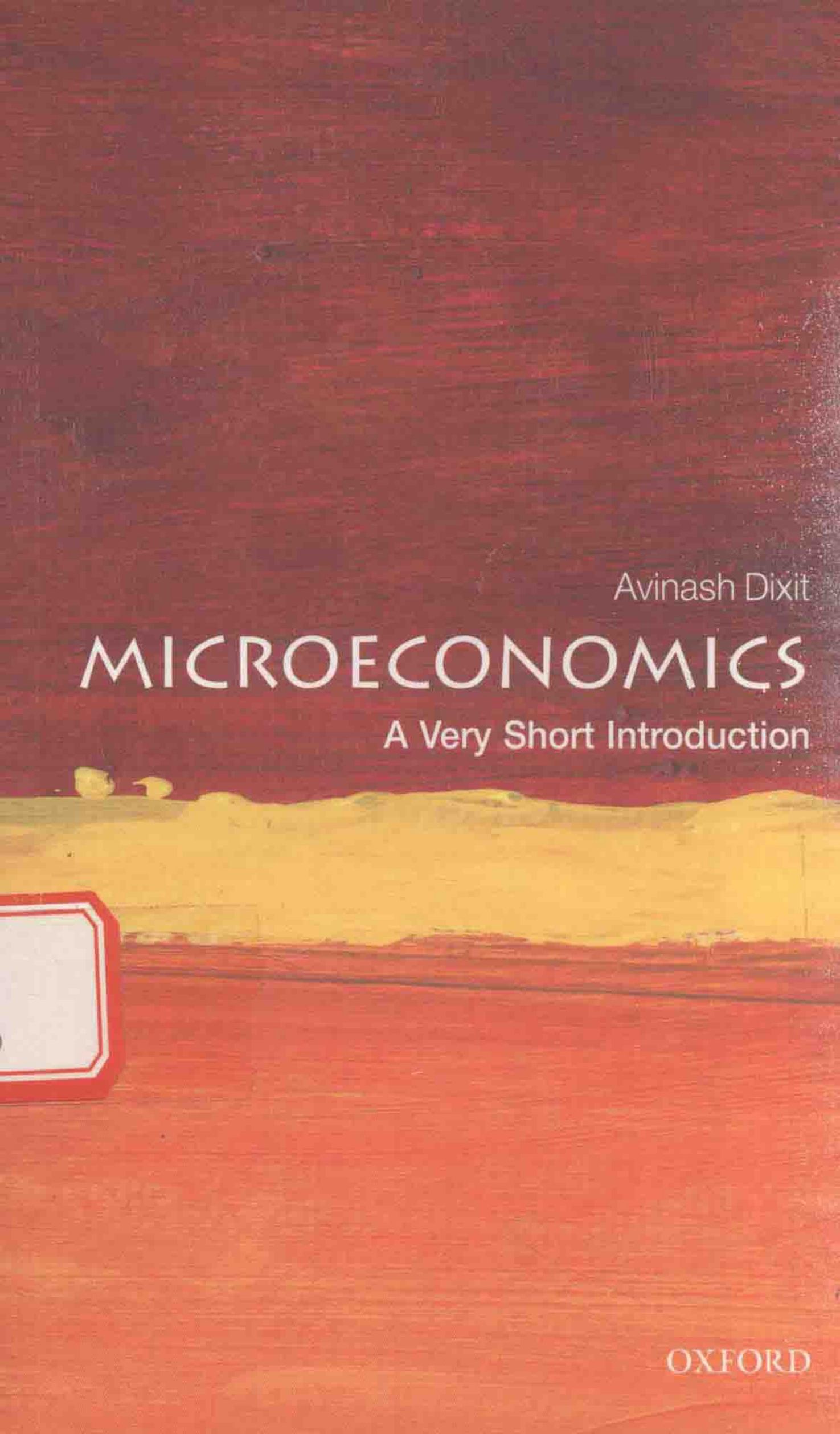
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MICROECONOMICS
A Very Short Introduction
OXFORD

Microeconomics: A Very Short Introduction

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Preface

Non-economists think economics is about unemployment, inflation, growth, competitiveness of nations, and other matters pertaining to the economy as a whole, or in economists' jargon, about *macroeconomics*. They rarely mention, and perhaps are not even aware of, the whole nexus of choices and transactions behind the larger picture: people's choices of where to live and work, how much to save, what to buy, and so on; firms' decisions about location, investment, hiring, firing, advertising, and many other dimensions of business; and government policies with regard to infrastructure, regulation of industries, structure and rates of taxes on goods and services, and so on. Citizens' relative ignorance and neglect of these fine-level, or *microeconomic*, issues is partly explained by the fact that things often work pretty well at that level, and when they don't work so well, each failure seems small in the larger scheme of things. But many such small failures can add up to a large economic cost. They can have large ramifications at the macroeconomic level too. Therefore it is important to understand why things work pretty well in the microeconomy much of the time, when and why they fail in little and big ways, and what to do to guard against and cope with such failures. In this book, I attempt to present this way of thinking about economics, and some of the conclusions it yields. I hope to convince non-specialist readers that microeconomics is important,

and connects as closely with their daily life as unemployment and inflation. I hope to give them some aha moments, where they say, 'I have often seen this; now I understand why!' For more lasting value, I hope to equip them with some basic concepts and tools of microeconomic analysis for use in their own thinking and actions, and leave them eager to do the further reading that I recommend.

Three caveats before you begin. First, in this *Very Short Introduction* you should not look for anything like a comprehensive treatment of the subject. I had to leave out many topics, ideas, and methods, not because they are unimportant, but because in my opinion others have a stronger claim in a brief introduction. If you are a microeconomist and your favourite topic is missing, blame my tastes.

Second, economics has an unavoidable quantitative aspect that requires a little numeracy, for example reading tables and graphs. I have kept these topics as simple as I could, but readers who have occasional trouble with the graphs or numbers can usually just skip those parts and read the rest.

Third, while I hope the subject is fascinating and my treatment readable, such a book cannot be a page-turner. If you are new to the subject, do not try to read too much at one go. Stealing from P. G. Wodehouse's preface to his collected Jeeves short stories, I advise: Do not attempt to finish this volume at one sitting. It can be done—I did it myself when correcting the proofs—but it leaves one weak and is really not worth doing just for the sake of saying you have done it. Take it easy. Spread it out. Assimilate it little by little. Take one small section with each meal. Should insomnia strike, add another section or two at night.

Drafts of a book intended for intelligent non-economist readers should be tried out on intelligent non-economists. I am fortunate to have just the right friends: my breakfast group at Small World

Coffee. I am very grateful to Frank Calaprice (physicist), Julie Jetton (lawyer), Bill Shaffer (financial adviser), Connie Shaffer (high-school French teacher), and Cathy Smith (hypnotherapist) for their patience and generosity in reading early drafts and telling me what needed clarification, rewriting, or even deletion. Andrea Keegan at Oxford University Press and her colleagues also provided valuable feedback on matters of style as well as substance.

Fellow economists were also generous with their time and advice, correcting my errors and suggesting better examples and explanations. Karla Hoff has my eternal gratitude for combining this role with that of an eagle-eyed copy-editor. I am also very grateful to Dilip Abreu, Paul Klemperer and John Vickers for their perceptive comments and useful suggestions.

My biggest *Thank You* goes to all the teachers, colleagues, and students from whom I have absorbed and improved understanding of microeconomics over my whole career. Much of what is good in the book is your doing; the defects are mine.

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Chapter 1
What and why of microeconomics

A wake-up call

Every morning I choose among several alternatives for my jolt of caffeine. I can brew coffee at home, go to a national chain coffee shop like Starbucks, or to go to Princeton's local Small World Coffee. If I choose to go out, I can walk, bike, or drive. With my coffee I can have healthy bran and berries, indulge in a muffin full of carbs and fat, or binge on fats and salt with eggs and bacon.

What I choose depends on many considerations: whether it is raining or snowing, whether I overindulged at dinner the night before and need exercise, whether my friends have congregated and I feel like socializing that morning, sheer whim or desire for variety, and the quality and prices of the coffee and eats at the different places (including the value of my time if I make coffee at home). As these conditions change from day to day or month to month, my choices also change. But never have I arrived at a coffee shop only to be told, 'Sorry; we don't have any coffee today'. Nor has the supermarket ever run out of coffee when I went to buy some to brew at home. How did they know I would come, and why were they ready and willing to serve me? Examining my choices one step back, when I went to buy a car that (among other trips) I would drive to the coffee shop or the

supermarket, how did someone anticipate my demand and have the car available?

Microeconomics studies how millions of consumers choose what goods and services to buy, how producers make decisions to meet these demands, and how the two sides interact. Much of the time the transactions work fairly smoothly. That is why microeconomics is often a story of the dog that did not bark in the night, which in turn explains why non-economists are often unaware of any microeconomic problems. But from time to time things do go wrong. At a trivial level, the coffee shop does run out of muffins on a few days when I am late (although I can then get a scone or some other carb fix instead). But some failures are more drastic, like the gasoline shortages in the 1970s and the housing bubble and its collapse in the 2000s. Therefore it behooves all intelligent people to get some basic understanding of microeconomics: when and how transactions go well, when and why they fail, and what can be done when they do fail or threaten to fail.

Information and incentives

In most societies, consumers and producers interact in markets—not necessarily traditional bazaars and marketplaces, but shops, restaurants, other venues like bargaining tables and auctions, and increasingly the internet. In a market, buyers pay a price to sellers for the good or service. This price serves a twofold purpose. First, if something is scarce, its price rises; thus a high price conveys *information* about scarcity. Second, when a price is high, a supplier of that good or service can profit by producing more of it, and buyers will buy less or switch to something else; thus a high price also provides a natural *incentive* for actions that alleviate the scarcity. Information and incentive mechanisms to coordinate transactions between producers and consumers, and specifically whether and how prices work in this dual capacity, are the main subject matter of microeconomics.

The focus on information and incentives also tells us when and why the price mechanism can fail: it may convey inadequate or wrong information or incentives, or responses to these signals may not occur. The most frequent failure of this kind arises when one person's actions have spillover effects on others. Every car driver contributes to air pollution, which increases the scarcity of clean air. But there is no market or price for clean air, so no one gets a signal of that scarcity and no one has a profit incentive to alleviate it.

The price mechanism can also fail if responses to its signals are suppressed. Price controls suppress them. So do barriers to entry of new producers: whether natural barriers, strategic ones erected by entrenched producers, or those created by government policies. Further, existing producers can conspire to preserve some scarcity so as to drive up the price for their own greater profit. In socialist countries where production and supply are in the hands of the state, its functionaries have little to gain personally by satisfying consumers and suffer few penalties by neglecting them. Without markets the functionaries even lack good information about scarcity. That is why those systems have chronic shortages and poor quality.

More subtly, the price mechanism may fail by conveying information about matters besides scarcity. Suppose you know that used 2010 Toyota Camrys are listed for around $15,000, but don't know the quality of the particular car you are contemplating buying. You infer that the car cannot be worth much more than $15,000—otherwise the previous owner, who has had plenty of opportunity to observe its quality, wouldn't be selling it. But it could be worth less—much less. That depresses your willingness to pay. When all buyers think this and hold back, the lower demand leads to a lower price, driving even more owner-sellers out of the market. In the worst-case scenario, the whole market can collapse. Of course sellers of good cars and buyers who want good cars can both benefit by enabling credible communication of

information about quality. The signals they use for this purpose are also subjects for microeconomic analysis.

A different kind of market failure arises from a moral or ethical perspective. The signals and incentives of the price mechanism are ineffective if would-be buyers don't have the purchasing power to back up their desire. The Pieman said to Simple Simon: 'Show me first your penny,' and Simon had to reply: 'Indeed I have not any'. This is a trivial example, but we may legitimately regard some wants such as health and education as meritorious or basic human rights, regardless of a person's private ability to pay for them. Deciding and implementing policies to fulfill such wants become an issue in political economy.

Prices and payments don't have to be in conventional money. One thing may be exchanged for another; payment may be deferred either as a loan or as a general favour owed. Depending on the context, one form of 'currency' may be more appropriate and effective than another. Money is crass and inappropriate in many social situations; informal arrangements of reciprocity and favour exchanges prevail among families and friends. Elaborate algorithms and organizations have evolved for matching hospitals and freshly graduated doctors, and for multilateral exchanges of organs, for example kidneys, when most people would regard their sale for money as abhorrent. Interpreted broadly and adapted to fit the context, economic analysis can be applied with considerable success to all these many and varied interactions and transactions.

So much to tell, so little space! Therefore, enough introductory chat and motivation—let us begin with the end-users of economic activity, namely consumers.

Chapter 2
Consumers

Substitution

Consumers make their decisions using some combination of calculation and instinct, and taking into account many aspects, of which the price of what they are considering buying is only one. Microeconomics pays attention to other aspects too, but focuses on prices to study the interaction of each consumer with the rest of the economy. A very broadly valid property of consumer choice, almost general enough to merit the name *law of demand* that is sometimes attached to it, is that when the price of something rises, other things being equal, less of it will be purchased.

The main explanation for this empirical regularity is *substitution*. Consumers respond to a price increase by buying less of that commodity, instead they satisfy their desires, perhaps imperfectly so, by substituting it with something else relatively cheaper. As an example, suppose the price of lager rises while that of ale stays unchanged. Consider a consumer who chose lager at the original prices. At the new prices the preference for lager is to some extent outweighed by its increased cost, so the consumer may settle for drinking less lager and more ale, that is, he or she may substitute ale for lager. If the preference for lager is not very strong, or if the price rise is very large, the consumer may switch completely to ale.

Elementary textbooks illustrate substitution using a few commodity groups (aggregates) such as food and clothing. Readers may rightly wonder how one can substitute clothing for food. If the price of food rises, can wearing more clothes on a cold day to reduce the loss of body heat adequately make up for eating less? In reality the choice is not between broad commodity groups. Instead it is between subcategories such as chicken and fish, or cotton and wool—and the narrower the categories, the greater the possibility of substitution. Actually, a little substitution occurs even at the level of broad categories, as we will soon see in an example of statistical estimation of demand.

Ability to substitute depends on time scale. A consumer with fixed habits will need time to change the mindset or cultivate taste for the substitute commodity. A coffee addict will not switch to tea unless the price of coffee rises by a lot and for a long time. The owner of a house heated by an oil-burning furnace, seeing the price of natural gas fall, may not switch to a gas furnace until the old furnace breaks down. If a price increase is expected to be temporary, the consumer may choose to ride out the increase; many consumers literally do so in their fuel-guzzler cars when the price of the fuel rises.

The relationship between the price of something and its quantity demanded is useful for economic analysis only if it is reasonably stable and can be estimated or forecast. Any one person's demand is influenced by many idiosyncratic chance factors. Luckily for the study of markets, we need only know the total or aggregate response of consumers. This makes the market demand more stable and predictable.

Aggregating demand over consumers has two effects. First, the random part of individual consumers' decisions, whether due to whim or to some idiosyncratic change in circumstances, gets averaged out to zero by the law of large numbers. Second, one consumer's substitution may be sudden, shifting from buying one

type of car to another, or from car-driving to bike-riding; this gets smoothed out because different consumers shift at different prices and each of them is only a tiny part of the market. Therefore overall market demand becomes a smoother and more stable relationship than that for an individual.

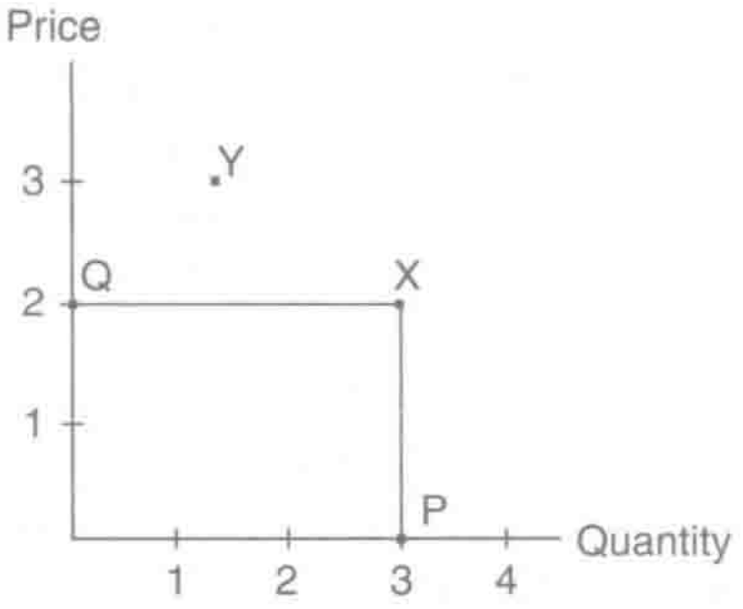
The quantity of any one commodity that is demanded in the market depends not only on its own price but also on other factors. This is not a problem as long as these can be estimated and predicted. Some factors affect the market as a whole, such as advertising and seasons of the year. Most important for market analysis are prices of other related commodities. For example, if the price of lager increases, consumers will substitute it with ale; therefore at any given price of ale, more of it will be demanded than before.

Complements

However, suppose most consumers eat fish and chips together. If the price of fish increases (while that of chips stays unchanged), this increases the price of the fish-and-chips combo, so less of it is bought. Therefore for any given price of chips, their quantity demanded decreases when the price of fish rises. Consumers do not substitute away from fish toward chips: the two commodities are not substitutes for each other, but *complements*. This distinction proves important for organization of markets for such pairs, as we will see in Chapter 5 when we examine profit externalities among firms.

Demand curves

The relationship between the price of a good and its quantity demanded is best illustrated graphically. For readers unfamiliar with this representation of a relationship between two entities, here is a brief explanation (see Figure 1). The vertical and horizontal lines are called 'axes'. In our context the vertical line is



1. Representation of a point

the price axis, and the horizontal line the quantity axis. Any point in the area enclosed by the two axes represents a price–quantity combination. In Figure 1, from any point such as the one labelled X, look at the lines parallel to the two axes: XP parallel to the price axis and XQ parallel to the quantity axis. Then X represents a combination of price equal to the length XP and quantity equal to the length XQ. Thus in the figure, X represents price = 2 (dollars per bottle of lager, say) and quantity = 3 (million bottles of lager).

To reinforce your understanding, draw similar parallel lines from the point labelled Y and check that it represents the combination price = 3, quantity = 1.5. For more details, see <http://www.mathopenref.com/tocs/coordpointstoc.html>.

Figure 2 uses this method to show how the price of a good influences the total demand for it. This is called a (market) *demand curve*; it is best thought of as a sum of many different individuals' choices at each price. Suppose the good in question is the one in our opening example—namely, lager. The upper left hand portion of the curve, where the price is high and quantity small, comes from those few people with the strongest preference for lager who are willing to pay the highest prices. At lower prices