

Chapter 1

Ten Principles of Economics

SOLUTIONS TO TEXTBOOK PROBLEMS

Quick Quizzes

1. *Describe an important tradeoff you recently faced. • Give an example of some action that has both a monetary and nonmonetary opportunity cost. • Describe an incentive your parents and/or guardians offered to you in an effort to influence your behaviour.*

Usually students are able to come up with standard examples of tradeoffs: buy a textbook instead of a ticket to a favourite performance, go to a group study session instead of a birthday party, etc. Instructors may wish to point out less straightforward instances of how the principles work. For instance, when discussing incentives instructors may point out perverse effects of incentives. An example is the invention of the seat belt, discussed in the text. Examples of actions that have both monetary and nonmonetary opportunity costs are watching a movie (time + money) and driving a car (money + pollution + traffic congestion). Parents may offer their children gifts conditional on good results in school.

2. *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 government play in them?*

Countries are both competitors and trade partners in the world markets. More precisely, some countries compete in some markets. Overall, however, international trade provides consumers with access to more diverse and cheap products. Thus, countries benefit from international trade.

Markets play a fundamental role in allocating resources to their most efficient use. Prices convey information about how scarce resources are, so that consumers and producers make the most efficient use of the resources. In economies where the prices are distorted by government interventions, overall well-being has proved to be lower.

Governments can improve market outcomes by providing public goods such as property rights, security, equity, and guaranteeing fair market competition.

3. *List and briefly explain the three principles that describe how the economy as a whole works.*

The three principles that describe how the economy as a whole works are: (1) a country's standard of living depends on its ability to produce goods and services; (2) prices rise when the government prints too much money; and (3) society faces a short-run tradeoff between inflation and unemployment. 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 of workers and the access workers have to the necessary tools and technology. Prices rise when the government prints too much money because more money in circulation reduces the value of money, causing inflation. Society faces a short-run tradeoff between inflation and unemployment that is only temporary, and policymakers have some ability to exploit this relationship using various policy instruments.

Questions for Review

1. *What is a tradeoff? Give three examples of tradeoffs involved in undertaking postsecondary studies.*

Examples of tradeoffs include time tradeoffs (such as studying one subject over another, or studying at all compared to engaging in social activities) and spending tradeoffs (such as whether to use your last \$15 to purchase a pizza or to buy an online study guide for that tough economics course).

2. *What is the opportunity cost of seeing a movie?*

The opportunity cost of seeing a movie includes the monetary cost of admission plus the time cost of going to the theatre and attending the show. The time cost depends on what else you might do with that time; if it's staying home and watching TV, the time cost may be small, but if it's working an extra three hours at your job, the time cost is the money you could have earned.

3. *Water is necessary for life. Is the marginal benefit of a glass of water large or small?*

The marginal benefit of a glass of water depends on your circumstances. If you've just run a marathon, or you've been walking in the desert sun for three hours, the marginal benefit is very high. But if you've been drinking a lot of liquids recently, the marginal benefit is quite low. The point is that even the necessities of life, like water, don't always have large marginal benefits.

4. *Why should policymakers think about incentives?*

Policymakers need to think about incentives so they can understand how people will respond to the policies they put in place. The text's 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. *Why isn't trade among countries like a game, with some winners and some losers?*

Trade among countries isn't a game with some losers and some winners because trade can make everyone better off. By allowing specialization, trade between people and trade between countries can improve everyone's welfare.

6. *What does the "invisible hand" of the marketplace do?*

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 them to do what is good for society as a whole.

7. *Explain the two main causes of market failure and give an example of each.*

The two main causes of market failure are externalities and market power. An externality is the impact of one person's actions on the well-being of a bystander, such as from pollution or the creation of knowledge. Market power refers to the ability of a single person (or small group of people) to unduly influence market prices, such as in a town with only one well or only one cable television company. In addition, a market economy also leads to an unequal distribution of income.

8. *Why is productivity important?*

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. *What is inflation, and what causes it?*

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.

10. *How are inflation and unemployment related in the short run?*

Inflation and unemployment are negatively related in the short run. Reducing inflation entails costs to society in the form of higher unemployment in the short run.

Quick Check Multiple Choice

1. *Economics is best defined as the study of which of the following?*
 - a. *how society manages its scarce resources*
 - b. *how to run a business most profitably*
 - c. *how to predict inflation, unemployment, and stock prices*
 - d. *how the government can stop the harm from unchecked self-interest*
2. *What is your opportunity cost of going to a movie?*
 - a. *the price of the ticket*
 - b. *the price of the ticket plus the cost of any soda and popcorn you buy at the theatre*
 - c. *the total cash expenditure needed to go to the movie plus the value of your time*
 - d. *zero, as long as you enjoy the movie and consider it a worthwhile use of time and money*
3. *Which of the following describes a marginal change?*
 - a. *one that is NOT important for public policy*
 - b. *one that incrementally alters an existing plan*
 - c. *one that makes an outcome inefficient*
 - d. *one that does NOT influence incentives*
4. *What is Adam Smith's "invisible hand"?*
 - a. *the subtle and often hidden methods that businesses use to profit at consumers' expense*
 - b. *the ability of free markets to reach desirable outcomes despite the self-interest of market participants*
 - c. *the ability of government regulation to benefit consumers even if the consumers are unaware of the regulations*
 - d. *the way in which producers or consumers in unregulated markets impose costs on innocent bystanders*
5. *When policymakers make policies that change the costs and benefits that people face, what is the result for society?*
 - a. *people's behaviours are altered*
 - b. *people ignore incentives*
 - c. *inflation occurs*
 - d. *government revenue is reduced*

6. *If a nation has high and persistent inflation, what is the most likely explanation?*
- the central bank is creating excessive amounts of money*
 - unions bargaining for excessively high wages*
 - the government is imposing excessive levels of taxation*
 - firms using their monopoly power to enforce excessive price hikes*

- a
- c
- b
- b
- a
- a

Problems and Applications

- Describe some of the tradeoffs faced by each of the following.*

 - a family deciding whether to buy a new car*
 - a member of Parliament deciding how much to spend on national parks*
 - a company president deciding whether to open a new factory*
 - a professor deciding how much to prepare for class*
 - A family deciding whether to buy a new car faces a tradeoff between the cost of the car and other things they might want to buy. For example, buying the car might mean they must give up going on vacation for the next two years. So the real cost of the car is the family's opportunity cost in terms of what they must give up.
 - For a member of Parliament deciding whether to increase spending on national parks, the tradeoff is between parks and other spending items or tax cuts. If more money goes into the park system, that may mean less spending on national defence or on the police force. Or, instead of spending more money on the park system, taxes could be reduced.
 - When a company president 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 profit the most?
 - In deciding how much to prepare for class, a professor faces a tradeoff between the value of improving the quality of the lecture compared to other things she could do with her time, such as working on additional research.
- You are trying to decide whether to take a vacation. Most of the costs of the vacation (airfare, hotel, forgone wages) are measured in dollars, but the benefits of the vacation are psychological. How can you compare the benefits to the costs?*

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

3. *You were planning to spend Saturday working at your part-time job, but a friend asks you to go skiing. What is the true cost of going skiing? Now suppose that you had been planning to spend the day studying at the library. What is the cost of going skiing in this case? Explain.*

If you are thinking of going skiing instead of working at your part-time job the cost of skiing includes its monetary and time costs, which includes the opportunity cost of the wages you are giving up by not working. If the choice is between skiing and going to the library to study, then the cost of skiing is its monetary and time costs including the cost to you of getting a lower grade in your course.

4. *You win \$100 in a hockey pool. You have a choice between spending the money now or putting it away for a year in a bank account that pays 5 percent interest. What is the opportunity cost of spending the \$100 now?*

If you spend \$100 now instead of saving it for a year and earning 5 percent 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, the subfield of economics that has to do with prices of financial instruments like stocks and bonds.

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 salespeople 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?*

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 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. *The welfare system provides income for people who are very poor, with low incomes and few assets. If a recipient of welfare payments decides to work and earn some money, the amount he or she receives in welfare payments is reduced.*
- a. *How does the existence of the welfare system affect people's incentive to save money for the future?*
 - b. *How does the reduction in welfare payments associated with higher earnings affect welfare recipients' incentive to work?*

- a. The provision of welfare benefits lowers an individual's incentive to save for retirement. The benefits provide some level of income to the individual when he or she retires. This means that the individual is not entirely dependent on savings to support consumption through the years in retirement.
- b. Since a person gets fewer after-tax welfare benefits the greater is his or her earnings, there is an incentive not to work (or not work as much) after age 65. The more you work, the lower your after-tax welfare benefits will be. Thus the taxation of welfare benefits discourages work effort after age 65.

7. *In 1997, the Government of Ontario reformed that province's welfare system. The reform reduced the amount of welfare payments to a person with no income, but also allowed welfare recipients to keep a larger part of their welfare payments if they did earn some income.*

a. *How does this reform affect the incentive to work?*
b. *How might this reform represent a tradeoff between equity and efficiency?*

- a. 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.
- b. The change in the law is one that increases efficiency but reduces equity.

8. *Your roommate is a better cook than you are, but you can clean more quickly than your roommate can. If your roommate did all of the cooking and you did all of the cleaning, would your 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.*

By specializing in each task, you and your roommate can finish the chores more quickly. If you divided each task equally, it would take you more time to cook than it would take your roommate, and it would take him more time to clean than it would take you. By specializing, you reduce the total time spent on chores.

Similarly, countries can specialize and trade, making both better off. For example, suppose it takes Spanish workers less time to make clothes than French workers, and French workers can make wine more efficiently than Spanish workers. Then Spain and France can both benefit if Spanish workers produce all the clothes and French workers produce all the wine, and they exchange some wine for some clothes.

9. *Nations with corrupt police and court systems typically have lower standards of living than nations with less corruption. Why might that be the case?*

These activities tend to lessen the efficiency of an economic system, hence reducing the economic productivity of a nation. Lower productivity means lower standards of living.

10. *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 cable TV prices*
b. *providing some poor people with free prescription drugs*
c. *prohibiting smoking in public places*
d. *preventing mergers between major banks*
e. *imposing higher personal income tax rates on people with higher incomes*
f. *instituting laws against driving while intoxicated*

- a. Efficiency: the market failure comes from the monopoly by the cable TV firm
b. Equity
c. Efficiency: an externality arises because secondhand smoke harms nonsmokers
d. Efficiency: the market failure from the monopoly occurring from the merger
e. Equity
f. Efficiency: an externality exists because of accidents caused by drunk drivers

11. *Discuss each of the following statements from the standpoints of equity and efficiency.*
- "Everyone in society should be guaranteed the best health care possible."*
 - "When workers are laid off, they should be able to collect unemployment benefits until they find a new job."*
- If everyone were guaranteed the best health care possible, much more of our nation's output would be devoted to medical care than is now the case. Would that be efficient? If you believe that doctors have market power 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 equality, 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 equal slice of the economic pie, though the pie would consist of more health care and fewer other goods.
 - When workers are laid off, equality considerations argue for the unemployment benefits system to provide them with some income until they can find new jobs. After all, no one plans to be laid off, so unemployment benefits are a form of insurance. But there is an efficiency problem—why work if you can get income for doing nothing? The economy is not operating efficiently if people remain unemployed for a long time, and unemployment benefits encourage unemployment. Thus, there is a tradeoff between equality and efficiency. The more generous unemployment benefits are the less income is lost by an unemployed person, but the more that person is encouraged to remain unemployed. So greater equality reduces efficiency.
12. *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?*
- Since average income in Canada has roughly doubled every 35 years, we are likely to have a better standard of living than our parents, and a much better standard of living than our grandparents. 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.
13. *Suppose Canadians decide to save more of their incomes. If banks lend this extra saving to businesses, which use the funds to build new factories, how might this lead to faster growth in productivity? Who do you suppose benefits from the higher productivity? Is society getting a free lunch?*
- If Canadians 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 is no such thing as a free lunch, however, because when people save more, they are giving up spending. They get higher incomes at the cost of buying fewer goods.