and can be accessed at the following web address:

www.learnactive.co.za/vanschaik

Can anyone use the website?

Yes, the website is open for general use and any student can get access to it. But before you can use the site, you need to register – there's no charge, and it takes a few seconds. Just follow these easy steps:

1. Go to the website: www.learnactive.co.za/vanschaik.
2. Click on "Create your own profile".
3. You will be taken to a screen where you must submit information such as your name, your email address, the course you are studying, the institution you are studying at, as well as some other geographical information.
4. You will also be asked to choose a username and a password.
5. After you have keyed in all the information needed, you will submit the information online and a unique profile will be generated for you.
6. At this stage you will be asked to enter a course code. Enter the following code: **VS-Econ001**
7. You now have full access to the website!

Once you have registered, you don't need to repeat this process. The next time you enter the website, you just key in your username and password, and you're ready to go.

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learnactive.co.za gives you a series of value-adding functionalities. These include:

- **E-workbook:** The e-workbook is an interactive compilation of case studies, questions and answers that you can work through, as part of your exam preparation, in order to make sure that you understand the content.
- **E-forum:** A forum will be available for you to voice your opinions on the content and to discuss or debate certain economic topics and questions with your fellow students.
- **Events calendar:** You will also get access to your own calendar where you can schedule events, appointments and important dates. Each time you log on to the website, you will receive a reminder about these scheduled events.

We believe that *learnactive.co.za* will truly add value to your learning experience and that it will assist in giving you a better understanding of the subject matter. We invite all economics students to try the website!

If you need any further information on the *learnactive.co.za* website, please email us at learnactive@trydian.com.

SUGGESTED COURSE OUTLINES

1. COMPREHENSIVE FIRST-YEAR COURSE IN ECONOMICS

Whole book – up to the lecturer(s) to decide which sections or subsections to leave out.

2. COMPREHENSIVE ONE-SEMESTER MODULE IN MICROECONOMICS

- *Introduction to economics*. Chapter 1
- *The economic problem*. Chapter 2, Sections 2.1 to 2.4
- *The circular flow of income and spending*. Chapter 3, Sections 3.1 and 3.2
- *Basic tools of analysis*. Chapter 6 (as background)
- *Demand, supply and prices*. Chapter 7
- *Demand and supply in action*. Chapter 8
- *Elasticity*. Chapter 9
- *Consumer choice*. Chapter 10, Sections 10.1 to 10.5 (rest optional)
- *Production and cost*. Chapter 11
- *Perfect competition*. Chapter 12
- *Monopoly and imperfect competition*. Chapter 13, Sections 13.1 to 13.5 (certain subsections optional)
- *Labour market*. Chapter 14, Sections 14.1 to 14.3 (rest, including the Appendix, optional)
- *Market failure and government failure*. Chapter 16, Sections 16.2 to 16.5

3. COMPREHENSIVE ONE-SEMESTER MODULE IN MACROECONOMICS

- *Introduction to economics*. Chapter 1 (if not covered yet)
- *The circular flow of income and spending*. Chapter 3
- *Measuring the performance of the economy*. Chapter 4
- *The South African economy*. Chapter 5 (as general background)
- *Basic tools of analysis*. Chapter 6 (if not covered yet)
- *The monetary sector*. Chapter 15
- *The public sector*. Chapter 16, Sections 16.7 to 16.11 (16.12 optional)
- *The foreign sector*. Chapter 17 (certain subsections optional)
- *Basic macroeconomic model*. Chapter 18
- *Extensions of the basic model*. Chapter 19
- *The AD-AS model.* Chapter 20, Section 20.1
- *More on macroeconomic theory and policy*. Chapter 20, Section 20.3 (20.2 and 20.4 optional)
- *Inflation.* Chapter 21 (certain subsections optional)
- *Unemployment and the Phillips curve*. Chapter 22, Section 22.1 (Section 22.2 optional)
- *Economic growth and business cycles*. Chapter 23, Sections 23.1 to 23.4

4. BASIC FIRST-YEAR COURSE IN ECONOMICS

- *Introduction to economics*. Chapter 1
- *The economic problem*. Chapter 2, Sections 2.1 to 2.4
- *The circular flow of income and spending*. Chapter 3, whole chapter
- *Measuring the performance of the economy* (may be studied in conjunction with chapters 18 to 23). Chapter 4, Sections 4.1 to 4.5
- *The South African economy*. Chapter 5 (for general background) – has to be studied in conjunction with (or after) Chapter 4
- *Basic tools of analysis*. Chapter 6 (again a background chapter)
- *Demand, supply and prices*. Chapter 7, Sections 7.1 to 7.4
- *Demand and supply in action*. Chapter 8, Sections 8.1 to 8.4
- *Elasticity*. Chapter 9, certain subsections can be omitted
- *Consumer choice*. Chapter 10, Sections 10.1 to 10.3
- *Production and cost*. Chapter 11, Sections 11.1 to 11.4
- *Perfect competition*. Chapter 12, Sections 12.1 to 12.4
- *Monopoly and imperfect competition*. Chapter 13, Sections 13.1 (selected parts), 13.2 (selected parts), 13.5 (selected parts)

- *Labour market*. Chapter 14, Section 14.2
- *Monetary sector*. Chapter 15, Sections 15.1 to 15.8
- *Public sector*. Chapter 16, Sections 16.1, 16.4, 16.7, 16.8, 16.10, 16.11
- *Foreign sector*. Chapter 17, Sections 17.1, 17.3, 17.4
- *Basic macroeconomic model*. Chapter 18
- *Extensions of the basic model*. Chapter 19 (selected parts)
- *Aggregate demand and supply*. Chapter 20, Section 20.1 (optional)
- *Inflation*. Chapter 21, Sections 21.1, 21.2 (optional), 21.3, 21.4 (selected parts)
- *Unemployment*. Chapter 22, Section 22.1
- *Economic growth and development*. Chapter 23, Sections 23.1 to 23.3

5. BASIC ONE-SEMESTER MODULE IN MICROECONOMICS

- *Introduction to economics*. Chapter 1
- *The economic problem*. Chapter 2, Sections 2.1 to 2.4
- *The circular flow of income and spending*. Chapter 3, Sections 3.1 and 3.2
- *Basic tools of analysis*. Chapter 6 (as background)
- *Demand, supply and prices*. Chapter 7, Sections 7.1 to 7.4
- *Demand and supply in action*. Chapter 8, Sections 8.1 to 8.4
- *Elasticity*. Chapter 9 (selected parts only)
- *Consumer choice*. Chapter 10, Sections 10.1 to 10.3 (optional)
- *Production and cost*. Chapter 11, Sections 11.1 to 11.4
- *Perfect competition*. Chapter 12, Sections 12.1 to 12.4
- *Monopoly and imperfect competition*. Chapter 13, Sections 13.1 and 13.2 (selected parts)
- *Labour market*. Chapter 14, Section 14.2 (optional)

6. BASIC ONE-SEMESTER MODULE IN MACROECONOMICS

- *Introduction to economics*. Chapter 1 (if not covered yet)
- *The circular flow of income and spending*. Chapter 3, whole chapter
- *Measuring the performance of the economy*. Chapter 4, Sections 4.1 to 4.5
- *The South African economy*. Chapter 5 (for general background) – optional
- *Basic tools of analysis*. Chapter 6 (if not covered yet)
- *The monetary sector*. Chapter 15, Sections 15.1 to 15.8
- *The public sector*. Chapter 16, Sections 16.4, 16.7, 16.10 and 16.11
- *The foreign sector*. Chapter 17, Sections 17.1, 17.3 and 17.4
- *Basic macroeconomic model*. Chapter 18
- *Extensions of the basic model*. Chapter 19 (selected parts)
- *Aggregate demand and supply*. Chapter 20, Section 20.1 (optional)
- *Inflation*. Chapter 21, Sections 21.1, 21.2 (optional), 21.3 and 21.4 (selected parts)
- *Unemployment*. Chapter 22, Section 22.1
- *Economic growth and development*. Chapter 23, Sections 23.1 to 23.3

7. COURSE/MODULE IN ECONOMICS FOR BUSINESS SCHOOLS (MBA, MBL, MDP, AEP, etc)

- *Introduction to economics*. Chapter 1
- *Some basic concepts*. Chapter 2
- *The circular flow of income and spending*. Chapter 3, whole chapter
- *Demand, supply and elasticity*. Chapter 7, 8 and 9 (selected topics)
- *The theory of the firm*. Chapter 11-13 (selected topics)
- *The labour market*. Chapter 14 (selected topics)
- *The monetary sector*. Chapter 15 (selected topics)
- *The public sector*. Chapter 16 (selected topics)
- *The foreign sector*. Chapter 17 (balance of payments and exchange rates)
- *Measuring the performance of the economy*. Chapter 4 (selected topics)
- *The South African economy*. Chapter 5
- *Aggregate demand and supply*. Chapter 20, Section 20.1
- *Inflation*. Chapter 21 (selected topics)
- *Unemployment*. Chapter 22 (selected topics)
- *Economic growth and business cycles*. Chapter 23 (selected topics)

CONTENTS

PREFACE

This fourth edition of *Economics* (*for South African students*) is an updated version of the popular third edition.

As its predecessors, this edition covers the full spectrum of economic issues, while emphasising the institutional features of the South African economy. The latter are presented together with standard economic theory to give students an introduction to economics that they can relate to the world around them. The emphasis is on relevance, but rigour is not sacrificed.

Like most texts, the book contains more material than can be covered comfortably in a year course or two semester modules at universities, universities of technology, business schools or other institutions of higher learning. It is thus up to the lecturers who use the book to decide which parts to emphasise and which to leave out or perhaps cover in second-year courses or modules. To assist with this choice, some suggested course and module outlines are provided. See page iv for more information.

An important feature of the book is the liberal use of practical examples and additional explanations of important concepts and issues, which are presented as boxed text. These increase the topicality and relevance of the text without interrupting the main thread. Review questions have also been added to stimulate discussion and students' interest in the subject.

Plan of the book

The book is divided into four main parts. Part I is a comprehensive introduction to economics, the South African economy and the economic way of thinking. This part of the book is quite long, since it is essential to a sound understanding of the subject and of the economic environment around us. Too often, students start studying economic theory without really knowing what the subject is all about or what the main issues are. Part II focuses on basic microeconomic concepts, topics and issues such as supply, demand, consumer choice, firms' decisions and the labour market. The material is mostly standard, neoclassical theory but it is supplemented by South African data and examples. This part lays the foundation for the discussion in Part III of three major sectors of the economy – the monetary sector, the public sector and the foreign sector. In each case the basic tools of microeconomic analysis developed in Part II are used to explain and analyse certain important issues. At the same time, the student is introduced to the major concepts and variables of macroeconomic analysis. In Part IV those concepts and variables are joined together in a series of macroeconomic models. The advantage is that students are already thoroughly acquainted with all the individual elements by the time they start working with these models. The emphasis in this part is on Keynesian macroeconomics, but the reader is also introduced to a variety of other approaches and to various views on macroeconomic issues such as unemployment, inflation and economic growth.

Each part of the book starts with an introductory page outlining the purpose and content of the chapters in that part, and listing some learning outcomes. Likewise, each chapter starts with an introductory page linking it to the rest of the book and indicating what it is all about. Again we provide some learning outcomes to focus the reader's attention on the essential elements. The most important concepts are listed at the end of each chapter in more or less the order in which they appear in the text and each chapter concludes with some review questions.

The sections, tables, boxes and figures are numbered according to the chapters. For example, Box 2-6 is the sixth box in Chapter 2 and Section 14.2 is the second section of Chapter 14. This numbering system is used to facilitate cross-referencing.

To the student

Courses and modules in economics are typically regarded as being among the most challenging of all those presented at universities, universities of technology, business schools or other tertiary institutions. But studying economics can be fun, provided that you approach it correctly. Economics is not a subject that you can study by simply reading the material or trying to memorise it. Such an approach is bound to fail. You have to try to understand it.

Because students who study economics come from widely varying backgrounds, we have not assumed any prior knowledge of economics in this book. We start from scratch and provide fairly detailed explanations, particularly as far as the most fundamental concepts and theories are concerned. As a result, some of the chapters are quite long. We believe that clear and

detailed explanations are better than more concise explanations that are possibly more difficult to follow. Since it is so important to understand what you are learning, longer may prove to be quicker and easier.

Gary Player, the famous South African golfer, once remarked that "the more I practise, the luckier I get". The same applies in economics. You have to practise, that is, study actively. Always study with a pen or pencil, working through the arguments, drawing the graphs and summarising the main points. This book requires no mathematics beyond simple high school algebra. In fact, the only requirements are a basic knowledge of arithmetic and the ability to solve a simple equation and understand a graph. Those of you who do not have any formal training in mathematics should thus not be alarmed by the symbols, equations and graphs. They are simply shorthand ways of expressing economic variables, relationships and theories. When you use the symbols, equations and graphs, you must always remember what *economic* variables and relationships they represent – this is a book about economics, not about algebra or geometry.

Follow the economics news in the newspapers and on television, and try to relate it to what you are learning. You will be surprised how much you can understand by combining the basic tools of economic analysis with some common sense. Many renowned economists have commented that of all the courses in economics, the introductory course is the most useful.

A textbook is written, first and foremost, for students, not for lecturers. We trust that you will find the book useful and that you will derive some pleasure from using it.

Acknowledgements

We wish to thank Marcel Kohler for his contribution to the revision of Chapter 17, Johan Lötter for assisting with some of the data, Cilliers Swart for perusing the manuscript and Willie le Roux and Thea Uys for comments on various aspects of the book. As usual, Elna van Rensburg did the word-processing, while Yvonne Kemp served as copy editor and proofreader. Thanks are also due to Leanne Martini, Lydia Reid, Daleen Venter, Werner von Gruenewaldt and all their co-workers at Van Schaik Publishers.

PHILIP MOHR
LOUIS FOURIE
September 2007

PART I

Introduction

The purpose of this part of the book is to introduce you to the main issues, concepts and tools of economics. Part I consists of six chapters. Chapter 1 is an introductory chapter which deals with the definition of economics and the way economists think. Chapter 2 takes a closer look at the economic problem by focusing on the three key questions: What? How? and For whom? We outline the potential solutions to these questions and describe the major types of economic system. We also introduce you to three famous economists who are linked to these systems. Interdependence is the subject of Chapter 3. We illustrate and explain the various relationships between households, firms, the government and the rest of the world. Chapter 4 explains how the performance of the economy is measured. The issues dealt with include the measurement of the level of economic activity, unemployment, inflation and the distribution of income. This paves the way for the discussion in Chapter 5 of the major features and problems of the South African economy. We conclude Part I in Chapter 6 with an explanation of some essential concepts and tools which are used in the rest of the book.

Once you have studied Part I you should be able to

- explain what economics is all about
- describe the main elements of the economic problem
- distinguish between different economic systems
- sketch how the various sectors of the mixed economy fit together
- describe how the performance of the economy is measured
- summarise the major features of the South African economy
- explain why we use models in economic analysis
- read and interpret graphs

The most important concepts that you have to master are listed at the end of each chapter.

1 What economics is all about

Learning outcomes

Once you have studied this chapter you should be able to

- explain what economics is all about
- define economics
- explain what the economic problem is
- define the important concept of opportunity cost
- describe a production possibilities curve or frontier
- distinguish between microeconomics and macroeconomics
- distinguish between positive and normative economics
- explain why economics is a social science
- comment on why economists disagree on certain issues
- identify some common mistakes in reasoning about economics

Economics is a study of mankind in the ordinary business of life.

ALFRED MARSHALL

Economics is the art of making the most out of life.

GEORGE BERNARD SHAW

Economics is the only profession in which one can gain great eminence without ever being right.

GEORGE MEANY

In this chapter we introduce you to economics. We first use a number of examples to indicate what economics is all about and we then introduce the important concepts of **scarcity**, **choice** and **opportunity cost**. We explain these concepts with the aid of a **production possibilities curve**. Next we give some important definitions, including various definitions of economics. We explain the difference between **microeconomics** and **macroeconomics**, as well as the difference between **positive** and **normative** economics. This is followed by a brief discussion of the major reasons for the apparent tendency for economists to disagree. The chapter concludes with an explanation of some common mistakes in reasoning about economics.

Fifty years ago economics was not as familiar a term in South Africa as it is today. The political debate was dominated by racial issues. There was no television, and economic journalism was in its infancy. There were few periodicals that dealt with economic issues, and economic matters received little coverage in the newspapers. Students who went to university to study subjects like accounting, statistics and management found that they also had to study economics, but they usually had no idea what the study of economics would entail.

All this has changed. Nowadays everyone has heard about economics and everyone knows that it is important. Economic affairs play an important role in the political debate, and economic issues are reported and analysed every day on television. There are a number of weekly and monthly periodicals, many websites and even some television channels that deal almost exclusively with economic issues. Every newspaper has a large and expanding section which focuses on economic and financial matters. Economics is taught in our schools and many students go to university specifically to study economics.

There is thus a much greater awareness of economic issues today than at any time in the past. But this does not mean that people know what economics is all about. Many people are convinced that economics is only concerned with making money. Some believe that economics is concerned mainly with buying and selling shares on the JSE Securities Exchange. Others think that economics is the study of balance sheets and profit statements. As we shall point out in this book, all these views are extremely narrow and do not capture the essence of what economics is all about.

What then is economics? What is it concerned with? The two definitions of economics quoted on the previous page indicate that it is a wide-ranging discipline. These definitions point to the fact that the subject is concerned with virtually every aspect of human existence.

The following example gives some indication of the wide-ranging nature of economics, and of the types of question and issue that it is concerned with.

Let us take a fictitious character – we shall call him Simon Mokgatle – who lives in Diepkloof. And let us think about some of the decisions that he has to make once he has finished his secondary education. Should he continue with his studies at a residential technical college, university of technology or university, or should he try to find a full-time job? Or should he try to find a job while at the same time continuing his studies through Unisa? If he is going to further his studies, which field of study should he choose? If he decides to try and find a job, what type of job should he apply for? What type of transport should he use to travel to work or lectures: a taxi, a bus or a train? What should he wear when he goes to work or when he attends lectures? If he opts for and finds a job, how should he spend his first pay cheque? If he cannot find a job and cannot afford to study further or obtain a bursary, what should he do? Should he remain in Diepkloof and continue looking for work or should he move to another area or town in pursuit of employment? If he does find a job and also enrols as a student at Unisa, what should he do on a Saturday night – study, watch television or go to the movies?

The list is virtually endless. Simon has to make choices every day of his life. And this is what economics is essentially about. It deals with the **choices** that people have to make – what to eat, what to wear, what career to pursue. The word **economics** is derived from the Greek words *oikos*, meaning house and *némein*, meaning manage. Economics is thus the science of household management and as such is indeed concerned with the ordinary business of life.

But economics is not only concerned with the choices that individuals like Simon Mokgatle have to make. It also studies the decisions of businesses, government and other decision makers in society. Should Toyota expand its production of motorcars? Should Benson & Hedges increase the price of its cigarettes? Or should it rather reduce the price in an attempt to increase sales? Should government spend more on education or on housing? Or should health be a greater priority? And what about safety and security? Should taxes be raised or lowered? Should the government raise more taxes through the value-added tax (VAT) and less through personal income tax? Should more basic necessities carry a zero VAT rate to help the many poor people in South Africa? Or should the government rather subsidise the prices of necessities such as bread and maize, or perhaps even hand out food parcels to the needy?

Like Simon, businesses and government also have to make choices every day. But why are these choices necessary? This brings us to the basic fact of economic life – **scarcity**. Without scarcity it would not be necessary to make choices. Individuals, businesses and government all want to do many things, but the means with which these wants can be met are limited. **Wants** are plentiful – we all want a lot of things – but the **means** are scarce. We therefore have to make **choices** all the time.

The relationship between unlimited wants and scarce resources is so central to economics that most definitions of economics focus almost exclusively on this relationship. A few definitions are listed in Box 1-1.

The definitions in the box are all by authors of well-known introductory economics textbooks. Apart from these definitions and that of Marshall given at the beginning of the chapter, two of the most widely-quoted ones are those of Jacob Viner and Lionel Robbins. Viner (1892–1970), a well-known 20th century American economist, simply stated that "economics is

BOX 1-1 SOME DEFINITIONS OF ECONOMICS

Economics is the study of how our scarce productive resources are used to satisfy human wants.

George Leland Bach

Economics is the study of how individuals and societies choose to use the scarce resources that nature and previous generations have provided.

Karl Case and Ray Fair

Economics is the study of how scarce resources are allocated among various uses.

Richard Eckhaus

Economics is the study of how people allocate their limited resources to provide for their wants.

Jack Harvey

Economics is the study of how individuals and groups of individuals respond to and deal with scarcity.

James Kearl

Economics is the study of the use of scarce resources to satisfy unlimited human wants.

Richard Lipsey

Economics is the study of how society manages its scarce resources.

N Gregory Mankiw

Economics is concerned with the efficient use or management of limited productive resources to achieve maximum satisfaction of human material wants.

Campbell McConnell

Economics is the study of how people use their limited resources to try to satisfy unlimited wants.

Michael Parkin

Economics is the study of how societies use scarce resources to produce valuable commodities and distribute them among different people.

Paul Samuelson

Economics is the study of how individuals, firms, governments and other organizations within our society make choices and how those choices determine how the resources of society are used.

Joseph Stiglitz

what economists do." This is quite a catchy definition, but it is not a particularly useful one.

Lionel Robbins (1898–1984), a prominent 20th century British economist, set the tone for most modern definitions in the 1930s by defining economics as "the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses".

We shall not try to provide yet another definition of economics. It should be obvious that economics has to do with the use of scarce resources to satisfy unlimited wants. The central elements of economics are therefore **scarcity** and **choice**.

Although scarcity and choice lie at its heart, economics is not merely concerned with the types of choice indicated earlier. Economics also seeks to describe, explain, analyse and predict a variety of phenomena such as economic growth, unemployment, inflation, trade between individuals and countries, the prices of different goods and services, poverty, wealth, money, interest rates, exchange rates and business cycles.

Consider the following questions:

- What determines the price of petrol? Why does the petrol price increase from time to time? What are the effects of such increases on individuals, households, businesses, government and society at large?
- What is money? How is it created? How do changes in the amount of money in the country affect the various participants in the economy (households, businesses, etc)?
- What are interest rates? Why are they important? Why are interest rates raised or lowered from time to time? How do such changes affect households, businesses and government?
- What is unemployment? What causes unemployment? What can the government do to reduce unemployment?
- What is inflation? Does inflation have anything to do with unemployment?
- Why has the rand often depreciated sharply against the major international currencies such as the US

dollar and the euro? Why did it appreciate so sharply in 2002?

- What is the difference between capitalism and socialism? And between socialism and communism? Why did communism collapse in Eastern Europe towards the end of the 1980s?
- What is nationalisation? How does it differ from privatisation? Why are some goods and services such as electricity provided by government-owned institutions while other goods and services are provided by privately-owned firms?
- Why did certain East Asian economies expand so rapidly in the 1980s and early 1990s? Why did African economies generally fare badly? Why is South Africa richer than most other African countries?
- Why are certain provinces in South Africa so much richer than others? Why are some South Africans richer than others?
- What are South Africa's economic prospects? Will the country prosper and be able to provide a better life for all? Or will the economy stagnate or decline?

These are just some of the issues that economics is concerned with, and we shall deal with many of these questions in this book.

1.1 Scarcity, choice and opportunity cost

Economics is concerned with scarcity. The basic fact of economic life is that there are simply not enough goods and services to satisfy everyone's wants. Wants are unlimited but the means with which the wants can be satisfied are limited.

Note that **wants** are not the same as **needs** and **demand**:

- **Wants** are human desires for goods and services. Our wants are unlimited – we all want everything. For example, we would all want to own a fully-equipped, fully-serviced luxury villa in each of the ten most beautiful places in the world. As individuals and as a society we always want or desire more or better goods and services. Individuals have biological, spiritual, material, cultural and social wants while people as a group have **collective wants** for things such as law and order, justice and social security.
- **Needs** are necessities, the things that are essential for survival, such as food, water, shelter and clothing. Needs, unlike wants, are not absolutely unlimited. For example, it is possible to calculate the basic needs which have to be met if a person or household is to survive. The Bureau for Market Research at the University of South Africa has worked out what goods and services a household needs in its "shopping basket" every month in order to sustain a minimum living level. What such a "basket" contains gives a good idea of the basic needs of a household.
- **Demand** differs from wants, desires or needs. There is only a demand for a good or service if those who want to purchase it have the necessary means to do so. In other words, demand has to be backed by purchasing power. Demand will be studied in detail in Part II.

Now that we have examined wants, let us see why we say that **resources** are limited. There are three types of resource: natural resources (such as agricultural land, minerals and fishing resources), human resources (such as labour) and man-made resources (such as machines). These resources are the means with which goods and services can be produced. In economics we call these resources **factors of production**. Since the resources are limited, it follows that the goods and services with which we can satisfy our wants are also limited.

All individuals and societies are confronted by the problem of unlimited wants and limited means. They therefore have to make choices.

- Hendrik Mathibela goes to the shop with R5 in his pocket. He wants an ice cream, a cool drink, a chocolate and a packet of chips. But his resources are limited. He cannot buy all the things he wants with the R5. He therefore has to choose what to buy and what to sacrifice.
- It is Saturday night. Anne van der Merwe has to study for an examination on Wednesday. She also wants to watch television, go to the movies and visit her friends. But she cannot do all these things at the same time. She has to choose what to do and what not to do.
- The South African government has, say, R10 billion to spend on new development programmes during a given financial year. It wants to provide houses, jobs, free health services and free education for all needy South Africans. But the resources are limited. The government has to decide what it will do immediately and what will have to be postponed until later years.

In all these cases difficult choices have to be made. Some wants will be satisfied but many will be left unsatisfied. In each case it has to be decided which of the available alternatives will have to be sacrificed.

Economic decisions are all difficult. The fact that we live in a world of scarcity forces us to make difficult choices. When resources are used to produce a certain good, they are not available to produce other goods. A decision to produce more of one good therefore also means that less of another good can be pro-

duced. Similarly, a student who decides to study through Unisa while holding down a job has to sacrifice a lot of other things if he or she is to succeed in obtaining a degree. As the proverb says: "You cannot have your cake and eat it."

Because resources are scarce, the use of resources can never be costless. There are always **costs** involved even if these costs are not always apparent to the consumer of the goods or services in question. To emphasise this point, economists made up a principle, which they call the TANSTAAFL principle. TANSTAAFL is an acronym for "There ain't no such thing as a free lunch." Someone always has to pay. Other opportunities always have to be sacrificed. The main point of this principle is that there are always costs involved in any use of scarce resources.

Because economics deals with scarcity it is not a popular science. More than a century ago Thomas Carlyle called it the "dismal science". "This science," he said, is "not a gay science … no, a dreary, desolate and indeed quite abject and distressing one; what we might call, by way of eminence, the dismal science." The 1950s Russian leader, Nikita Khrushchev, was also fond of reminding us that "economics is a subject that does not greatly respect one's wishes." Because economists frequently have to emphasise scarcity and the need for hard, unpopular decisions, they are generally not a popular group of people. They are frequently the ones who have to bring the bad news. For example, economists often have to remind politicians that many of their well-meant spending programmes are simply not affordable.

Scarcity must not be confused with poverty. Scarcity affects everyone. The rich are also subject to scarcity. Even the richest person on earth will have unsatisfied wants and will have to make economic decisions. For example, no matter how rich you are in terms of money or material wealth, you only have 24 hours a day in which to sleep, eat, work and relax. Everyone has to deal with the fact that time is a limited resource.

Although scarcity is an essential element of the economic problem, the need for decision making only really arises when the scarce resources have to be allocated between competing alternatives. If you have only one goal in life but you do not have sufficient resources to completely achieve that goal, your resources are scarce. However, with only one goal you will not have an economic problem to solve, since you do not have to decide how to allocate your limited resources. This is not a realistic example since no one has only one goal in life, but it does illustrate the importance of choosing between different alternatives in making economic decisions. In our earlier examples, Hendrik Mathibela, Anne van der Merwe and the South African government were all faced with difficult choices between different alternatives. This is what the economic problem is all about.

When we are faced with such a choice we can measure the cost of the alternative we have chosen in terms of the alternatives that we have to sacrifice. This is called **opportunity cost**. When there are only two alternatives, the opportunity cost is quite straightforward. For example, if Anne only has to choose between studying and going to the movies, the opportunity cost of studying would be the visit to the movies that she has to forgo. Likewise, if Hendrik only has to choose between a cool drink and a chocolate, the opportunity cost of the cool drink would be the chocolate which he has to sacrifice (assuming that he cannot afford both). When there are more than two alternatives, the opportunity cost is somewhat more complicated. We then measure the opportunity cost of a particular alternative in terms of the **best** alternative that has to be sacrificed.

The opportunity cost of a choice is the value to the decision maker of the best alternative that could have been chosen but was not chosen. In other words, the opportunity cost of a choice is the value of the best forgone opportunity.

Every time a choice is made, opportunity costs are incurred and economists always measure costs in terms of opportunity costs. For the economist the cost of something is what you have to give up to to get it.

Opportunity cost is one of the most important concepts in economics since it captures the essence of the problems of scarcity and choice. It is also an essential element of the economic way of thinking. Economists do not only consider explicit monetary costs (often called accounting costs). They also consider implicit costs, always asking how the scarce resources could have been used alternatively.

The production possibilities curve

Scarcity, choice and opportunity cost can be illustrated with the aid of a **production possibilities curve**, also called a production possibilities frontier.

Consider an isolated rural community along the Wild Coast whose main foods are potatoes and fish. The people have found that by devoting **all** their available time and other resources to fishing, they can produce 5 baskets of fish per working day. On the other hand, if they spend **all** their production time gardening, they can produce 100 kilograms of potatoes per working day. It is possible for them to produce either 5 baskets of fish or 100 kilograms of potatoes, but in each case the entire production of the other good must be sacrificed.

The only way that the inhabitants can enjoy a diet which includes both fish and potatoes is by using some of their resources for fish production, and some for potato production. Resources must be shifted from one production possibility to produce the other. By experimentation, they find that it is possible for

them to produce any of the combinations shown in Table 1-1. These combinations represent the maximum amounts which can be produced with all the available resources. If the people decide to produce combination E, they will be able to produce 4 baskets of fish and 40 kilograms of potatoes per day. But in producing this combination they have had to decide not to produce more fish or more potatoes. In producing 4 baskets of fish, they have had to forgo the additional 60 kilograms of potatoes which they could have produced if they had used all their resources to grow potatoes. Likewise, in producing 40 kilograms of potatoes they have decided to forgo the extra (5th) basket of fish which they might have produced.

TABLE 1-1 Production possibilities for the Wild Coast community

Possibility	*Fish (baskets per day)*	*Potatoes (kg per day)*
A	0	100
B	1	95
C	2	85
D	3	70
E	4	40
F	5	0

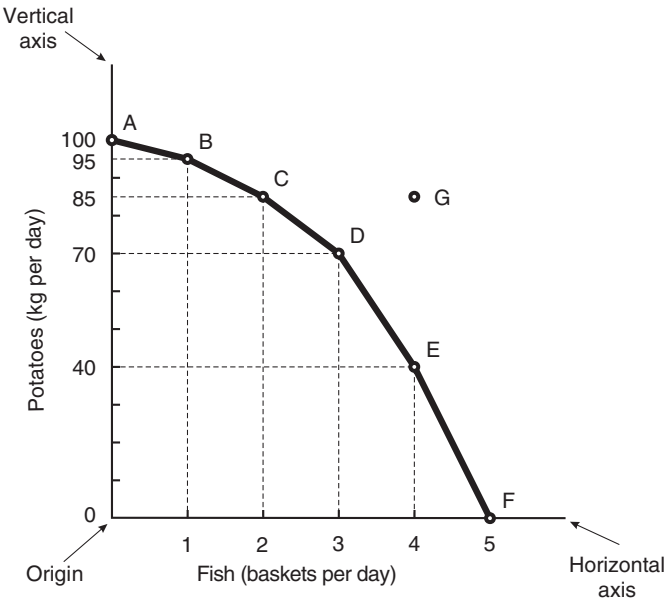
The opportunity cost of producing the 40 kilograms of potatoes is the basket of fish; and the opportunity cost of producing the 4 baskets of fish is 60 kilograms of potatoes that have to be forgone. The community therefore has to choose between more potatoes and less fish or more fish and less potatoes. Given the available resources, it is impossible to produce more of one good without decreasing the production of the other good.

The different alternatives can be illustrated graphically in a **production possibilities curve** as in Figure 1-1. The curve shows the possible levels of output in an economy with limited resources and fixed production techniques. If you find it difficult to understand or "read" Figure 1-1, turn to Chapter 6, where we explain graphs in more detail.

Fish production is measured along the horizontal axis and potato production on the vertical axis. The combinations in the table are represented by points A, B, C, D, E and F in the diagram. Note that we have joined the different points to form a curve. This actually implies that there are also other possible combinations apart from the six that are given in Table 1-1. However, we only focus on these six points.

The production possibilities curve indicates the combinations of any two goods or services that are attainable when the community's resources are fully and efficiently employed.

FIGURE 1-1 A production possibilities curve for the Wild Coast community



The various points on the curve show the combinations of fish and potatoes that can be produced daily with the available resources.

As we move along the production possibilities curve from point A to point B through to point F, the production of fish increases while the production of potatoes decreases. To produce the first basket of fish the community has to sacrifice 5 kilograms of potatoes (from 100 to 95). To produce the second basket of fish the sacrifice is an additional 10 kilograms of potatoes (the difference between 95 and 85). To produce the third basket of fish an additional 15 kilograms of potatoes have to be forgone (the difference between 85 and 70). The **opportunity cost** of each additional basket of fish therefore **increases** as we move along the production possibilities curve. This is why the curve bulges outwards from the origin. In technical terms we say that the curve is **concave** to the origin.

The production possibilities curve is a very useful way of illustrating scarcity, choice and opportunity cost. We go into it in more detail in Chapter 2, but for the time being note the following. **Scarcity** is illustrated by the fact that all points to the right of the curve (such as G) are unattainable. The curve thus forms a frontier or boundary between what is possible and what is not possible. **Choice** is illustrated by the need to choose among the available combinations along the curve. **Opportunity cost** is illustrated by what we refer to as the negative slope of the curve, which means that more of one good can only be obtained by sacrificing the other good. Opportunity cost therefore involves what we call a **trade-off** between the two goods.

The production possibilities curve is the first analytical tool which you encounter in this book. Like all other tools of analysis, it is not necessarily based on a practical situation in a particular economy. However, as we shall explain later, particularly in Chapter 6, such analytical tools (or theories or models) are essential devices for understanding, explaining and predicting what is going on in the world around us. We shall return to the production possibilities curve in Section 2.1.

1.2 Economics as a science

Economics is a social science

Economics is a **science**. Like any other science, economics involves a systematic attempt to discover regular patterns of behaviour. These patterns are used to **explain** what is happening, to **predict** what might happen and to assist policymakers to devise or choose appropriate economic **policies**. Take the petrol price as an example. Economics assists us in **explaining** the level of the petrol price or why it has changed. It helps us to **predict** what the price will be in future or what will happen in the rest of the economy if the petrol price changes. Economics also provides useful information to the authorities who have to decide on a **policy** in respect of the petrol price. The emphasis on **explanation**, **prediction** and **policy** will be a recurrent theme of this book.

Economics is a **social science**. It studies the behaviour of human beings, both individually and as groups. Other social sciences include sociology, social psychology, anthropology and political science. The social sciences are distinguished from the natural sciences like physics, chemistry, botany, astronomy and zoology, which study the natural universe.

So the natural sciences differ from the social sciences in respect of **what** is studied. But there are also differences in respect of **how** it is studied. In many natural sciences it is possible to conduct controlled laboratory experiments. However, this method is generally not available to social scientists. Economists cannot discover regular patterns of behaviour by conducting laboratory experiments, nor can they test their theories in this way. Economists study the behaviour of people in a constantly changing environment. They cannot place people in test-tubes to determine how they will react to any particular change. They cannot hold other things constant while the impact of one particular change is investigated. Economists therefore have to resort to other methods.

Another important difference between economics and a natural science like physics is found in the **nature of their generalisations**. In the natural sciences certain natural laws can be identified. For example, the law of gravity states that when an apple falls from a tree, it will always fall to the ground. But when the price of apples falls, the best an economist can say is that more apples will probably be purchased. This outcome is a very likely outcome and economists are so confident about it that they generally also talk about a law, the Law of Demand, which will be discussed in Chapter 7. But this law is not as absolute or exact as the laws of the natural sciences. It is a **conditional** law which says that the quantity demanded will increase when price falls, **provided all other things remain the same**. This condition, that all other factors remain constant, is called the *ceteris paribus* condition or assumption. *Ceteris paribus* (which is the Latin term for "all things being equal") is the economist's substitute for the natural scientist's controlled laboratory experiments. It is not a perfect substitute but it is the best we can do in our attempt to explain the complex and often unpredictable behaviour of human beings. The *ceteris paribus* condition is an essential part of economic reasoning. You will encounter it at various places in this book.

Economics is an **empirical science**. This means that actual experiences are studied and measured. But measurement is generally also far less precise in economics than in the natural sciences. Particularly in the case of macroeconomics, which involves amounts like total spending, income and production, measurement can only be approximate. Nevertheless, we have

to measure things in economics. The measurement of the performance of the economy will be explained in Chapter 4.

Microeconomics and macroeconomics

The study of economics is usually divided into two parts: microeconomics and macroeconomics. In **microeconomics** the focus is on individual parts of the economy. The prefix "micro" comes from the Greek *mikros* meaning small. In microeconomics the decisions or functioning of decision makers such as individual consumers, households, firms or other organisations are considered in isolation from the rest of the economy. The individual elements of the economy are, figuratively speaking, each put under the microscope and examined in detail. Examples include the study of the decisions of individual households (what to do, what to buy, etc) and of individual firms (what goods to produce, how to produce them, what prices to charge etc). It also includes the study of the demand, supply and prices of individual goods and services like petrol, maize, haircuts and medical services. You will study microeconomics in Part II of this book.

Macroeconomics is concerned with the economy as a whole. The prefix "macro" comes from the Greek word *makros* meaning large. In macroeconomics we focus on the "big picture." We develop an overall view of the economic system and we study total or aggregate economic behaviour. The emphasis is on topics such as total production, income and expenditure, economic growth, aggregate unemployment, the general price level, inflation and the balance of payments. Macroeconomics is therefore the world of totals. You will study macroeconomics in Part IV of this book.

Further examples of the distinction between microeconomics and macroeconomics are provided in Box 1-2.

Thus, while microeconomics studies the operation of the economy at the level where the basic decisions are taken, macroeconomics focuses on aggregate economic behaviour and the aggregate performance of the economy.

The distinction between microeconomics and macroeconomics is not watertight. There are many overlaps. What happens at the individual (micro) level affects the overall (macro) performance of the economy and vice versa. The difficulties that are sometimes experienced in distinguishing between micro-

BOX 1-2 MICROECONOMICS VERSUS MACROECONOMICS: SOME EXAMPLES

In microeconomics we study	In macroeconomics we study
The price of a single product	The consumer price index
Changes in the price of a product, like tomatoes	Inflation (ie the increase in the general level of prices in the country)
The production of maize	The total output of all goods and services in the economy
The decisions of individual consumers, like Simon Mokgatle or Anne van der Merwe	The combined outcome of the decisions of all consumers in the country
The decisions of individual firms or businesses, like a shop or factory	The combined decisions of all firms in South Africa
The market for individual goods, like bananas	The market for all goods and services in the economy
The demand for a product, like maize	The total demand for all goods and services in the economy
An individual's decision whether or not to work	The total supply of labour in the economy
A firm's decision whether or not to expand its production of, say, motorcars	Changes in the total supply of goods and services in the economy
A firm's decision to export its product	The total exports of goods and services to other countries
A firm's decision to import a product from abroad	The total imports of goods and services from other countries

economics and macroeconomics have given rise to the creation of an "in-between" level called **mesoeconomics**.

The term mesoeconomics is not used very often. We shall stick to the conventional distinction between microeconomics (which is the subject of Part II) and macroeconomics (which is dealt with in Part IV). As we progress, you will realise, however, that the dividing line is often somewhat vague or artificial. This will be particularly evident in Part III which examines three important sectors of the economy at the micro and macro levels. Nevertheless, the distinction between microeconomics and macroeconomics is very useful in our attempt to understand, explain and predict economic events and to examine economic policy.

Positive and normative economics

Another important distinction is between positive and normative economics. A **positive statement** is an objective statement of fact. A **normative statement** involves an opinion or value judgement. Consider the following examples:

- Kaizer Chiefs won the Supa 8 in 2006.
- Jacob Zuma was the South African Newsmaker of the Year in 2006.
- Tiger Woods won the US Open in 2006.
- In 2006 the average South African inflation rate, based on the consumer price index, was 6,0 per cent.
- The rand appreciated against the euro in 2006.
- Bafana Bafana can play much better than they did against Swaziland on 13 March 2007.
- Economic policy in South Africa should be primarily aimed at reducing unemployment.
- Ernie Els is a better golfer than Retief Goosen.
- *One flew over the cuckoo's nest* is one of the best movies ever made.
- The South African inflation rate is too high.

The first five are positive statements. The last five are normative statements which involve opinions or value judgements. Positive statements can be proved or disproved by comparing them with the facts. Normative issues can be debated but they can never be settled by science or by an appeal to facts.

Statements which include words like "should", "ought", "desirable" and "must" are all normative statements. But not all normative statements contain these words. Consider the following two examples:

- Capitalism exploits workers.
- Poverty is the direct result of the apartheid system.

Both these statements might sound like positive statements but they are in fact normative statements. Both contain value judgements and neither of them can be proved or disproved objectively. This can be very frustrating. We always want definite answers to questions, but we simply have to accept that economics can never be a value-free science. Economics deals with people, their hopes, fears and ambitions. Human behaviour can never be analysed totally objectively and policy always involves judgement. Values, faith, belief, conviction, prejudice and ideology are therefore frequently decisive in economic matters. This helps to explain why economists often disagree on certain important issues.

Why economists disagree

Economists are notorious for their tendency to differ on important issues. This prompted George Bernard Shaw to state that if all the economists in the world were laid end to end, they would reach no conclusion. Likewise, Arthur Motley claimed that if the nation's economists were laid end to end, they would point in all directions! Roberto Alazar also once said that economics is the only field in which two people can share a Nobel prize for saying opposing things! Winston Churchill is reported to have stated, when he was the British Chancellor of the Exchequer, that whenever he asked England's six leading economists a question, he got seven answers – two from Mr Keynes! The fact that Keynes reputedly submitted two answers is also not surprising. Economists are often unwilling to commit themselves to a single answer. Ask an economist a question and you will usually receive more than one answer: "On the one hand … but on the other hand …". That is why it is often jokingly said that one-handed economists are in great demand!

Why do economists tend to disagree on certain important issues?

- **They might make different value judgements**. As explained above, many economic issues involve value judgements. Thus even when economists agree on the facts, they may differ because they have different views about what **ought** to be. For example, two economists who agree that a government subsidy on bread will lower the cost to the consumer, might disagree about whether there ought to be such a subsidy.
- **They might not agree on the facts**. As will be explained in Chapter 4, measurement in economics is often only approximate. Moreover, it takes time to compile data on the performance of the economy. There is therefore always some uncertainty about the actual performance of the economy at any particular time.
- **They might be biased**. Economists are human beings and like all other human beings they might find it difficult to be completely objective. They might be forced to reach conclusions that serve the

interests of their employers. For example, an economist who is employed by government will find it difficult to be critical of government policy. Likewise, economists who are employed by private companies could face dismissal or could sacrifice promotion if they make public statements about economic issues that are not in their employers' interests.

- **They might hold different views about how the economy operates**. Many economic issues are complex, particularly at the macroeconomic level. Even if economists are in a position to be as objective as possible, they might still hold different views about how the various parts of the economy fit together or about the speed with which certain parts react to changing circumstances.
- **They might have different time perspectives**. Some economists may be more concerned with short-term prospects while others might tend to focus on the long run. This might lead to different conclusions.

There is a well-known story about a person who visited her economics professor thirty years after she had left university. Seeing an examination paper on the professor's desk, she commented that the questions were still the same as thirty years before. "Quite true," came the reply, "but the answers are different!" Although this might be somewhat far-fetched, it is not completely ridiculous. As circumstances change, new explanations are often needed. Economists are therefore often forced to change their minds about important issues. Those who do will then differ from those who stick to their previously held views. We have already referred to John Maynard Keynes, a famous 20th century British economist. He often changed his mind on important policy issues when circumstances or the nature of problems changed. This made him unpopular in certain circles. He reacted as follows: "I seem to see the elder parrots sitting around and saying 'You can rely upon us. Every day for 30 years, regardless of the weather, we have said "What a lovely morning!". But this [Keynes] is a bad bird. He says one thing one day and something else the next'."[1] In a similar vein he once told a critic: "If the facts change, I change my mind. What do you do, sir?"

Nevertheless, economists agree on many issues. This agreement is particularly obvious when economists talk to non-economists. Any experienced economist will be able to provide many examples of how economists of different persuasions will tend to agree with one another when discussing economic issues with politicians, business people, lawyers, accountants, engineers, mathematicians and other non-economists. The reason is that the economists have all been trained in the economic way of thinking, while the other people have not. Let us now take a look at this "economic way of thinking".

1.3 Some common mistakes in reasoning about economic issues

The economic way of thinking

Many people think that economics is a difficult subject. The main reason for this opinion is that economics has a language of its own. People who do not understand the terms that economists use tend to believe that economics is difficult.

Other people maintain that economics is easy, since much of it is simply common sense. As indicated in the introduction to this chapter, economics deals with a number of very ordinary issues. Much of it is indeed common sense. But it is **structured** common sense. It is a **way of thinking** about everyday issues. As John Maynard Keynes once put it:

> The theory of economics does not furnish a body of settled conclusions immediately applicable to policy. It is a method rather than a doctrine, an apparatus of the mind, a technique of thinking which helps its possessor to draw correct conclusions.[2]

Likewise, Milton Friedman, an American economist who won the Nobel Prize in 1976 (and who belongs to a totally different school of thought than Keynes), has also emphasised that economics is a way of reasoning, of thinking about problems.

Unfortunately the economic way of thinking does not come easily to people who have not been trained in or exposed to economics. In the remainder of this section we indicate some of the common mistakes non-economists make when reasoning about economic issues. Even economists fall into one or more of these traps from time to time.

The blinkered approach (or biased thinking)

Any particular individual looks at the world from his or her own vantage point. In other words, we all look at reality through different eyes. Those who are not trained to recognise the various interrelationships in the economy tend to make highly simplified and biased diagnoses of economic issues. They also often propose very simple solutions to the country's economic problems.

In the late 1970s a lecturer in engineering at the University of Stellenbosch wrote a letter to *Die Burger* in which he diagnosed South Africa's economic prob-

1. Quoted by Lord Kaldor in Thirlwall, AP (Ed). 1982. *Keynes as a policy adviser*. London: Macmillan, 17.

2. Keynes, JM. 1923. Introduction. In Robertson, DH, *The control of industry*. New York: Macmillan, vii.

lems and offered easy solutions. According to him there were only two major causes of the problems: engineers were being paid too little compared with other workers and personal income tax rates were too high. The solutions were therefore simple – pay engineers more and reduce personal income tax. This is a typical example of blinkered reasoning. Here we had a tax-paying engineer looking at the economy from his particular vantage point and proposing a solution that suited him personally.

This tendency to produce oversimplified and biased diagnoses and policy prescriptions is not restricted to the engineering fraternity – although they are notorious among economists for their lack of economic understanding (along with accountants and medical practitioners). Most non-economists tend to come up with simple explanations and proposals based on their own particular experience or interests. In other words, there is a tendency to provide the One Big Explanation. Some politicians, for example, argue that most of South Africa's economic problems can be traced to the policy of apartheid. Others again argue that South Africa's economic problems started when the apartheid system came under pressure, pointing out that there was rapid growth and economic stability during the heyday of apartheid. Workers tend to blame big business for our economic woes, while some businessmen regard trade union pressure for higher wages as the major cause of South Africa's poor economic performance. The list is almost endless.

Ask anyone to explain an economic problem like inflation or unemployment and you will usually get a simple explanation and a simple solution which can be traced to that person's personal circumstances. Few people are trained to step outside their own circumstances when looking at economic problems and even fewer are honest enough to admit that they might be part of the problem. In fact, even economists find it difficult (if not impossible) to be completely objective in their analyses of real-world economic problems.

Fallacy of composition[3]

A second, related mistake often made in reasoning about economic issues is to assume that the whole is always equal to the sum of the parts. This is called the **fallacy of composition**. Something that is true for the single case (or a part of the object being studied) is not necessarily true for the whole.

Have you ever seen a spectator seated in the stands at a soccer match suddenly stand up to get a better view of the action? If one person does it, he or she might see better. But if all the spectators stand up at the same time, nobody will see any better than they would have if everybody had remained seated in the first place. In fact, the short ones will probably have a worse view.

Likewise, if a farmer – let us call him Walter Pitso – increases his production of tomatoes while the production of the other farmers remains the same, he can be fairly sure of an increased income. But if all farmers follow Walter's example, their total income as well as their individual incomes may decline as a result of an oversupply of tomatoes and a fall in the price of tomatoes. This will be explained in Part II.

One person can withdraw money from a bank without causing any problems. But if most of the bank's clients withdraw their deposits, the bank could collapse. Similarly, one worker or group of workers could benefit by obtaining a wage increase. But if the wages of all workers in the economy are increased, the result could simply be inflation. This would leave no one better off than before. In fact, they could perhaps even be worse off.

Another example is the paradox of thrift. One household could benefit by saving more, but if all households save more, everyone may end up in a worse position than before. If saving increases, spending decreases. With lower levels of spending there will be lower levels of production and income. Ultimately, all households may therefore end up with less income to save than before. This paradox will be explained in Part IV.

The fallacy of composition often occurs in reasoning about macroeconomic issues because people tend to generalise from their own experience as individuals when trying to explain the operation of the economy as a whole.

Post hoc ergo propter hoc

Post hoc ergo propter hoc is a Latin phrase meaning "after this, therefore because of this". When two events follow each other closely in time, people often assume that the second event is the consequence of the first. In other words, the first event is regarded as the cause of the second event. This is called the *post hoc ergo propter hoc* fallacy or *post hoc* fallacy for short.

For example, in a South American village there is a witchdoctor who puts on a green costume each year just before the rainy season and then dances through the village. A few weeks later the trees and the grass turn green. Was this because of the witchdoctor's dance? Obviously not. Likewise, the fact that the rooster crows before dawn does not mean that the rooster is responsible for the sunrise.

A certain group of economists – the monetarists – attribute inflation to earlier increases in the money supply. They justify their position by pointing to observations about increases in the money supply and subsequent increases in prices. Two British researchers, Llewellyn and Witcomb, have found, however, that there was a stronger correlation

3. Note that when an argument is branded as a fallacy or error of logic, it does not imply that the argument is necessarily incorrect – it merely means that it is not necessarily correct.

between the incidence of dysentery (a stomach infection) in Scotland and the inflation rate in the United Kingdom one year later than between increases in the money supply and the subsequent price increases. Using the monetarists' line of argument it could therefore be concluded that Scottish dysentery (and not increases in the money supply) was the real cause of inflation in the United Kingdom!

We are often tempted to say: "Look what happened after that event occurred last time!" But the trouble is that there are so many things at work all the time. Therefore, unless you know more about a situation apart from the fact that one thing **followed** the other, you really cannot conclude anything. Always be extremely careful not to fall into the *post hoc ergo propter hoc* trap.

Correlation and causation

The *post hoc* fallacy is a specific example of the more general confusion between correlation and causation. If two events occur together or tend to follow one another, it does not necessarily follow that the one is the cause of the other. In other words, correlation does not imply causation.

It is sometimes stated, for example, that bowls is the most dangerous sport in the world since more people die on bowling greens than on any other sports fields. This is of course a nonsensical argument. Bowls is a very safe sport. It is quite true that many people die on bowling greens. But this is simply because so many elderly people play bowls.

Likewise, it can be claimed that Tab, Coca-Cola Light or any other diet cool drink makes one put on weight. Why? Because most people who drink these beverages are overweight. This is again a fallacy. Many people drink sugar-free or diet drinks in an attempt to lose weight.

The following is a famous example. It has been established that there is a positive correlation between the number of babies born in various cities in northwestern Europe and the number of storks' nests in those cities. Does this mean that storks really do bring babies? No, cities with larger populations (and more babies) tend to have more houses, which offer storks more chimneys on which to build their nests.

There is also a positive correlation between shoe sizes and the mathematical ability of school children. What does this mean? It only means that older children, with bigger feet, can do more mathematics than younger, smaller children with smaller feet. This example shows how one can go wrong by focusing on one thing (shoe size) while ignoring other more important things (like age).

A statistical correlation between two variables does not prove that one has caused the other or that the variables have anything to do with each other. For causation to be established there must be a logical theory explaining the effect of one variable on the other.

Levels and rates of change

Many people mistakenly believe that economics is only about numbers. Economics is an empirical science and economists often use numbers. But they use them only to illustrate principles or to quantify or analyse those things that can be expressed in numbers.

When dealing with numbers you must be very careful. One of the most common mistakes is to confuse **levels** with **rates of change**. The following examples illustrate the importance of distinguishing between levels and rates of change.

- We often read or hear that "the latest consumer price index is 10 per cent." As we shall explain in Chapters 4 and 21, the consumer price index measures the **level** of prices in the country. We then calculate the **rate of change** of that level to determine the inflation rate. The statement should therefore read: "the latest **rate of increase** in consumer prices is 10 per cent" or "the latest inflation **rate** is 10 per cent." This example illustrates the fact that people often confuse the level of prices with the rate of increase in prices. In other words, people tend to confuse high prices with rapidly increasing prices. Moreover, when they hear that the inflation rate has declined, they often mistakenly think that it means that prices have fallen when, in fact, prices are still increasing, but at a slower rate than before.
- The average level of wages of black workers in South Africa is still significantly lower than the average wages of white workers. But during the past three decades wages of black workers have on average increased much faster than white workers' wages. It is thus possible for a variable (such as the wages of black workers) to be at a relatively low level even after increasing at a high rate. The base from which a rate is calculated should always be taken into account. See Box 1-3.
- Industrialised countries, such as the United States, Japan, Switzerland and Germany, have higher levels of income per person than developing countries such as Malaysia, Korea, Chile and Brazil. But incomes in the latter countries grew much faster than in the former in recent decades. In fact, Botswana had the highest growth rate in the world during the 1970s and 1980s. But Botswana is still not a rich country. Why? Because the growth in Botswana started from a very low base. In the 1960s Botswana was one of the poorest countries in the world. Since then the economy has grown rapidly but the actual level of production and income in Botswana is still low compared to the richer countries of the world.

BOX 1-3 LEVELS AND RATES OF INCREASE: SOME NUMERICAL EXAMPLES

Rates of increase are usually expressed as percentages. For example, if the consumer price index increases from 200 to 220, the rate of increase is 10 per cent. This is calculated by expressing the difference of 20 (ie 220 minus 200) as a fraction of the original level (200) and multiplying the result by 100.

In other words, the percentage increase from 200 to 220

$$= \frac{220 - 200}{200} \times \frac{100}{1}$$
$$= \frac{20}{200} \times \frac{100}{1}$$
$$= \frac{2\,000}{200}$$
$$= 10$$

A large percentage of a low number is still a low number. On the other hand, a small percentage of a large number can be quite large. For example, 50 per cent of 300 is equal to 1 per cent of 15 000:

$$50\% \text{ of } 300 = \frac{50}{100} \times \frac{300}{1} = \frac{15\,000}{100} = 150$$
$$1\% \text{ of } 15\,000 = \frac{1}{100} \times \frac{15\,000}{1} = \frac{15\,000}{100} = 150$$

Thus if John earns R300 per month while Harry earns R15 000 per month, a 50 per cent increase in John's monthly earnings will be required to match a 1 per cent increase in Harry's monthly earnings.

Likewise, 20 per cent of 100 is less than 5 per cent of 500. It is therefore extremely important to distinguish carefully between levels and percentages or rates.

As we proceed we shall provide more examples of the need to distinguish carefully between levels and rates of change.

There are many other examples of mistaken reasoning. Most of them are not confined to economics. They are mistakes that people often make in reasoning about a wide variety of issues. But they are mistakes and we always have to be careful of falling into one or more of these traps. Economics, like any other science, calls for disciplined, structured and logically correct reasoning.

IMPORTANT CONCEPTS

Wants and needs
Means or resources
Scarcity (unlimited wants and limited resources)
Choice
Opportunity cost (or trade-off)
Production possibilities curve
Social science (versus natural science)
Ceteris paribus
Microeconomics
Macroeconomics
Positive economics
Normative economics
Biased thinking
Fallacy of composition
Post hoc ergo propter hoc
Correlation and causation
Levels versus rates of change

REVIEW QUESTIONS

1. Use everyday examples to illustrate the relationship between scarcity, choice and opportunity cost.
2. Construct your own version of a production possibilities curve (or frontier) and use it to explain scarcity, choice and opportunity cost.
3. Give two examples of microeconomic problems in South Africa today as well as two examples of pressing macroeconomic problems.
4. Give three examples of positive statements about the economy, and three examples of normative ones.
5. Use the principle of opportunity cost to explain:
   (a) why students watch more TV the week after the examinations than the week before the examinations.
   (b) why a self-employed person plays more rounds of golf per week while on holiday than during the rest of the year.
   (c) why Ernie Els does not tend to his own garden (at Herolds Bay, Wentworth or in Florida), even if he can perhaps do it better and faster than anyone else.
6. "The fact that economists often disagree proves that economics is not a science." Do you agree with this statement? Explain your viewpoint.
7. "The fact that the South Korean economy has grown rapidly since the Korean War (in the early 1950s) implies that South Korea is one of the richest countries in the world today." Do you agree? Explain your view.