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N. Gregory Mankiw **Mark P. Taylor**

Economics



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PREFACE

The third edition of *Economics* has a different look to the previous two editions. Feedback from users, both students and instructors, has resulted in some reorganization of the material and some new sections covering more depth in both micro- and macroeconomic issues. Readers should note that this edition adapts Greg Mankiw's best-selling US undergraduate *Economics* text to reflect the needs of students and instructors in the UK and European market. As each new edition is written, the adaptation evolves and develops an identity distinct from the original US edition on which it is based.

We have tried to retain the lively, engaging writing style and to continue to have the novice economics student in mind. Economics touches every aspect of our lives and the fundamental concepts which are introduced can be applied across a whole range of life experiences. 'Economics is a study of mankind in the ordinary business of life.' So wrote Alfred Marshall, the great 19th-century British economist, in his textbook, *Principles of Economics*. As you work through the contents of this book you would be well advised to remember this.

Whilst the news might focus on the world of banking and finance, tax and government policy, economics provides much more than a window on these worlds. It provides an understanding of decision making and the process of decision making across so many different aspects of life. You may be considering travelling abroad, for example, and are shocked at the price you have to pay for injections against tropical diseases. Should you decide to try and do without the injections? Whilst the amount of money you are expected to give up seems high, it is a small price to pay when you consider the trade-off – the potential cost to you and your family of contracting a serious disease. This is as much economics as monetary policy decisions about interest rates and firm's decisions on investment.

Welcome to the wonderful world of economics – learn to think like an economist and a whole new world will open up to you.

Maths for Mankiw Taylor Economics is available for purchase as a supplementary resource carefully explaining and teaching the maths concepts and formulae underlying many of the key chapter topics.

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PART 1

INTRODUCTION TO

ECONOMICS

1 TEN PRINCIPLES OF ECONOMICS

WHAT IS ECONOMICS?

The word *economy* comes from the Greek word *oikonomos*, which means 'one who manages a household'. At first, this origin might seem peculiar. But, in fact, households and economies have much in common.

A household faces many decisions. It must decide which members of the household do which tasks and what each member gets in return: Who cooks dinner? Who does the laundry? Who gets the extra slice of cake at tea time? Who chooses what TV programme to watch? In short, the household must allocate its scarce resources among its various members, taking into account each member's abilities, efforts and desires.

Like a household, a society faces many decisions. A society must decide what jobs will be done and who will do them. It needs some people to grow food, other people to make clothing and still others to design computer software. Once society has allocated people (as well as land, buildings and machines) to various jobs, it must also allocate the output of goods and services that they produce. It must decide who will eat caviar and who will eat potatoes. It must decide who will drive a Mercedes and who will take the bus.

The Economic Problem

These decisions can be summarized as representing the economic problem. There are three questions that any society has to face:

- What goods and services should be produced?
- How should these goods and services be produced?
- Who should get the goods and services that have been produced?

The answer to these questions would be simple if resources were so plentiful that society could produce everything any of its citizens could ever want, but this is not the case. Society will never have enough

resources to produce the goods and services which will satisfy the wants and needs of its citizens. These resources can be broadly classified into three categories:

- **Land** – all the natural resources of the earth. This includes things like mineral deposits such as iron ore, gold and copper, fish in the sea, coal and all the food products that land yields. David Ricardo (1817) in his book *On the Principles of Political Economy and Taxation* referred to land as the ‘original and indestructible powers of the soil’.
- **Labour** – the human effort both mental and physical that goes in to production. A worker in a factory producing precision tools, an investment banker, a road sweeper, a teacher – these are all forms of labour.
- **Capital** – the equipment and structures used to produce goods and services. Capital goods include machinery in factories, buildings, tractors, computers, cooking ovens – anything where the good is not used for its own sake but for the contribution it makes to production.

land all the natural resources of the earth

labour the human effort both mental and physical that goes in to production

capital the equipment and structures used to produce goods and services

Scarcity and Choice

What resources society does have need to be managed. The management of society’s resources is important because resources are scarce. **Scarcity** means that society has limited resources and therefore cannot produce all the goods and services people wish to have. Just as a household cannot give every member everything he or she wants, a society cannot give every individual the highest standard of living to which he or she might aspire.

Economics is the study of how society manages its scarce resources and attempts to answer the three key questions we noted above. In most societies, resources are allocated through the combined actions of millions of households and firms through a system of markets. Economists:

- Study how people make decisions: how much they work, what they buy, how much they save and how they invest their savings.
- Study how people interact with one another. For instance, they examine how the multitude of buyers and sellers of a good together determine the price at which the good is sold and the quantity that is sold.
- Analyse forces and trends that affect the economy as a whole, including the growth in average income, the fraction of the population that cannot find work and the rate at which prices are rising.

scarcity the limited nature of society’s resources

economics the study of how society manages its scarce resources

Although the study of economics has many facets, the field is unified by several central ideas. In the rest of this chapter we look at the *Ten Principles of Economics*. Don’t worry if you don’t understand them all at first, or if you don’t find them completely convincing. In the coming chapters we will explore these ideas more fully. The ten principles are introduced here just to give you an overview of what economics is all about. You can think of this chapter as a ‘preview of coming attractions’.

HOW PEOPLE MAKE DECISIONS

There is no mystery to what an ‘economy’ is. Whether we are talking about the economy of a group of countries such as the European Union (EU), or the economy of one particular country, such as India, or of the whole world, an economy is just a group of people interacting with one another as they go about their lives. **The economy** refers to all the production and exchange activities that take place every day – all the buying and selling. The level of **economic activity** is how much buying and selling goes on in the economy over a period of time.

the economy all the production and exchange activities that take place every day
economic activity how much buying and selling goes on in the economy over a period of time

Because the behaviour of an economy reflects the behaviour of the individuals who make up the economy, we start our study of economics with four principles of individual decision making.

Principle 1: People Face Trade-offs

The first lesson about making decisions is summarized in an adage popular with economists: ‘There is no such thing as a free lunch.’ To get one thing that we like, we usually have to give up another thing that we also like. Making decisions requires trading off the benefits of one goal against those of another.

Consider a student who must decide how to allocate her most valuable resource – her time. She can spend all of her time studying economics which will bring benefits such as a better class of degree; she can spend all her time enjoying leisure activities which yield different benefits; or she can divide her time between the two. For every hour she studies, she gives up an hour she could have devoted to spending time in the gym, riding a bicycle, watching TV, napping or working at her part-time job for some extra spending money.

Consider parents deciding how to spend their family income. They can buy food, clothing or a family holiday. Or they can save some of the family income for retirement or perhaps to help the children buy a house or a flat when they are grown up. When they choose to spend an extra euro on one of these goods, they have one less euro to spend on some other good.

When people are grouped into societies, they face different kinds of trade-offs. The classic trade-off is between spending on defence and spending on food. The more we spend on national defence to protect our country from foreign aggressors, the less we can spend on consumer goods to raise our standard of living at home. Also important in modern society is the trade-off between a clean environment and a high level of income. Laws that require firms to reduce pollution raise the cost of producing goods and services. Because of the higher costs, these firms end up earning smaller profits, paying lower wages, charging higher prices, or some combination of these three. Thus, while pollution regulations give us the benefit of a cleaner environment and the improved levels of health that come with it, they have the cost of reducing the incomes of the firms’ owners, workers and customers.

Another trade-off society faces is between efficiency and equity. Efficiency means that society is getting the most it can (depending how this is defined) from its scarce resources. **Equity** means that the benefits of those resources are distributed fairly among society’s members. In other words, efficiency refers to the size of the economic cake, and equity refers to how the cake is divided. Often, when government policies are being designed, these two goals conflict.

equity – the property of distributing economic prosperity fairly among the members of society

Consider, for instance, policies aimed at achieving a more equal distribution of economic well-being. Some of these policies, such as the social security system or unemployment insurance, try to help those members of society who are most in need. Others, such as income tax, ask the financially successful to contribute more than others to support government spending. Although these policies have the benefit of achieving greater equity, they have a cost in terms of reduced efficiency. When the government redistributes income from the rich to the poor, it reduces the reward for working hard; as a result, people work less and produce fewer goods and services. In other words, when the government tries to cut the economic cake into more equal slices, the cake gets smaller.

Recognizing that people face trade-offs does not by itself tell us what decisions they will or should make. A student should not abandon the study of economics just because doing so would increase the time available for leisure. Society should not stop protecting the environment just because environmental regulations reduce our material standard of living. The poor should not be ignored just because helping

them distorts work incentives. Nevertheless, acknowledging life's trade-offs is important because people are likely to make good decisions only if they understand the options that they have available.

A typical supermarket shelf offering a variety of cereals. What are the trade-offs an individual faces in this situation?



SELF TEST Does the adage 'there is no such thing as a free lunch' simply refer to the fact that someone has to have paid for the lunch to be provided and served? Or does the recipient of the 'free lunch' also incur a cost?

Principle 2: The Cost of Something is What You Give Up to Get It

Because people face trade-offs, making decisions requires comparing the costs and benefits of alternative courses of action. In many cases, however, the cost of some action is not as obvious as it might first appear.

Consider, for example, the decision whether to go to university. The benefit is intellectual enrichment and a lifetime of better job opportunities. But what is the cost? To answer this question, you might be tempted to add up the money you spend on tuition fees, books, room and board. Yet this total does not truly represent what you give up to spend a year at university.

The first problem with this answer is that it includes some things that are not really costs of going to university. Even if you decided to leave full-time education, you would still need a place to sleep and food to eat. Room and board are part of the costs of higher education only to the extent that they might be more expensive at university than elsewhere. Indeed, the cost of room and board at your university might be less than the rent and food expenses that you would pay living on your own. In this case, the savings on room and board are actually a benefit of going to university.

The second problem with this calculation of costs is that it ignores the largest cost of a university education – your time. When you spend a year listening to lectures, reading textbooks and writing essays, you cannot spend that time working at a job. For most students, the wages given up to attend university are the largest single cost of their higher education.

The **opportunity cost** of an item is what you give up to get that item. When making any decision, such as whether to go to university, decision makers should be aware of the opportunity costs that accompany each possible action. In fact, they usually are. University-age rugby, basketball or golf players who can earn large sums of money if they opt out of higher education and play professional sport are well aware that their opportunity cost of going to university is very high. It is not surprising that they often decide that the benefit is not worth the cost.

opportunity cost – whatever must be given up to obtain some item; the value of the benefits foregone (sacrificed)

SELF TEST Assume the following costs are incurred by a student over a three-year course at a university:

- Tuition fees at €9,000 per year = €27,000
- Accommodation, based on an average cost of €4,500 a year = €13,500
- Opportunity cost based on average earnings foregone of €15,000 per year = €45,000
- Total cost = €85,500

● Given this relatively large cost why does anyone want to go to university?

Principle 3: Rational People Think at the Margin

Decisions in life are rarely straightforward and usually involve problems. At dinner time, the decision you face is not between fasting or eating as much as you can, but whether to take that extra serving of pizza. When examinations roll around, your decision is not between completely failing them or studying 24 hours a day, but whether to spend an extra hour revising your notes instead of watching TV. Economists use the term **marginal changes** to describe small incremental adjustments to an existing plan of action. Keep in mind that 'margin' means 'edge', so marginal changes are adjustments around the edges of what you are doing.

marginal changes small incremental adjustments to a plan of action

In many situations, people make the best decisions by thinking at the margin. Suppose, for instance, that you were considering whether to study for a Master's degree having completed your undergraduate studies. To make this decision, you need to know the additional benefits that an extra year in education would offer (higher wages throughout your life and the sheer joy of learning) and the additional costs that you would incur (another year of tuition fees and another year of foregone wages). By comparing these *marginal benefits* and *marginal costs*, you can evaluate whether the extra year is worthwhile.

Individuals and firms can make better decisions by thinking at the margin. A rational decision maker takes an action if and only if the marginal benefit of the action exceeds the marginal cost.

Principle 4: People Respond to Incentives

Because people make decisions by comparing costs and benefits, their behaviour may change when the costs or benefits change. That is, people respond to incentives. When the price of an apple rises, for instance, people decide to eat more pears and fewer apples because the cost of buying an apple is higher. At the same time, apple farmers decide to hire more workers and harvest more apples, because the benefit of selling an apple is also higher. As we shall see, the effect of price on the behaviour of buyers and sellers in a market – in this case, the market for apples – is crucial for understanding how the economy works.

Public policymakers should never forget about incentives, because many policies change the costs or benefits that people face and, therefore, alter behaviour. A tax on petrol, for instance, encourages people to drive smaller, more fuel efficient cars. It also encourages people to switch and use public transport rather than drive, or to move closer to where they work. When policymakers fail to consider how their policies affect incentives, they often end up with results they did not intend. For example, the UK government provided tax relief on business premises that were not being used as an incentive to the owners to find new uses or owners for the buildings. The government decided to remove the tax relief and suggested that in doing so there would now be an incentive for owners of premises to get them back into use as quickly as possible so that they avoided losing the tax relief. Unfortunately, as the new policy came into being the economy was going through a severe recession. It was not easy for owners of premises to find new tenants let alone get new businesses created in these empty properties. Some property owners decided that rather than have to pay tax on these properties it was cheaper to demolish them. Is this the outcome the government wanted? Almost certainly not.

This is an example of the general principle that people respond to incentives. Many incentives that economists study are straightforward and others more complex. No one is surprised, for example, that people might switch to driving smaller cars where petrol taxes and thus the price of fuel is relatively high.

Yet, as the example of the removal of tax allowances on empty business premises shows, policies can have effects that are not obvious in advance. When analysing any policy, we must consider not only the direct effects but also the indirect effects that work through incentives. If the policy changes incentives, it will cause people to alter their behaviour.

SELF TEST Many people across the EU are without work and claiming benefits. Governments throughout the EU are trying to cut spending but find themselves having to spend more on welfare benefits for the unemployed. What sort of incentives might governments put in place to encourage workers off welfare and into work? What might be the unintended consequences of the incentives you identify?

HOW PEOPLE INTERACT

The first four principles discussed how individuals make decisions. As we go about our lives, many of our decisions affect not only ourselves but other people as well. The next three principles concern how people interact with one another.

Principle 5: Trade Can Make Everyone Better Off

America and China are competitors to Europe in the world economy. In some ways this is true, because American and Chinese firms produce many of the same goods as European firms. Toy manufacturers compete for the same customers in the market for toys. Fruit farmers compete for the same customers in the market for fruit.

Yet it is easy to be misled when thinking about competition among countries. Trade between Europe and the United States and China is not like a sports contest, where one side wins and the other side loses (a zero-sum game). In fact, the opposite is true: trade between two economies can make each economy better off.

To see why, consider how trade affects your family. When a member of your family looks for a job, he or she competes against members of other families who are looking for jobs. Families also compete against one another when they go shopping, because each family wants to buy the best goods at the lowest prices. So, in a sense, each family in the economy is competing with all other families.

Despite this competition, your family would not be better off isolating itself from all other families. If it did, your family would need to grow its own food, make its own clothes and build its own home. Clearly, your family gains much from its ability to trade with others. Trade allows each person to specialize in the activities he or she does best, whether it is farming, sewing or home building. By trading with others, people can buy a greater variety of goods and services at lower cost.

Countries as well as families benefit from the ability to trade with one another. Trade allows countries to specialize in what they do best and to enjoy a greater variety of goods and services. The Japanese and the Americans, as well as the Koreans and the Brazilians, are as much Europe's partners in the world economy as they are competitors.

Principle 6: Markets Are Usually a Good Way to Organize Economic Activity

The collapse of communism in the Soviet Union and Eastern Europe in the 1980s may be the most important change in the world during the past half century. Communist countries worked on the premise that central planners in the government were in the best position to guide economic activity and answer the three key questions of the economic problem. These planners decided what goods and services were produced, how much was produced, and who produced and consumed these goods and services. The theory behind central planning was that only the government could organize economic activity in a way that promoted economic well-being for the country as a whole.

Today, most countries that once had centrally planned economies such as Russia, Poland, Angola, Mozambique and the Democratic Republic of Congo have abandoned this system and are trying to develop

market economies. In a **market economy**, the decisions of a central planner are replaced by the decisions of millions of firms and households. Firms decide whom to hire and what to make. Households decide which firms to work for and what to buy with their incomes. These firms and households interact in the marketplace, where prices and self-interest guide their decisions.

market economy an economy that addresses the three key questions of the economic problem through allocating resources through the decentralized decisions of many firms and households as they interact in markets for goods and services

At first glance, the success of market economies is puzzling. After all, in a market economy, no one is considering the economic well-being of society as a whole. Free markets contain many buyers and sellers of numerous goods and services, and all of them are interested primarily in their own well-being. Yet, despite decentralized decision making and self-interested decision makers, market economies have proven remarkably successful in organizing economic activity in a way that promotes overall economic well-being.

FYI

Adam Smith and the Invisible Hand

Adam Smith's great work *An Inquiry into the Nature and Causes of the Wealth of Nations* was published in 1776 and is a landmark in economics. In its emphasis on the invisible hand of the market economy, it reflected a point of view that was typical of so-called 'enlightenment' writers at the end of the 18th century – that individuals are usually best left to their own devices, without government guiding their actions. This political philosophy provides the intellectual basis for the market economy.

Why do decentralized market economies work so well? Is it because people can be counted on to treat one another with love and kindness? Not at all. Here is Adam Smith's description of how people interact in a market economy:

Man has almost constant occasion for the help of his brethren, and it is vain for him to expect it from their benevolence only. He will be more

likely to prevail if he can interest their self-love in his favour, and show them that it is for their own advantage to do for him what he requires of them. ... It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest. ...

Every individual ... neither intends to promote the public interest, nor knows how much he is promoting it. ... He intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it. By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it.

Smith is saying that participants in the economy are motivated by self-interest and that the 'invisible hand' of the marketplace guides this

self-interest into promoting general economic well-being.

Many of Smith's insights remain at the centre of modern economics. Our analysis in the coming chapters will allow us to express Smith's conclusions more precisely and to analyse fully the strengths and weaknesses of the market's invisible hand.



One of our goals in this book is to understand how Smith's invisible hand works its magic. As you study economics, you will learn that prices are the instrument with which the invisible hand directs economic activity. Prices reflect both the value of a good to society and the cost to society of making the good. Because households and firms look at prices when deciding what to buy and sell, they unknowingly take into account the social benefits and costs of their actions. As a result, prices guide these individual decision makers to reach outcomes that, in many cases, maximize the welfare of society as a whole.

Principle 7: Governments Can Sometimes Improve Market Outcomes

If the invisible hand of the market is so wonderful, why do we need government? One answer is that the invisible hand needs government to protect it. Markets work only if property rights are enforced. A farmer won't grow food if he expects his crop to be stolen, and a restaurant won't serve meals unless it is assured that customers will pay before they leave. We all rely on government provided police and courts to enforce our rights over the things we produce.

Yet there is another answer to why we need government: although markets are usually a good way to organize economic activity, this rule has some important exceptions. There are two broad reasons for a government to intervene in the economy – to promote efficiency and to promote equity. That is, most policies aim either to enlarge the economic cake or to change the way in which the cake is divided.

Although the invisible hand often leads markets to allocate resources efficiently, that is not always the case. Economists use the term **market failure** to refer to a situation in which the market on its own fails to produce an efficient allocation of resources. One possible cause of market failure is an **externality**, which is the uncompensated impact of one person's actions on the well-being of a bystander (a third party). For instance, the classic example of an external cost is pollution. Another possible cause of market failure is **market power**, which refers to the ability of a single person or business (or group of businesses) to unduly influence market prices. In the presence of market failure, well designed public policy can enhance economic efficiency.

market failure a situation where scarce resources are not allocated to their most efficient use
externality the cost or benefit of one person's decision on the well-being of a bystander (a third party) which the decision maker does not take into account in making the decision
market power the ability of a single economic agent (or small group of agents) to have a substantial influence on market prices

The invisible hand may also fail to ensure that economic prosperity is distributed equitably. One of the three questions society has to address is who gets what is produced? A market economy rewards people according to their ability to produce things for which other people are willing to pay. The world's best footballer earns more than the world's best chess player simply because people are willing to pay more to watch football than chess. That individual is getting more of what is produced as a result of his earnings. The invisible hand does not ensure that everyone has sufficient food, decent clothing and adequate health care. Many public policies, such as income tax and the social security system, aim to achieve a more equitable distribution of economic well-being.

To say that the government *can* improve on market outcomes at times does not mean that it always *will*. Public policy is made not by angels but by a political process that is far from perfect. Sometimes policies are designed simply to reward the politically powerful. Sometimes they are made by well-intentioned leaders who are not fully informed. One goal of the study of economics is to help you judge when a government policy is justifiable to promote efficiency or equity, and when it is not.

HOW THE ECONOMY AS A WHOLE WORKS

We started by discussing how individuals make decisions and then looked at how people interact with one another. All these decisions and interactions together make up 'the economy'. The last three of our ten principles concern the workings of the economy as a whole.

Microeconomics and Macroeconomics

Economics is studied on various levels. The first seven principles involve the study of the decisions of individual households and firms and the interaction of households and firms in markets for specific goods and services. In the last three principles we are looking at the operation of the economy as a whole, which is just the sum of the activities of all these decision makers in all these markets.

Since roughly the 1930s, the field of economics has traditionally been divided into two broad subfields.

Microeconomics is the study of how households and firms make decisions and how they interact in specific markets. **Macroeconomics** is the study of economy-wide phenomena. A microeconomist might study the effects of a congestion tax on the use of cars in a city centre, the impact of foreign competition on the European car industry or the effects of attending university on a person's lifetime earnings. A macroeconomist might study the effects of borrowing by national governments, the changes over time in an economy's rate of unemployment or alternative policies to raise growth in national living standards.

microeconomics the study of how households and firms make decisions and how they interact in markets
macroeconomics the study of economy-wide phenomena, including inflation, unemployment and economic growth

Microeconomics and macroeconomics are closely intertwined. Because changes in the overall economy arise from the decisions of millions of individuals, it is impossible to understand macroeconomic developments without considering the associated microeconomic decisions. For example, a macroeconomist might study the effect of a cut in income tax on the overall production of goods and services in an economy. To analyse this issue, he or she must consider how the tax cut affects the decisions of households concerning how much to spend on goods and services.

Despite the inherent link between microeconomics and macroeconomics, the two fields are distinct. In economics, it may seem natural to begin with the smallest unit and build up. Yet doing so is neither necessary nor always the best way to proceed. Because microeconomics and macroeconomics address different questions, they sometimes take quite different approaches and are often taught in separate courses.

A key concept in macroeconomics is **economic growth** – the percentage increase in the number of goods and services produced in an economy over a period of time, usually expressed over a quarter and annually.

economic growth the increase in the amount of goods and services in an economy over a period of time

Principle 8: An Economy's Standard of Living Depends on its Ability to Produce Goods and Services

Table 1.1 shows **gross domestic product per capita (head)** of the population in a number of selected countries expressed in U.S. dollars. It is clear that many of the advanced economies have a relatively high income per capita; in Norway it is an enviable \$98,102, the Netherlands \$50,087 and Germany \$43,689.

gross domestic product per capita (head) the market value of all goods and services produced within a country in a given period of time divided by the population of a country to give a per capita figure

Moving away from the prosperous economies of Western Europe, we begin to see differences in income and living standards around the world that are quite staggering. For example, average income in Yemen was \$1,361 whilst in Afghanistan average income is just over a half a per cent of the size of per-capita income in Norway.

TABLE 1.1

Gross Domestic Product Per Capita, Current Prices US dollars 2011

Afghanistan	576
Austria	49,707
Belgium	46,469
Benin	802
Bolivia	1,421
China	5,445
Estonia	16,556
Finland	49,391
Germany	43,689
Hungary	21,732
Italy	36,116
Japan	45,903
Kenya	808
Netherlands	50,087
Norway	98,102
Portugal	22,330
Russian Federation	13,089
Spain	32,244
Sweden	56,927
Switzerland	80,391
Turkey	10,498
United Kingdom	38,818
United States	48,442
Yemen	1,361

Not surprisingly, this large variation in average income is reflected in various other measures of the quality of life and **standard of living**. Citizens of high-income countries have better nutrition, better health care and longer life expectancy than citizens of low-income countries, as well as more TV sets, more gadgets and more cars.

standard of living refers to the amount of goods and services that can be purchased by the population of a country. Usually measured by the inflation-adjusted (real) income per head of the population

Changes in the standard of living over time are also large. Over the last 5 years, economic growth in Albania has grown at about 4.68 per cent per year, in China at about 10.5 per cent a year but in Latvia the economy has shrunk by around 1.4 per cent over the same time period (Source: World Bank).

What explains these large differences in living standards among countries and over time? The answer is surprisingly simple. Almost all variation in living standards is attributable to differences in countries' **productivity** – that is, the amount of goods and services produced from each hour of a worker's time. In nations where workers can produce a large quantity of goods and services per unit of time, most people enjoy a high standard of living; in nations where workers are less productive, most people must endure a more meagre existence. Similarly, the growth rate of a nation's productivity determines the growth rate of its average income.

productivity the quantity of goods and services produced from each hour of a worker or factor of production's time

The fundamental relationship between productivity and living standards is simple, but its implications are far-reaching. If productivity is the primary determinant of living standards, other explanations must be of secondary importance. For example, it might be tempting to credit trade unions or minimum wage laws for the rise in living standards of workers over the past 50 years. Yet the real hero of workers is their rising productivity.

The relationship between productivity and living standards also has profound implications for public policy. When thinking about how any policy will affect living standards, the key question is how it will affect our ability to produce goods and services. To boost living standards, policymakers need to raise productivity by ensuring that workers are well educated, have the tools needed to produce goods and services, and have access to the best available technology.

Principle 9: Prices Rise When the Government Prints Too Much Money

In Zimbabwe in March 2007 inflation was reported to be running at 2,200 per cent. That meant that a good priced at the equivalent of Z\$2.99 in March 2006 would be priced at Z\$65.78 just a year later. In February 2008, inflation was estimated at 165,000 per cent. Five months later it was reported as 2,200,000 per cent. In July 2008 the government issued a Z\$100 billion note. At that time it was just about enough to buy a loaf of bread. Estimates for inflation in Zimbabwe in July 2008 put the rate of growth of prices at 231,000,000 per cent. In January 2009, the government issued Z\$10, 20, 50 and 100 trillion dollar notes – 100 trillion is 100 followed by 12 zeros. This episode is one of history's most spectacular examples of **inflation**, an increase in the overall level of prices in the economy.

inflation an increase in the overall level of prices in the economy

High inflation is a problem because it imposes various costs on society; keeping inflation at a low level is a goal of economic policymakers around the world. What causes inflation? In almost all cases of high or persistent inflation, the culprit turns out to be the same – growth in the quantity of money. When a government creates large quantities of the nation's money, the value of the money falls. As outlined above, the Zimbabwean government was issuing money at ever higher denominations. It is generally accepted that there is a relationship between the growth in the quantity of money and the rate of growth of prices.

Principle 10: Society Faces a Short-run Trade-off Between Inflation and Unemployment

When the government increases the amount of money in the economy, one result is inflation. Another result, at least in the short run, is a lower level of unemployment. The curve that illustrates this short-run trade-off between inflation and unemployment is called the **Phillips curve**, after the economist who first examined this relationship while working at the London School of Economics.

Phillips curve a curve that shows the short run trade-off between inflation and unemployment

The Phillips curve remains a controversial topic among economists, but most economists today accept the idea that society faces a short-run trade-off between inflation and unemployment. This simply means that, over a period of a year or two, many economic policies push inflation and unemployment in opposite directions. Policymakers face this trade-off regardless of whether inflation and unemployment both start out at high levels at low levels or somewhere in-between.

The trade-off between inflation and unemployment is only temporary, but it can last for several years. The Phillips curve is, therefore, crucial for understanding many developments in the economy. In particular, it is important for understanding the **business cycle** – the irregular and largely unpredictable fluctuations in economic activity, as measured by the number of people employed or the production of goods and services.

business cycle fluctuations in economic activity such as employment and production

Policymakers can exploit the short-run trade-off between inflation and unemployment using various policy instruments. By changing the amount that the government spends, the amount it taxes and the amount of money it prints, policymakers can influence the combination of inflation and unemployment that the economy experiences. Because these instruments of monetary and fiscal policy are potentially so powerful, how policymakers should use these instruments to control the economy, if at all, is a subject of continuing debate.

SELF TEST What is the difference between microeconomics and macroeconomics? Write down three questions that the study of microeconomics might be concerned with and three questions that might be involved in the study of macroeconomics

CONCLUSION

You now have a taste of what economics is all about. In the coming chapters we will develop many specific insights about people, markets and economies. Mastering these insights will take some effort, but it is not an overwhelming task. The field of economics is based on a few basic ideas that can be applied in many different situations.

Throughout this book we will refer back to the *Ten Principles of Economics* highlighted in this chapter and summarized in Table 1.2 which can be seen as building blocks for your study of the subject; you should keep these building blocks in mind. Even the most sophisticated economic analysis is built using the ten principles introduced here.

TABLE 1.2 Ten Principles of Economics

How people make decisions	1. People face trade-offs 2. The cost of something is what you give up to get it 3. Rational people think at the margin
How people interact	4. People respond to incentives 5. Trade can make everyone better off 6. Markets are usually a good way to organize economic activity 7. Governments can sometimes improve market outcomes
How the economy as a whole works	8. A country's standard of living depends on its ability to produce goods and services 9. Prices rise when the government prints too much money 10. Society faces a short-run trade-off between inflation and unemployment

IN THE NEWS



Latest Thinking in Economics – Incentives

One of the *Ten Principles of Economics* is that people respond to incentives. This should not be an entirely surprising principle and may seem like an example of economists making common sense sound more complex. However, the reality is that the complex nature of human beings does make the introduction and effect of incentives much

more challenging than might at first appear.

Gneezy et al. highlight some of these issues (Gneezy, U. Meier, S. and Ray-Biel, P. (2011) 'When and why incentives (don't) work to modify behaviour'. In *Journal of Economic Perspectives*. 25:4, 191–210). They point out that incentives may work better in certain circumstances than

in others and policymakers need to consider a wide variety of issues when deciding on putting incentives in place.

First of all, they have to consider the type of behaviour to be changed. For example, society might want to encourage its citizens to do more, what Gneezy et al. call 'prosocial' behaviour such as donating blood, sperm or organs, increasing the

amount of waste put out for recycling, attending school, college or university, working harder in education to improve grades, improving the environment such as installing insulation or solar panels in homes to reduce energy waste, or finding ways of encouraging people to stop smoking.

Second, we have to consider the parties involved. This can be expressed as a principal-agent issue. The principal is a person or group for whom another person or group, the agent, is performing some act. In encouraging people to stop smoking, the smoker is the agent and society is the principal. Next, we have to consider the type of incentive offered – often this will be monetary. Monetary incentives have two main types of effects which Gneezy et al. refer to as the direct price effect and the psychological effect. Once the behaviour has been identified, the type of incentive and who the principal and agent are, the next question is to consider how the incentive is framed.

At first the solution might be seen as being simple – provide a monetary incentive; pay people to achieve the desired behaviour. The question is, will the incentive work? Gneezy et al. point to a number of reasons why the outcome might not be as obvious as first hoped. They suggest that in some cases, offering monetary incentives can ‘crowd out’ the desired behaviour. Offering a monetary incentive to go to school, donate blood or install solar panels might not have the desired effect. The reasons might be that offering a monetary incentive changes the perceptions of agents. People have intrinsic motivations – personal reasons for particular behaviours. Other people also have perceptions about the behaviour of others, for example someone who donates blood might be seen by others as being ‘nice’. Social norms may also be affected, for example attitudes to recycling of waste or smoking.

Providing a monetary incentive on these behaviours might not necessarily lead to more blood being donated, more recycling and solar panels or less smoking. Gneezy et al. suggest that the reasons may be that monetizing behaviour in this way changes the psychology and the psychology effect can be greater than the direct price effect. The price effect would suggest that if you pay someone to donate more blood, you should get more people donating blood. The reality might be that such incentives reduce blood donorship. Why? People who donate blood might do so out of a personal conviction – they have intrinsic motivations. By offering monetary incentives, the perception of the donor and others might change so that they are not seen as being ‘nice’ any more but as being ‘mercenary’ and not motivated intrinsically but by extrinsic reward – greed, in other words. If the psychological effect outweighs the direct money effect the result could be a reduction in the number of donors.

In the case of cutting smoking, the size of the money effect might be a factor. Principal 5 of *The Ten Principles of Economics* states that rational people think at the margin. With smoking, the marginal decision to have one more cigarette imposes costs and benefits on the smoker – the benefit is the pleasure people get from smoking, the cost the (estimated) 11 minutes of their life that is cut as a result. The problem is that the marginal cost is not tangible at that time and is likely to be outweighed by the marginal benefit (not to mention the addictive qualities of tobacco products). Over time, however, the total benefit of stopping smoking

becomes much greater than the total cost. The incentive offered, therefore, has to be such that it takes into account these marginal decisions and it might be difficult to estimate the size of the incentive needed.

Other issues relating to incentives involve the trust between the principal and agent. If an incentive is provided, for example, then this sends a message that the desired behaviour is not taking place and that there may be a reason for this. This might be that the desired behaviour is not attractive and/or is difficult to carry out. Incentives also send out a message that the principal does not trust the agent’s intrinsic motivation, for example that people will not voluntarily give blood or recycle waste effectively. Some incentives may work to achieve the desired behaviour in the short-term but will this lead to the desired behaviour continuing in the long-term when the incentive is removed?

Finally, incentives might be affected by the way they are framed – how the wording or the benefits of the incentive is presented to the agent by the principal. Gneezy et al. use a very interesting example of this. Imagine a situation, they say, where you meet a person and develop a relationship. You want to provide that person with the incentive to have sex. The effect of the way

Providing a monetary incentive on these behaviours might not necessarily lead to more blood being donated



the incentive is framed might have a considerable effect on the outcome. If, for example, you framed your 'offer' by saying 'I would like to make love to you and to incentivize you to do so I will offer you €50', you might get a very different response to that if you framed it by saying: 'I would like to make love to you – I have bought you a bunch of red roses' (the roses just happened to cost €50).

Finally, the cost effectiveness of incentives has to be considered. Health authorities spend millions of euros across Europe on drugs to reduce blood pressure and cholesterol. Getting people to take more exercise will also help achieve the

same result. What would be more cost-effective and a more efficient allocation of resources? Providing incentives (assuming they work) to encourage people to exercise more by, for example, paying for gym membership, or spending that same money on drugs but not dealing with some of the underlying causes?

Questions

- 1 **Why should people need incentives to do 'good' things like donating blood or putting out more rubbish for recycling?**
- 2 **What is meant by the 'principal-agent' issue?**
- 3 **What might be the price and psychological effect if students were given a monetary incentive to attain top grades in their university exams?**
- 4 **Why might the size of a monetary incentive be an important factor in encouraging desired behaviour and what side-effects might arise if the size of an incentive was increased?**
- 5 **What is 'framing' and why might it be important in the way in which an incentive works? Refer to the need to increase the number of organ donors in your answer to this question.**

FYI



How To Read This Book

Economics is fun, but it can also be hard to learn. Our aim in writing this text has been to make it as easy and as much fun as possible. But you, the student, also have a role to play. Experience shows that if you are actively involved as you study this book, you will enjoy a better outcome, both in your exams and in the years that follow. Here are a few tips about how best to read this book.

1. *Summarize, don't highlight.* Running a yellow marker over the text is too passive an activity to keep your mind engaged. Instead, when you come to the end of a section, take a minute and summarize what you have just learnt in your own words, writing your summary in a note book or on your computer. When you've finished the chapter, compare your summary with the one at the end of the chapter. Did you pick up the main points?
2. *Test yourself.* Throughout the book, the Self Test features offer the chance to test your understanding of the subject matter. Take the opportunity to jot down your ideas and thoughts to the Self Test questions. The tests are meant to assess your basic comprehension and application of the ideas and concepts in the chapter. If you aren't sure your answer is right, you probably need to review the section.
3. *Practise, practise, practise.* At the end of each chapter, Questions for Review test your understanding, and Problems and Applications ask you to apply and extend the material. Perhaps your lecturer will assign some of these exercises as work for seminars and tutorials. If so, do them. If not, do them anyway. The more you use your new knowledge, the more solid it becomes.
4. *Study in groups.* After you've read the book and worked through the problems on your own, get together with other students to discuss the material. You will learn from each other – an example of the gains from trade.
5. *Don't forget the real world.* In the midst of all the numbers, graphs and strange new words, it is easy to lose sight of what economics is all about. The Case Studies and In the News boxes sprinkled throughout this book should help remind you. Don't skip them. They show how the theory is tied to events happening in all of our lives and the questions provided with the In the News features will help you think about issues that you have covered in the chapter and also to apply your understanding to specific contexts. As with the Self Test questions, attempt an answer to the questions to help build your understanding.

SUMMARY

- The fundamental lessons about individual decision making are that people face trade-offs among alternative goals, that the cost of any action is measured in terms of foregone opportunities, that rational people make decisions by comparing marginal costs and marginal benefits, and that people change their behaviour in response to the incentives they face.
- The fundamental lessons about interactions among people are that trade can be mutually beneficial, that markets are usually a good way of coordinating trade among people, and that the government can potentially improve market outcomes if there is some market failure or if the market outcome is inequitable.
- The field of economics is divided into two sub-fields: microeconomics and macroeconomics. Microeconomists study decision making by households and firms and the interaction among households and firms in the marketplace. Macroeconomists study the forces and trends that affect the economy as a whole.
- The fundamental lessons about the economy as a whole are that productivity is the ultimate source of living standards, that money growth is the ultimate source of inflation, and that society faces a short-run trade-off between inflation and unemployment.

QUESTIONS FOR REVIEW

- 1 Give three examples of important trade-offs that you face in your life.
- 2 What is the opportunity cost of going to a restaurant for a meal?
- 3 Water is necessary for life. Is the marginal benefit of a glass of water large or small?
- 4 Why should policymakers think about incentives?
- 5 Why isn't trade among countries like a game, with some winners and some losers?
- 6 What does the 'invisible hand' of the marketplace do?
- 7 Explain the two main causes of market failure and give an example of each.
- 8 What are the two subfields into which economics is divided? Explain what each subfield studies.
- 9 Why is productivity important?
- 10 How are inflation and unemployment related in the short run?

PROBLEMS AND APPLICATIONS

- 1 Describe some of the trade-offs faced by each of the following.
 - a. A family deciding whether to buy a new car.
 - b. A member of the government deciding how much to spend on building a new motorway connecting two main cities.
 - c. A company chief executive officer deciding whether to recommend the acquisition of a smaller firm.
 - d. A university lecturer deciding how much to prepare for her lecture.
- 2 You are trying to decide whether to take a holiday. Most of the costs of the holiday (airfare, hotel, foregone wages) are measured in euros, but the benefits of the holiday are psychological. How can you compare the benefits to the costs?
- 3 You were planning to spend an evening working at your part-time job, but a friend asks you to go to a night club. What is the true cost of going to the night club? Now suppose that you had been planning to spend the evening studying in the library. What is the cost of going to the night club in this case? Explain.
- 4 You win €10,000 on the EuroMillions lottery draw. You have a choice between spending the money now or putting it away for a year in a bank account that pays 5 per cent interest. What is the opportunity cost of spending the €10,000 now?
- 5 The company that you manage has invested €5 million in developing a new product, but the development is not quite finished. At a recent meeting, your sales people report that the introduction of competing products has reduced the expected sales of your new product to €3 million. If it would cost €1 million to finish development and make the product, should you go ahead and do so? What is the most that you should pay to complete development?
- 6 Three managers of the van Heerven Coach Company are discussing a possible increase in production. Each suggests a way to make this decision.

FIRST MANAGER: We need to decide how many additional coaches to produce. Personally, I think we should examine whether our company's productivity – number of

coaches produced per worker per hour – would rise or fall if we increased output.

SECOND MANAGER: We should examine whether our average cost per worker – would rise or fall.

THIRD MANAGER: We should examine whether the extra revenue from selling the additional coaches would be greater or smaller than the extra costs.

Who do you think is right? Why?

- 7 Assume a social security system in a country provides income for people over the age of 65. If a recipient decides to work and earn some income, the amount he or she receives in social security benefits is typically reduced.
 - a. How does the provision of this grant affect people's incentive to save while working?
 - b. How does the reduction in benefits associated with higher earnings affect people's incentive to work past the age of 65?
- 8 Your flatmate is a better cook than you are, but you can clean more quickly than your flatmate can. If your

flatmate did all of the cooking and you did all of the cleaning, would your household chores take you more or less time than if you divided each task evenly? Give a similar example of how specialization and trade can make two countries both better off.

- 9 Explain whether each of the following government activities is motivated by a concern about equity or a concern about efficiency. In the case of efficiency, discuss the type of market failure involved.
 - a. Regulating water prices.
 - b. Regulating electricity prices.
 - c. Providing some poor people with vouchers that can be used to buy food.
 - d. Prohibiting smoking in public places.
 - e. Imposing higher personal income tax rates on people with higher incomes.
 - f. Instituting laws against driving whilst under the influence of alcohol.
- 10 In what ways is your standard of living different from that of your parents or grandparents when they were your age? Why have these changes occurred?