Chapter 1

The Principles and Practice of Economics

Questions

1. Give examples to explain how economic analysis can be positive and normative.

*Answer*: Positive economics is objective and based on facts. However, normative economics is subjective and opinion-based. For example,

Positive economics: The mismatch between students’ knowledge and market requirements is a factor that underlies low employability.

Normative economics: The government should increase the minimum wage earned by each employee.

2. Economists think of almost all human behavior as the outcome of choices. Do you agree with this statement? Based on your reading of the chapter, how would you define economics?

*Answer*: Scarcity of resources for individuals, firms, and nations in the situation of having unlimited wants pushes them to make choices by allocating scarce resources to their wants. Individuals have limited budgets (scarce resources) compared to the unlimited wants that they wish to satisfy. Firms have unlimited investment projects as compared to their limited budgets. Nations may have many areas—growth, human development, healthcare, legislature, and education—that require expenditure, but due to limited budgets, governments need to prioritize areas for spending.

Economics is a science that helps in performing this allocation.

3. Examine the following statements and determine if they are examples of normative economics or positive economics. Explain your answer.

a. According to the World Economic Outlook Update released by the International Monetary Fund in January 2021, the global economy is projected to grow 5.5 percent in 2021 and 4.2 percent in 2022.

b. According to an article published in the European Central Bank (ECB) *Economic Bulletin* in January 2021, government spending on investment should be a priority during the interim phase in the run-up to the economic recovery in the euro area.

*Answer:*

a. This is an objective prediction released by the IMF about growth in the global economy. Positive economics is analysis that generates objective descriptions or predictions about the world, which can be substantiated with data. Since data can be used to underline why the IMF believes that growth will be 5.5 percent in 2021 and 4.2 percent in 2022, this is an example of positive economic analysis. However, students should note that different organizations may have different growth predictions about the global economy and that the IMF itself will revise these calculations every quarter.

b. The statement that government spending on investment *should* be a priority is normative since it states what governments *ought* to do. Normative economics prescribes what an individual or society should do. Source: Stephan Haroutunian, Steffen Osterloh, and Kamila Sławińska,“The Initial Fiscal Policy Responses of Euro Area Countries to the Covid-19 Crisis,” ECB Economic Bulletin, January 2021, <https://www.ecb.europa.eu/pub/economicbulletin/articles/2021/html/ecb.ebart202101_03~c5595cd291.en.html>.

4. How does microeconomics differ from macroeconomics? Would the supply of iPhones in the United States be studied under microeconomics or macroeconomics? What about the growth rate of total economic output in the national economy?

*Answer*: Microeconomics is the study of how individuals, households, firms, and governments make choices, and how those choices affect prices, the allocation of resources, and the well-being of other agents. Macroeconomics is the study of the economy as a whole. Macroeconomists study factors that affect overall – in other words, aggregate – economic performance.

The supply of iPhones refers to the supply of a good by an individual firm, Apple. The iPhone market will be studied under microeconomics. Microeconomics studies how individuals, households, firms and governments make choices, and how those choices affect prices and the allocation of resources. The growth rate of total economic output, on the other hand, refers to the aggregate American economy, and is therefore studied under macroeconomics.

5. Why do economic agents have to make trade-offs on any given day of their lives? What kind of non-monetary budget constraints do agents face?

*Answer:* An economic agent faces the prospect of a trade-off when the agent needs to give up one thing to get something else. For instance, an agent faces a trade-off when organizing their daily schedule. Should they go to work, or stay at home and watch a TV series? Should they spend an extra hour at work or hang out with friends? Should they spend their free time focusing on getting an extra degree in legal studies or be happy with the current work position they are in?

An example of a non-monetary budget constraint is that of time. All economic agents have 24 hours in their day. Therefore, based on their utilities, agents optimize by making trade-offs on the type of activity that they take part in.

6. This chapter introduces the idea of opportunity cost.

a. What is meant by opportunity cost?

b. What is the opportunity cost of taking a year after graduating from high school and backpacking across Europe? Are people who do so being irrational?

*Answer:*

a. Opportunity cost is the best alternative use of a resource. The opportunity cost of a particular choice is measured in terms of the benefit foregone from the next best alternative. To facilitate comparison, the benefits and costs of various choices are translated into monetary units like dollars.

b. The opportunity cost of backpacking across Europe, for a particular person, is the cost of anything else that could have been done in that year. The backpacker could have attended college or started working. These costs are the opportunity costs of the gap year. This, however, does not mean that backpackers are irrational, because the benefits may exceed the cost. Every action has an opportunity cost. The choices that people make are optimal based on their perceived costs and benefits.

7. Suppose you wish to take out a mortgage to buy a new house for your family. However, the houses you like exceed your budget. You are considering three options: choose a neighborhood that is less fashionable and, therefore, the prices are lower; take out a mortgage with a longer maturity period; or instead of buying a house, buy a larger apartment in your current neighborhood. How would you evaluate these options and choose the optimal one?

*Answer:* You can use cost-benefit analysis to compare the various feasible alternatives and pick the best one. Cost-benefit analysis is a calculation that adds up costs and benefits using a common unit of measurement, such as euros. Buying a house in a less fashionable neighborhood would give you a larger space and your family a garden to enjoy; however, it might take longer to commute to work, or the schools in the locality might be of a lower quality. The mortgage with a longer maturity period allows you to buy your dream house, but you will be opening yourself up to a greater risk of default should you, or your partner, face job loss. Buying a larger apartment instead of a house gives you enough room for an expanding family, but not a garden. All these options need to be converted into values in euros. This will include monetary as well as opportunity costs. You can then choose the option that offers you the greatest net benefit.

8. Suppose the market price of the latest model of iPhone is €759 in Germany. What are the three conditions that will need to be satisfied for the iPhone market to be in equilibrium at this price?

*Answer:* For the market to be in equilibrium, three conditions will need to be satisfied:

* At the price of €759 per unit, the number of iPhones supplied by Apple should be equal to the number of iPhones purchased by buyers in the market.
* Apple has chosen the optimal quantity of iPhones to supply, given the price of €759 per unit.
* Consumers have chosen the optimal quantity of iPhones to buy, given the price of €759 per unit.

9. Suppose you are living in a housing project that has 100 apartments. The housing project has its own garden, swimming pool, library, and community center. To be able to utilize the available amenities, residents must contribute €50 a month towards the upkeep while also taking turns keep it clean. In this context, answer the following questions.

a. What is meant by free riding?

b. How would you define a free-riding resident? Why would it be a problem for the housing project?

*Answer:*

a. A free rider is a person who receives the benefit of a good but avoids paying for it. People tend to pursue their own private interests and usually don’t contribute voluntarily to the public interest. For example, watching a pirated copy of a movie is cheaper than buying one. Those who watch the pirated version are free riders because there are others who buy the movie or pay for movie tickets. If everyone watched pirated copies, making movies would not be profitable and the industry would not function.

b. In the situation described in the question, a free-riding resident would be a person or family that does not contribute in terms of money and commitment to maintain the housing project and keep it clean. In a way, this person is using the services being offered by the housing project for free and is taking advantage of the other contributing residents. This is a problem for the housing project because it will compel the paying residents to either eventually pay more money for the upkeep of the garden, swimming pool, and other amenities, or they will have to work more in any given week to keep it clean.

10. “Scarcity exists because people have unlimited wants in a world of limited resources.” Explain this statement using a real-life example.

*Answer:* Since the world has limited resources, no one can have everything they want. Scarce resources are things that people want, where the quantity desired exceeds the quantity that is available. For example, emerging viral pandemics, such as the COVID-19 pandemic, may place unexpectedly high and sustained demands on public healthcare systems and on various essential services. However, certain regions with large outbreaks may have fewer hospital beds and ventilators, or smaller hospitals in rural areas may have less space and supplies to offer. Thus, the demand for such items in these regions, especially during a pandemic, may exceed the resources available, causing scarcity. These situations will create the need to ration supplies and interventions.

11. Identify the cause and the effect in the following phenomena in a hypothetical country:

a. A surge in the price of goods and an increase in the workers’ income.

b. A rise in GDP and an increase in the number of university graduates.

*Answer:*

a. The increase in income is likely to induce people to spend more, thus leading to a surge in prices.

b. The increase in the number of university graduates in the country is likely to lead to higher productivity, resulting in a rise in GDP.

Problems

1. You have purchased a non-refundable ticket to the Maldives with an early morning departure scheduled for Saturday. You receive a call notifying you about an interview for a job that may be scheduled around the same time. While you really wanted this job, you think that going on the trip is more important for your mental wellbeing as you have been planning this trip for a year now.

a. The human resources department from the company you applied to informs you that there is only one slot available for the interview, which clashes with your flight. Should this affect your decision to go on the trip? Explain by using the term “opportunity cost.

b. Suppose instead that you realize that the non-refundable travel ticket, which you already purchased, cost you €100; previously you had mistakenly believed the price was €250. Should learning this information affect your decision to go to the Maldives trip?

*Answer:*

a. This should affect your decision, or at least make you reconsider. The explicit cost of the trip has not changed, nor has the benefit of the trip itself. However, the opportunity cost of not making it to the interview is now higher than you previously thought.

b. This should *not* affect your decision. Whether you paid €100 or €250 in the past is irrelevant to the costs and benefits that you can affect by going (or not going) on the trip.

2. You are thinking about buying a house in London. You find one you like that costs £1,000,000. You learn that, based on the value of the house and your wages, your bank will give you a mortgage for 20 years in the region of £600,000. This means that you must make a down payment of £400,000. What are some of the monetary and non-monetary opportunity costs of this purchase?

*Answer:* By using your £400,000 to buy the house, you give up the opportunity to earn interest on that money. If you could earn 4% interest, then the opportunity cost is 0.04 × £400,000 = £16,000 per year. Also, if the value of the house increases (real increase) by 2% per annum, then the value of your property will have increased by £20,000 a year (£1,000,000 × 1.02 = £1,020,000). Subtracting the opportunity cost of £16,000, this indicates a gain of £4,000. However, you will also have to pay mortgage. At a 4% mortgage, you will be paying £24,000 per annum. Under these conditions, you will have to decide whether it makes sense for you to buy the house. Some of the non-monetary opportunity costs include the benefits associated with a better neighborhood, such as accessibility to public transport, shops, and schools.

3. Your local coffee shop used to be the best in the neighborhood; however, due to a recent change in ownership the quality of the service and products offered has been steadily decreasing. Nevertheless, you have some fond memories of the place and it is also quite conveniently located—on the way to the train station that you use to get to work.

* 1. What is the opportunity cost of searching for a new coffee shop?

1. You have found a new coffee shop, but to get there you have to take a longer route to the train station. How would you determine, every morning, which coffee shop to visit? The old one or the new one?

*Answer:*

* 1. You have to invest time and effort in finding a new coffee shop. You will also have to leave your apartment (flat) earlier or spend some extra time after work to find the optimal one. Instead, this time could be spent in relaxing or meeting with friends.
  2. You will have to factor in whether the longer walk to get to the train station is worthwhile to visit your new coffee shop. If you were able to leave your flat on time, or if there are trains every five minutes from your local station, then the opportunity cost of visiting your new coffee shop will be presumably low. However, if you are late, if it is raining, or if your old coffee shop holds some sentimental value for you, you might stick to the old one.

4. You have decided that you are going to consume 600 calories of beer and snacks at a party Saturday night. A beer has 150 calories and a snack has 75 calories.

a. Create a table that shows the various combinations of beer and snacks you can consume. To keep things simple, use only round numbers (e.g., you could choose 1 or 2 beers but not 1.5 beers).

b. What is the opportunity cost of a beer?

*Answer:*

a. Suppose you choose to consume 0 beers. Then you could use all 600 calories on snacks. Since snacks have 75 calories you could consume 600 / 75 = 8 snacks. Now suppose you choose 1 beer. A beer has 150 calories and so you would be left with 600 – 150 = 450 calories for snacks. You could therefore consume 450 / 75 = 6 snacks if you choose 1 beer. You can use the same logic to complete the table below.

|  |  |
| --- | --- |
| **Beer** | **Snacks** |
| 0 | 8 |
| 1 | 6 |
| 2 | 4 |
| 3 | 2 |
| 4 | 0 |

b. If you consume 1 more beer you will have 150 fewer calories for snacks. Since a snack has 75 calories, consuming one more beer means that you will have to give up 150 / 75 = 2 snacks. The opportunity cost of a beer is therefore 2 snacks.

5. Consider the following three statements :

1. You are planning a conference in St. Petersburg, Russia, and your closing gala will be on a cruise boat in November. Do you think hosting the event on a boat is a rational choice?

b. You have to reach the airport during rush hour to catch your flight to St. Petersburg. You have two options: take the underground or take a taxi. Although you have an hour to get there, traffic most of the time is heavy during rush hour. Which option would be the rational choice?

c. Suppose you decided to take a taxi to the airport and made it to the airport in time. Once you landed in St. Petersburg, you noticed that the temperature was surprisingly mild, making the cruise boat experience comfortable. Do these outcomes mean that the decisions to host an event on a cruise boat in November and take a taxi to the airport were rational?

*Answer:*

1. Considering the low average temperature in St. Petersburg in November, if the boat does not have heating or paneling, or is not made for the Russian winter, hosting the event on a cruise boat is likely to be an irrational decision.
2. If the traffic is heavy during rush hour, the rational choice would be to take the underground to the airport and avoid traveling by road.
3. It is possible to beat the odds despite making an irrational decision. The probable temperature in November in St. Petersburg and the time taken to get to the airport by taxi are estimated as averages; there can always be some deviation from the mean.

6. Consider the following three statements:

1. “Your friends are coming over for lunch and you realize you have forgotten to get groceries. You go to the local market, where there are about 50 stalls. You are in a hurry, so you decide to do all of your shopping at the first two stalls.
2. You find a stall that sells good quality vegetables and fruit. However, you do not have enough money on you. You start to haggle and agree on a 15 percent discount for the products you are buying.
3. “Despite being in a hurry, you now decide to go around the market to check the prices and quality at all stalls.

Which of these statements deals with optimization, which deals with equilibrium, and which deals with empiricism? Explain.

*Answer*:

The first statement involves optimization. You believe that you will be better off by making all your purchases quickly to get home in time to do the cooking. The second statement involves equilibrium. The shopkeeper may have been in a hurry to make the sale, or the fruits and vegetables might have been nearing their expiry date. Therefore, you settled on a price that is acceptable to both parties. In other words, supply met demand at an agreed-on price. The third statement involves empiricism. You decided to obtain data on price and quality through observation in order to make an informed purchase.

7. In 2014, California was in its third year of a major drought. With water supplies dwindling, Governor Brown issued a plea for a voluntary 20 percent reduction in water use. This target was not reached. In early 2015 Governor Brown issued an executive order requiring local water agencies to reduce water use by 25 percent, but no enforcement mechanism was specified. No taxes or fines were in the executive order. State officials hoped that they could achieve compliance without resorting to fines.

a. From an individual homeowner’s perspective, what are the costs and benefits of using water during a drought? Why do you think that the voluntary reduction order in 2014 didn’t work?

b. Using concepts from this chapter, explain how you might get individual homeowners to reduce water use during a drought.

c. Eventually, many communities began levying fines on water use. However, while many middle income families dramatically cut water use, wealthy households cut back their water use relatively little. How can you explain this phenomenon from an economic perspective?

*Answers*:

a. With no specific enforcement mechanism, there is low cost to using water. Water bills are not zero, but these prices were low enough in the past to create a water shortage, so clearly the financial cost is not high enough to prevent a shortage. There may be some social stigma attached to watering a lawn, though this cost varies for each person and depends on their sense of civic responsibility. On the flip side, the benefits of using water are quite clear: Green lawns, pleasant showers, and odorless toilets. The fact that the 2014 plea did not work is because the cost of violating a call for civic responsibility is not very high for most people.

b. Charging a higher price for water than in 2014 would likely result in a reduction in water usage. When the price goes up, people would discover that some of their usage is actually not that important.

c. Fines are equivalent to a higher price for water. In this case, lower income individuals were more price elastic; they responded more sharply to a price change. This implies that the willingness to pay for the last gallon of water in a low-income household is less than the willingness to pay in a high-income household.

8. Use the concepts discussed in this chapter to answer the following problems:

1. Oskar is about to join a new factory where he has the option of joining a trade union. Being a part of the trade union means that he will have to pay 5 percent of his wages to the union. Why do you think some workers decide not to join a trade union?
2. You are living in a semi-detached house with a common garden. This means that both families living in the house can use it while being jointly responsible for its maintenance and upkeep. However, you decide that you cannot spare any time to maintain the garden. How can the other family get you to do your share of the maintenance?

*Answer:*

a. The free-rider problem explains why some workers decide not to join a trade union. On the one hand, they hope that they will not need the services provided by the trade union, such as legal assistance. On the other hand, they know that even if such a need arises, the services will be available to everyone, irrespective of whether they have paid a membership fee or not.

b. The other family can insist on signing a joint usage-of-the-garden contract that states the responsibilities shared by the two families. It can also state the consequences of failing to share those responsibilities. Alternatively, they can decide to maintain only the half that is closer to them.

9. It is the night before your trip to Spain and you must decide how many hours to spend on expanding your vocabulary. The total benefits column shows how many more Spanish words you expect to learn. The cost column shows how many Spanish words you will mispronounce because of the increased fast learning. (The “marginal” columns show the effect of each additional hour spent studying. These marginal numbers are calculated by taking the difference within a column from one row to the next row.)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Hours Spent Learning** | **Total Benefit** | **Marginal Benefit** | **Total Cost** | **Marginal Cost** |
| 0 | 0 | -- | 0 | -- |
| 1 | 8 | 8 | 0 | 0 |
| 2 | 13 | 5 | 2 | 2 |
| 3 | 16 | 3 | 6 | 4 |
| 4 | 16 | 0 | 12 | 6 |

1. If you study in an optimal way, how many more Spanish words will you learn?

b. Explain how you can find the optimal number of hours by using the marginal benefits and marginal costs columns.

*Answer*:

1. Total benefit minus total cost is maximized at 13 − 2 = 11 when you study for two hours. This difference is lower in all other rows.
2. You can arrive at the answer of two hours by noticing that the first hour is well worth it since the marginal benefit of 8 is greater than the marginal cost of 0. The second hour is also worth it since 5 > 2. However, the third hour is not worth it since 3 < 4; thus, you will gain fewer points than you will lose. (This sort of “marginal analysis” is a recurrent theme in economics.)