Chapter 1
Ten principles of economics

Contents

Learning objectives

In this chapter, students will:

- learn that economics is about the allocation of scarce resources
- examine some of the trade-offs that people face
- learn the meaning of opportunity cost
- see how to use marginal reasoning when making decisions
- discuss how incentives affect people's behaviour
- consider why trade among people or nations can be good for everyone
- discuss why markets are a good, but not perfect, way to allocate resources
- learn what determines some trends in the overall economy.

Key points

- 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 forgone 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 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-term trade-off between inflation and unemployment.

Chapter outline

Introduction

> Begin by pointing out that economics is a subject that students must confront in their everyday lives. Point out that they already spend a great deal of their time thinking about economic issues: prices, buying decisions, use of their time, etc.

- The word 'economy' comes from the Greek word meaning 'one who manages a household'. This makes some sense, since in the economy we are faced with many decisions (just as a household is).
- The fundamental economic problem: resources are scarce.

> You will want to start the semester by explaining to students that economics is by and large a subject of logic; however, part of learning economics is understanding a new vocabulary. In order to have a productive discourse, economists generally use very precise (and sometimes different) definitions for words that are commonly used outside of the economics discipline. The use of such precise language is common to other disciplines. Therefore, it will be helpful to students if you follow the definitions provided in the text as much as possible.

- Definition: *scarcity* – the limited nature of society's resources.
- Definition: *economics* – the study of how society manages its scarce resources.

> Do not underestimate how challenging these principles will be for the student because most first-year university students have limited experience with viewing the world from a cause-and-effect perspective. This is a good time to emphasise that there are known reasons for why many things work the way they do in the real world. Although we cannot predict the behaviour of any one individual, centuries of observation and analysis have uncovered several general rules explaining the decisions and behaviours of large numbers of individuals.

How people make decisions

Lesson 1: People face trade-offs

- 'There is no such thing as a free lunch.' Making decisions requires trading off one goal for another. Examples include how a student spends their time, how a family decides to spend its income, how the Australian government spends tax dollars and how regulations may protect the environment at a cost to firm owners.
- A special example of a trade-off is the trade-off between efficiency and equity.
  - Definition: *efficiency* – the property of society getting the most it can from its scarce resources. Example: Wasting no resources when making a pie, so the pie becomes as large as possible.
  - Definition: *equity* – the property of distributing economic prosperity fairly among the members of society.
    Example: How should the pie be distributed, i.e. who will get a larger slice of the pie and who will get a smaller slice, or will slices be distributed equally?
  - While it is useful to strictly distinguish between efficiency and equity for analytical purposes, these two concepts are also linked. For example, tax dollars paid by wealthy Australians and then distributed to those less fortunate may improve equity but also may lower the incentive to work hard and therefore reduce the level of output produced by our resources.
  - This implies that the cost of increased equity is a reduction in the efficient use of resources.

Lesson 2: The cost of something is what you give up to get it

- Making decisions requires individuals to consider the benefits and costs of alternative actions.
- Example: What are the costs of going to university?

  - We cannot count the complete cost of room and board because the student would have to pay for food and shelter even if they were not in school. These are part of the cost of living and not part of the cost of studying.
  - We would want to count the value of the student's time since she could be working for pay instead of attending classes and studying. Also on a very nice sunny day some students might value the cost of attending classes much higher than on a rainy day.
- Definition: *opportunity cost* – whatever must be given up to obtain some item.

> One of the hardest ideas for students to grasp is that 'free' things are not truly free. So you will need to provide students with numerous examples of 'free' things with hidden costs, especially considering the value of time. The relevant opportunity cost is the next best alternative, which might differ for each individual.

Lesson 3: Rational people think at the margin

- Many decisions in life are incremental in nature: Should I remain in school this semester? Should I take another course this semester?
- Definition: *marginal change* – a small incremental adjustment to a plan of action.
- Example: You are trying to decide on how many years to stay in school. Comparing the lifestyle of an individual with a PhD to one of an individual who has dropped out of secondary school would be inappropriate, because the choice is not really to drop out versus a PhD. Instead the decision is whether or not to remain in school for an additional year. Thus, you need to compare the additional benefits of another year in school (the marginal benefit) with the additional cost of staying in school for another year (the marginal cost).
- Another example: Suppose that flying a 200-seat plane from Brisbane to Perth costs the airline $100,000, which means that the average cost of each seat is $500. Suppose that the plane is minutes from departure, there are several vacant seats and a passenger is willing to pay $300 for a seat. Should the airline sell the seat for $300? As long as the marginal revenue exceeds the marginal cost, selling the ticket is profitable.

Lesson 4: People respond to incentives

- Because people make decisions by comparing costs and benefits, their decisions may change in response to changes in costs and benefits.
- Sometimes policymakers fail to understand how policies may alter incentives and behaviour.
- Example: Seat belt laws increase the use of seat belts, increasing the probability of surviving a crash. However, before the law people chose not to use seat belts because it was consistent with their individual optimal risk choice. With the seat belt law these people can achieve their old optimal risk by driving more adventurously. This leads to an increase in the number of car accidents. The net effect for society is ambiguous.
- Case Study: Choosing when the stork comes. See text, pages 10–11.
  - The Australian government's 'baby bonus' was introduced on 1 July 2004 – parents of children born on or after that date would receive a payment of $3000. This created an incentive for parents whose baby was due at the end of June 2004 to delay the birth of their child (by scheduling planned caesareans and inducements a little later) so that they would qualify for the payment.
  - Indeed, the births data show that an estimated 1167 births were shifted from June to July that year. Later in 2006 an increase of $834 prompted about 700 births to be shifted from June to July.

How people interact

Lesson 5: Trade can make everyone better off

- Consider trade that takes place inside your home. Most families are involved in trade with other families on a daily basis. Most families do not build their own homes, make their own clothes, or grow their own food.

- Countries benefit from trading with one another like families do.
- This occurs because it allows for countries (or families) to specialise in what they do best.

Lesson 6: Markets are usually a good way to organise economic activity

- Definition: *market economy* – an economy that allocates resources through the decentralised decisions of many firms and households as they interact in markets for goods and services.
- Market prices reflect both the value of a product to consumers and the cost of the resources used to produce it. Decisions to buy or to produce goods and services are based on the marginal cost and marginal benefit to each individual. All individuals interact via the market and their choices determine the market price. Therefore, the production costs as well as the benefits from consumption are reflected by the market price.

> Explain to students that when households and firms do what is best for themselves, they often end up doing what is best for society, as if guided by market forces – or by an 'invisible hand'. Spend some time and emphasise the magic of the market. Use numerous examples to show students that the market most often allocates resources to their highest valued use.

- Definition: *invisible hand* – The idea that buyers and sellers freely interacting in a market economy will create an outcome that allocates goods and services to those people who value them most highly and makes the best use of our scarce resources.
- When a government interferes in a market and restricts prices from adjusting freely, decisions are not based on the proper information and may be inefficient.
- This helps to explain why centrally planned economies have failed (such as the former USSR).
- FYI: Adam Smith and the role of markets. See text, pages 14–15.
  - Adam Smith's 1776 work suggested that although individuals are motivated by self-interest, an invisible hand guides this self-interest into promoting society's economic wellbeing.
  - Smith's astute perceptions will be discussed more fully in the chapters to come.

Lesson 7: Governments can sometimes improve market outcomes

- Economic reasons for government interventions are the promotion of efficiency and/or equity.
- Government policy can improve efficiency when there is market failure.
  - Definition: *market failure* – a situation in which a market left on its own fails to allocate resources efficiently.
- Examples of market failure:
  - Definition: *externality* – the uncompensated impact of one person's actions on the wellbeing of a bystander. A positive externality makes the bystander better off. A negative externality makes the bystander worse off.
  - Definition: *market power* – the ability of a single economic actor (or small group of actors) to have a substantial influence on market prices.
- Note that this lesson states that the government can improve market outcomes. This is not saying that the government will always improve market outcomes.

How the economy as a whole works

Lesson 8: A country's standard of living depends on its ability to produce goods and services

- Differences in living standards between one country and another can be quite large. Changes in living standards over time are also great. The explanation is productivity.
- Definition: *productivity* – the quantity of goods and services produced from each hour of a worker's time.
- High productivity implies a high standard of living. Thus, policymakers must understand the impact of any policy on our ability to produce goods and services.
  - During the last decade, much debate has centred on federal government budget deficits.

  - When the government borrows, it lowers the quantity of funds available for other borrowers, including funds that could have been used to finance a student's education or to build new factories.
  - Therefore, budget deficits are generally believed to lower growth in a country's standard of living.

Lesson 9: Prices rise when the government prints too much money

- Definition: *inflation* – an increase in the overall level of prices in the economy.
- When the government creates an excessive amount of money, the value of money falls. A severe example was Germany in the early 1920s. Less extreme examples include the United States and Australia and New Zealand in the 1970s.
- A recent extreme example is Zimbabwe. See *NY Times* link http://www.nytimes.com/2006/05/02/world/africa/02zimbabwe.html?pagewanted=all&_r=0 This gives some insights into the social costs of inflation.

Lesson 10: Society faces a short-term trade-off between inflation and unemployment

- Definition: *Phillips curve* – the short-term trade-off between inflation and unemployment.
- This is a controversial topic among economists.
- This trade-off exists if some prices are slow to adjust to market changes.
- Example: The government reduces the amount of money in the economy to reduce inflation. People respond by spending less on goods with prices stuck too high, lowering the quantity of goods that firms sell. Firms respond to lower sales by laying off workers, increasing the unemployment rate.
- This trade-off is only temporary but is often used as an argument for government policy to control inflation or unemployment.

Conclusion

- Students now have a taste of what economics is all about.

Adjunct teaching tips and warm-up activities

1 Make sure that students understand that this is just an introduction to these 10 principles. Students should not feel as if they must understand each of these 10 principles completely at this time. Instead, point out that the students will be seeing these ideas in action throughout the semester and that they will gain additional understanding as the semester progresses.

2 Give students a list of activities with time requirements. For example: sleep, 8 hours; sleep, 6 hours; eat breakfast, 30 minutes; ride a bike, 1 hour; go hiking, 2 hours; study, 3 hours; study, 2 hours; go to class, 4 hours; go to class, 6 hours; watch TV, 2 hours; watch TV, 6 hours; take a nap, 1 hour; work, 8 hours; work, 4 hours; etc. Make sure that there are many choices and that there are many pleasurable experiences – too much for a 24-hour period. Ask students which lessons from economics this illustrates. If they do not say 1, 2, 3, and 4, help them see that this exercise has trade-offs in the choices they make, that each choice has an opportunity cost, that deciding whether or not to sleep four more hours may depend on whether you have already slept for six, and that choices may be influenced by the incentives the student faces. For example, a student who is about to be placed on academic probation has an incentive to study harder.

3 Divide the students into groups of four. Assign each group the definition of economics or one or two of the lessons from economics. Have each group draw the definition or lesson, no words allowed. Allow time for classroom discussion of the drawings. For example, you may want the other members of the class to try and guess what the drawing shows. Or, you may just want the group to explain their drawing to the class. Make sure that you fill in any conceptual gaps. Encourage students to keep thinking about the pictures throughout the semester as they cover the remaining chapters and allow them to modify or draw new pictures if they choose.

Solutions to text problems

Q Describe an important trade-off you recently faced. Give an example of some action that has both a monetary and non-monetary opportunity cost. Describe an incentive your parents offered you in an effort to influence your behaviour. (Page 10)

This question is likely to get students thinking about the decision to come to university for a degree. Tradeoffs here might include where they study (at a local or distant tertiary provider), the degree they're doing (especially if there are different fees), or attending at all (as opposed to seeking employment). Parents could influence this decision by offering to pay for some of the education costs or by supporting these decisions through free (or low-cost) accommodation. Ideally students should realise not all trade-offs are ones where they spend money, but also their time, and other 'options'. Be prepared for other trade-offs however.

Q Why is a country better off not isolating itself from all other countries? Why do we have markets and, according to economists, what roles should governments play in them? (Page 16)

The three lessons concerning economic interactions are:

1. Trade can make everyone better off.
2. Markets are usually a good way to organise economic activity.
3. Governments can sometimes improve market outcomes.

Trade can make everyone better off because it allows countries to specialise in what they do best and to enjoy a wider variety of goods and services. A country is better off not isolating itself from all other countries because it can take advantage of these gains from specialisation and variety.

Markets are usually a good way to organise economic activity because the invisible hand leads markets to desirable outcomes. Externalities and market power are a source of market failure, i.e. the market outcome will be inefficient. Most economists accept that if the market fails the government can sometimes improve the outcome, i.e. improve efficiency by intervening in the market.

Q What factors determine a country's standard of living? How does printing more money affect a country's economy in the long term and in the short term? (Page 19)

A country's standard of living depends on its ability to produce goods and services, which, in turn, depends on its productivity, which is a function of the education and skills of workers and the access workers have to the necessary tools and technology. Prices rise when the government prints too much money because too much money is chasing too few goods. The rise in the general price level is called inflation. Society faces a short-run trade-off between inflation and unemployment because some prices are 'sticky', so that a change in policy can affect spending, causing unemployment to change in the opposite direction of a change in inflation, until prices have fully adjusted to the change.

Questions for review (page 21)

1. Examples of trade-offs include time trade-offs (such as studying one subject over another, or studying at all compared to engaging in social activities) and spending trade-offs (such as whether to use your last 10 dollars on pizza or on a study guide for that tough economics course).
2. The opportunity cost of a dinner at a fancy restaurant includes the monetary cost of the meal plus the time cost of going to the restaurant and eating there. The time cost depends on what else you might do with that time. For example, if the next best alternative is picking up a pizza and watching a TV show at home, the time cost may be small, e.g., an old sitcom, or large, e.g., a live broadcast of your favourite sport. If the next best alternative is working an extra three hours at your job, the time cost includes the money you could have earned.
3. The marginal benefit of a glass of water depends on circumstances. If you have just run a marathon, or you've been walking in the Outback desert sun for three hours, the marginal benefit is very high.

But if you have been drinking a lot of water recently, the marginal benefit is probably quite low. The point is that even necessities of life, like water, don't always have large marginal benefits.

4 Policymakers need to think about incentives in order to understand how people will respond to the policies they put in place. The text example of seat belts shows that policy actions can have quite unintended consequences. If incentives matter a lot, they may lead to a very different type of policy; for example, some economists have suggested putting knives in steering columns so that people will drive much more carefully! While this suggestion is silly, it highlights the importance of incentives.

5 Trade among countries isn't a game with some losers and some winners because trade can make everyone better off. Trades only happen if the buyer and seller agree to the transaction; this indicates that they both must believe that they are better off. By allowing specialisation, trade between people and trade between countries can improve everyone's welfare.

6 The 'invisible hand' of the marketplace represents the idea that even though individuals and firms are all acting in their own self-interest, prices and the marketplace guide this self-interest into doing what's good for society as a whole.

7 Efficiency is the property of society getting the most it can from its scarce resources. Equity is the property of distributing economic prosperity fairly among the members of society. Promoting efficiency and promoting equity are the two broad reasons for government to intervene in the economy. Governments can enhance efficiency, for example, by regulating the price that a monopolist charges. Governments can enhance equity, for example, via policies to achieve a more equitable distribution of economic wellbeing.

8 Productivity is important because a country's standard of living depends on its ability to produce goods and services. The greater a country's productivity (the amount of goods and services produced from each hour of a worker's time), the greater will be its standard of living.

9 Inflation is an increase in the overall level of prices in the economy. Inflation is caused by increases in the quantity of a nation's money relative to the available goods and services.

10 Inflation and unemployment are negatively related in the short term. Reducing inflation entails costs to society in the form of higher unemployment in the short term because it takes time for all prices to adjust fully.

Multiple choice (pages 21–2)

1. a; 2. c; 3. b; 4. b; 5. d; 6. a.

Problems and applications (pages 22–3)

1 **a** A family deciding whether to buy a new car faces a trade-off between the benefit of the car and other things they might want to buy. For example, buying the car might mean they must give up going on a holiday for the next two years. So the economic cost of the car is the family's opportunity cost in terms of what they must give up.

b For a politician deciding whether to increase spending on national parks, the trade-off is between parks and other spending items or tax cuts. If more money is spent on national parks, that may mean less spending on national defence or on the police force. Or, instead of spending more money on national parks, taxes could be reduced.

c When a company director decides whether to open a new factory, the decision is based on whether the new factory will increase the firm's profits compared to other alternatives. For example, the company could upgrade existing equipment or expand existing factories. The bottom line is 'Which method of expanding production will increase profits the most?'

d In deciding how much to prepare for a lecture, a professor faces a trade-off between the value of improving the quality of the lecture compared to other things they could do with her time, such as working on additional research.

2 When the benefits of something are psychological, such as going on a holiday, it isn't easy to directly compare benefits to costs to determine whether it's worth doing. But there are two ways to think about the benefits. One is to compare the holiday with what you would do in its place. If you didn't go on the holiday, would you buy something like a new set of golf clubs? Then you can decide whether you'd rather have the new clubs or the holiday. A second way is to think about how much work you had to do to earn the money to pay for the holiday; then you can decide if the psychological benefits of the holiday were worth the psychological cost of working.

3 If you are thinking of going swimming instead of working at your part-time job, the economic costs are the monetary expense of swimming and time costs, i.e. the opportunity cost of the wages you're giving up by not working. If the choice is between swimming and going to the library to study, then the cost of swimming is its monetary and time costs, i.e. the cost to you of getting a lower grade in your course.

4 If you spend $100 now instead of investing it for a year and earning 5 per cent interest, you are giving up the opportunity to spend $105 a year from now. The idea that money has a time value is the basis for the field of finance, a subfield of economics.

5 The fact that you've already sunk $5 million isn't relevant to your decision anymore, since that money is gone. What matters now is the chance to earn profits at the margin. If you spend another $1 million and can generate sales of $3 million, you'll earn $2 million in marginal profit, so you should do so. You are right to think that the project has lost a total of $3 million ($6 million in costs and only $3 million in revenue) and you shouldn't have started it. That's true, but if you don't spend the additional $1 million, you won't have any sales and your losses will be $5 million. So what matters for the current decision is not the total profit, but the profit you can earn at the margin. In fact, you'd pay up to $3 million to complete development; any more than that and you won't be increasing profit at the margin.

6 **a** When welfare recipients who are able to work have their benefits cut off after two years, they have greater incentive to find jobs than if their benefits were to last forever.

b The loss of benefits means that someone who can't find a job will get no income at all, so the distribution of income will become less equal. But the economy will be more efficient, since welfare recipients have a greater incentive to find jobs. Thus the change in the law is one that increases efficiency but reduces equity.

7 **a** Efficiency: The market failure comes from the local telephone monopoly. In Australia there is also an equity argument, i.e. users in rural Australia do not have to pay higher fees than users in highly populated areas.

b Equity.

c Efficiency: An externality arises because second-hand smoke harms non-smokers.

d Efficiency: The market failure occurs because a single generator has market power.

e Equity.

f Efficiency: There's an externality because of accidents caused by drunk drivers.

8 If everyone were guaranteed the best health care possible, much more of our nation's resources would be devoted to medical care than is now the case. Would that be efficient? If you think that currently doctors form a monopoly and restrict health care to keep their incomes high, you might think efficiency would increase by providing more health care. But more likely, if the government mandated increased spending on health care, the economy would be less efficient because it would give people more health care than they would choose to pay for. From the point of view of equity, if poor people are less likely to have adequate health care, providing more health care would represent an improvement. Each person would have a more even slice of the economic pie, though the pie might be smaller and would consist of more health care and less of other goods.

9 Since average income in Australia has roughly doubled every 35 years, we are likely to have a better standard of living than our parents did, and a much better standard of living than our grandparents did. This is mainly the result of increased productivity, so that an hour of work produces more goods and services than it used to. Thus incomes have continuously risen over time, as has the standard of living.

10 If Australians save more and it leads to more spending on factories, there will be an increase in production and productivity, since the same number of workers will have more equipment to work with. The benefits from higher productivity will go to both the workers, who will get paid more since they're producing more, and the factory owners, who will get a return on their investments.

There's no such thing as a free lunch, though, because when people save more, they're giving up current consumption. They get higher future incomes at the cost of consuming fewer goods today.

11 **a** If people have more money, they're probably going to spend more on goods and services.

b If prices are sticky, and people spend more on goods and services, then output may increase, as producers increase output to meet the higher demand rather than raising prices.

c If prices can adjust, then people's higher spending will be matched with increased prices, and output won't rise.