

## CHAPTER 1

# Introduction to Market-Driven Economics

## LEARNING OBJECTIVES

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- **Understand what microeconomics is all about.** Economics is the study of how societies allocate their scarce resources among competing needs. You should also begin to appreciate the role that market architecture plays in the operations of a marketplace.
- **Understand why scarcity implies trade-offs.** Because individuals (and societies) do not possess unlimited resources, scarcity exists. In choosing both broad economic goals and specific goods and services, societies and individuals curtail their pursuit of some goals or goods/services in order to obtain more of others. In other words, to obtain more of one goal or good/service, the decision maker *must* settle for less of some other goal or good/service. This trade-off lies at the heart of an economic problem.
- **Start to become acquainted with the equities markets and how trades occur.** Buyers and sellers of equity securities (common stock) come together to trade in an equities market. Buyers and sellers have differing estimates about the future value of various stocks, and also different cash flow needs. The buyers and sellers make their purchases and sales based on their individual needs and estimates of future values.
- **Identify the topics covered in microeconomics.** Microeconomics is the study of how individual economic units (households and firms) determine both what and how many goods and services to consume and to produce, respectively. Households' consumption decisions are made in light of their evaluations of the satisfaction (utility) that they receive from the different goods and services that they consume. Firms' production decisions are based upon their technological capabilities and the

cost of obtaining the factors of production which are provided to them by households and other firms.

- **Identify the costs that matter in making decisions.** While consumers seek goods and services that provide them with the highest satisfaction (utility), their consumption is limited by their available income and wealth, and by the cost of the resources that they wish to acquire. Similarly, producers consider consumers' appetites for goods and services, and will not produce units of a good/service when the cost of obtaining them exceeds the value of what they produce to consumers.
- **Understand the use of marginal analysis for making decisions.** Consumers and producers are rational. They assess the cost and satisfaction (utility) of each additional unit of consumption or production. When the cost of producing *an additional unit* exceeds the consumers' appetite *on the margin*, total satisfaction (utility) must decline and production/consumption should be curtailed. On the other hand, if the cost of *an additional unit* is less than the consumers' utility *on the margin*, total production/consumption should be increased.
- **Understand the different ways of classifying and measuring costs.** Costs are classified as either fixed or variable. In the short run some costs are fixed; in the long run all costs are variable. The cost of any output can be measured as total cost, average cost, and/or marginal cost.
- **Why markets are a good, but not a perfect, way to allocate resources.** There are several different methods of allocating scarce resources including coercion, moral authority, and privilege. Free markets tend to achieve an efficient allocation of scarce resources across their alternative uses. Free markets, however, can also fail to achieve textbook efficient results. The chapter introduces you to an array of causes of market failure that are returned to in later chapters of the book.

## **CHAPTER SUMMARY**

In this introductory chapter we establish several key learning goals and concepts that will be themes in our market structure presentation of microeconomics. Here are some highlights:

1. Microeconomics is the study of how economic units determine what and how many goods and services to consume (households) and produce (firms), and what and how much of the factors of production (labor and capital) to supply (households) and to use in production (firms).
2. Microeconomic theory formalizes basic principles concerning how best to resolve the trade-offs involved in consumption, production, and

other allocation decisions. It does so by tying assumptions together to form an economic model. The assumptions individually need not be perfect reflections of real-world economic activity. Theory, by its nature, is abstract, while real-world markets can be very intricate. The hallmark of a good theory is that, although abstract, it provides insights that enable us to understand better the operations of the real-world, micro markets.

3. Market structure refers to the architectural realities of actual market-places. These encompass the institutional features that pertain to market design and operations.
4. The power of microeconomic theory can be better understood by applying it to an actual, real-world market. Throughout the book, as we extend our theoretical discussion to a nonfrictionless market characterized by imperfect information, trading costs and blockages, we focus on the equity markets. Specifically, we consider the secondary markets where already issued equity shares trade (not the primary markets where new shares are issued).
5. Equity market microstructure, a relatively new field in financial economics, considers the processes by which orders are submitted to a non-frictionless marketplace, are handled in the marketplace, and are turned into trades and transaction prices.
6. Market participants (buyers-consumers and sellers-producers) interact to set the prices of goods and services in the context of specific institutional environments. Through price setting, markets allocate scarce resources to participants according to the relative prices that they face, their incomes (or wealth positions), and their tastes for the various goods and services as described by their utility functions (and also by technology which is described by production functions, a topic that we discuss in Chapter 5).
7. A vast array of different markets exists, including commodities (such as coal, crude oil, wheat, and wood), labor (full-time and part-time), managerial resources, and capital (physical and financial.) Equities markets (one of the markets for financial capital) are an excellent target for market microstructure analysis.
8. We have addressed the question, how well do markets function? On one hand, there is the positive force exerted by Adam Smith's invisible hand. On the other hand, the forces of competition that the invisible hand represents are impeded by some agents having market power (at the extreme, monopoly power), and by various other factors including trading costs, imperfect information, and systemic risk.
9. To understand better just how prices and transactions' volumes are determined in an equity market based on the order-flow received by the

market, and to appreciate that trading in an equity market involves making tactical decisions, we have noted that the market can be thought of as an ecology. Traders interact with each other for a multiplicity of motives, and a multiplicity of motives is, in fact, required for an equity market to operate effectively.

10. We have presented seven key concepts: *ceteris paribus*, fixed costs versus variable costs and return, long-run versus short-run analysis, equilibrium, marginal analysis, elasticity, and maximum versus minimum versus optimum. These concepts underlie much of the discussion in the rest of the book. It is important to have a good grasp of them. If you feel comfortable with these concepts you will appreciate your study of this market structure presentation of microeconomics.

## GLOSSARY

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***ceteris paribus*** Latin for “other things being equal.” A methodological treatment that enables the net effect of one variable (an independent variable) on another variable (a dependent variable) to be obtained while holding all other relevant independent variables constant.

**demand curve** A graph of the relationship between the quantity demanded of a good and the price of the good, all else constant.

**effective demand** The amount of a good that a buyer actually be willing to purchase.

**elasticity** The responsiveness of demand or supply to one of its determinants. For instance, let  $Y$  be a dependent variable and  $X$  be an independent variable. The elasticity of  $Y$  with respect to  $X$  is the percentage change in  $Y$  divided by the percentage change in  $X$ . Perhaps  $X$  is the quantity of a good demanded and  $Y$  is the unit price of  $X$  (own price elasticity). Or  $Y$  could be income (income elasticity), or  $Y$  could be the price of another good that is related in consumption (cross-price elasticity).

**equity market microstructure** The analysis of the detailed way in which orders to trade equity shares are submitted to the market, handled by the market, and turned into trades and transaction prices. Of particular importance is how the design and operation of a specific market permits price discovery and cost containment.

**equities** The indicia of ownership in an economic enterprise; typically common stock.

**fixed costs** Costs of production that do not vary with output. Fixed costs exist in the short run; in the long run, all costs are variable.

**frictional and frictionless** These opposites reflect the realities of market frictions (the costs, blockages, and imperfect information) compared to a theoretical frictionless market without costs and characterized by perfect information.

- initial public offering (IPO)** The first public sale of equity shares by a previously privately owned enterprise.
- liquidity** The characteristic of a micro market that permits buyers and sellers to trade reasonably quickly, in reasonable amounts, at reasonable prices. An attribute of the shares of an asset that, along with risk, affect the expected return and hence the price of an asset.
- macroeconomics** The economics of national or regional production and consumption emphasizing the formulation of economic policies. Macroeconomics stresses the importance of flow variables such as aggregate income, production, employment, and interest rates, while microeconomics stresses the importance of variables such as relative prices.
- marginal utility** The change of utility obtained from consuming a good or service with respect to the change in the amount of the good or service consumed, all else equal.
- marginal values** The change in the value of a depend variable with respect to the change in the value of an independent variable. For instance, with the total cost of production being an increasing function of the total amount of a good or service produced, the marginal cost of production is the amount by which the total cost increases as output increases.
- market architecture** The design of a trading venue, including the rules and regulations that govern trading.
- market breakdown (failure)** When a specific market fails to achieve an efficient market outcome from a public policy point of view. The failure can be in terms of price established and/or quantity traded. It can be attributable to factors such as externalities, asymmetric information, or moral hazard problems. In the extreme, a market can actually shut down (that is, totally ceases operations).
- market efficiency** The quality of a market as manifested in liquidity supply, cost containment, and the sharpness of price discovery.
- market microstructure** The composition and structure of the market for a particular product (good or service).
- microeconomic theory** The study of how markets operate. A common definition is the analysis of the allocation of scarce resources between competing ends.
- microeconomics** The economics of household and firm production and consumption of goods and services, and the supply of factors of production.
- movements along a curve** For instance, the coordinated change in the price of a good and the quantity of the good that is purchased, all else held constant. In contrast, when variables other than the price of the good change, the curve itself changes position.
- optimal amount** Neither the maximum nor the minimum, an optimal amount is just the right amount. For instance, in a two-good universe ( $X$  and  $Y$ ), the optimum amount is the best quantity of  $X$  to consume when more or less of good  $X$  can be purchased. For a household, when the inputs of all goods ( $X$ ,  $Y$ , etc.), have been *optimized*, the decision maker's utility has been *maximized*. Similarly, a firm's profits are maximized when its factors of production (labor and capital) are being used in optimal amounts.

**primary markets** The market for the offering of new shares of a specific equity (common stock). In secondary market trading, the term is also used to designate the main market where the stock trades when there are several other, smaller markets that orders can be sent to.

**secondary markets** The markets where already issued equity shares are traded (for instance, the New York Stock Exchange, NASDAQ, the London Stock Exchange, or Deutsche Börse).

**shift of a curve** Consider, for instance, the undefined consumption good,  $X$ . Let the demand for  $X$  be a function of the price of  $X$ , the price of a related good (call it  $Y$ ), income, and the consumer's tastes as described by a utility function. A change in the price of  $X$  with all other relevant variables constant (price of  $Y$ , income, and tastes) results in a move along the consumer's demand curve for  $X$ . A change in any of the other variables (either the price of  $Y$ , income, and/or tastes) with the price of  $X$  constant, results in a shift of (not a movement along) the consumer's demand curve for  $X$ .

**utility value** The value to a consumer of a good or service measured in terms of the pure pleasure obtained (or pain avoided). Utility is an abstract, theoretical concept that is represented by ordinal, not cardinal numbers.

**variable costs** The costs of producing a good that vary with the amount of the good produced. In the long run, all costs are variable.

**wishful demand** The amount of a good that a buyer would ideally like to consume, but cannot necessarily obtain because he or she does not have the resources to make the purchase.

## **CURRENT EVENTS DISCUSSIONS**

### **1. Internationally, Markets and Competition Are Viewed Differently. Is Monopoly a Threat to Market Competition?**

As we proceed with our examination of the microstructure of markets, we must always keep in mind that different markets for different commodities in different countries have their own individual architectures, participants, rules, and regulators. The focus of our discussion is on the model of the American equities markets, which have evolved over a period of more than 200 years. Not all markets have that length of experience or the volumes and diversity of participants. Therefore, as we go forward using the U.S. equities markets as our model, we should always recognize that the principles we deduce from our observations should be projected with care upon the other markets of the world.

The following article illustrates the particular views of U.S. and European market regulators toward the issue of "market power" and the prospects of monopoly control of a market.

## Oceans Apart

Europe still seems to have less faith than America in the ability of the free market to tame monopolies.

*America fosters competition; Europe protects competitors. That jeer is tossed across the Atlantic pretty frequently. Watchdogs on both sides of the ocean play down the idea that the Europeans bite more often than the Americans. But although the gap is far narrower than it was a few years ago, it still exists. The commission (the European Union's antitrust authority) is much likelier than the American Department of Justice (DoJ) to fear that a merger of two big firms or the behaviour of a dominant one will force rivals out of business, raising prices and restricting choice. The Americans are more confident that if powerful firms abuse their strength, they may attract competition rather than crush it.*

*American regulators seem to have become more convinced of this argument than their European counterparts have. The saga of Microsoft illustrates the difference. In 1998 the DoJ charged that by bundling Internet Explorer, its web browser, with Windows, its operating system, Microsoft sought to extend its desktop monopoly into browsers, freezing out Netscape, its main competitor.*

*The American courts ruled against Microsoft and in April 2000 ordered that the software giant should be split into two—one part owning the operating system and the other owning all other applications. The next year an appeals court said that Microsoft's actions did not warrant dismemberment. The DoJ settled for far more lenient remedies. These would stop Microsoft from bullying PC manufacturers into favouring its add-ons to Windows, but would leave the firm and its most important product intact.*

*The difference in approach is partly explained by economic philosophy. In America there is a greater faith that markets will fix the problem of monopolies and a belief that market leadership in high-tech is transient. A new product may make today's dominant technology redundant tomorrow. Firms compete for the market as much as in it: temporary monopoly is the reward for innovation.*

*But in a market where one firm is king, such practices can take on a sinister guise. Dominant firms might use loyalty rebates to stop others from becoming large enough to pose a serious threat. Bundling can be a tactic to compel consumers to buy several things from a firm with a monopoly in one product. It is hard to establish*

*whether such strategies are pro-competitive or nefarious. Antitrust watchdogs have to gauge the tangible short-term benefits of lower prices and convenience against theoretical long-term harm.*

*America's agencies have tended to judge that too little action is less of a risk than too much. Intervention to protect weaker firms may serve only to blunt competition for the sake of highly uncertain benefits. Andrew Dick, a former DoJ economist now at CRA International, a consultancy, says that for these reasons American competition authorities put their faith in entrepreneurship to tackle monopolies. "Someone will always come along and build a better mousetrap," he says.*

—*The Economist* (May 1, 2008)

### Questions

1. Be prepared to discuss in class the concept of monopoly as a “restraint of trade” in the market for computer software.
2. Take a position favoring the European Commission’s view of mergers or that of the Department of Justice, and be prepared to defend your position with facts, analysis, and arguments from this article and other readings.

## 2. What Are the Consequences of Expanding Demand in the Global Micro Market for Crude Oil?

Our discussion of the American equities markets can be a starting point for a discussion of the energy markets in general and the market for petroleum or crude oil in particular. In 2009, the world was consuming approximately 86 million barrels of crude oil every day. Of that total, the United States was consuming approximately 19 million barrels, of which it was producing 7 million barrels and importing almost 12 million barrels. Just as there are different stocks in the equities markets, there are different types of crude oil, “West Texas Sweet,” “Brent,” “Siberian Blend,” and “North forties” among others. The following article discusses some of the forces of supply and demand that bear upon the markets for crude oil.

### Oil Market Remains Vulnerable

*LONDON—Though demand for fuels is eroding fast, especially in the U.S., the global oil market remains tight, susceptible to sudden external shocks able to arrest the recent downdraft in prices.*



*One such disruption—a fire on a critical pipeline through Turkey—is imperiling the flow of Caspian oil to global markets.*

*The explosion on the Baku-Tbilisi-Ceyhan, or BTC, pipeline helped drive U.S. crude prices up, reversing a four-week slide. In midday trading Thursday on the New York Mercantile Exchange, crude for September delivery was up \$1.22 a barrel at \$119.80.*

*Events in Turkey came against a backdrop of bearish signals, with oil imports to the U.S. rising and evidence that an economic slowdown was eating away at demand. The latest data from the U.S. Department of Energy, released Wednesday, showed crude inventories building much more than expected, though they still are below the five-year average.*

*But supply concerns weigh heavily on the market. Militant attacks on oil infrastructure in Nigeria continue, and there are still fears of a showdown over Iran's nuclear ambitions, which could halt oil exports out of the Gulf. Oil production outside the Middle East continues to disappoint as major projects are hit by fresh delays.*

*The fire at BTC, by far the worst incident to affect the one million barrels-a-day pipeline since it was commissioned in 2005, broke out early Wednesday and continues to rage. Rebels from the Kurdistan Workers' Party, or PKK, claimed responsibility for the blast that caused the fire in a statement on their Web site.*

*But a spokesman for the pipeline's operator, Botas International Ltd., said the cause, whether sabotage or a technical fault, was unclear. He said he expected the fire to burn itself out within a couple of days, but it was too early to say how long the pipeline would be out of action.*

*Oil from the BTC line is an important source of the 86 million barrels consumed globally each day.*

*Any sustained outage would have a big impact on Azerbaijan, one of the biggest oil producers in the region, which sends most of its exports through the BTC. BP PLC, of the U.K., which is a BTC shareholder, said it is being forced to curtail production at two big oil and natural-gas fields it operates in the Caspian Sea to avoid a buildup of crude at its onshore facilities. On Wednesday it declared force majeure on exports, meaning it may not be able to fulfill contractual obligations.*

*Running for more than 1,600 kilometers through Azerbaijan, Georgia and Turkey, BTC is one of the most strategically important pieces of energy infrastructure in the world. Strongly backed by the U.S., it was designed to be the first major pipeline to bring*

*Caspian oil to Western markets without going through Russia, and thereby to ease Moscow's tight grip on oil exports from the region.*

*A spokeswoman for BP in Azerbaijan's capital, Baku, said the company was cutting back on production at Azeri-Chirag-Gunashli, or ACG, a complex of oil fields about 120 kilometers off the Azeri coast that produce some 800,000 barrels of crude a day, and at Shah Deniz, a big natural-gas reservoir that also yields some liquid condensates. She declined to say how much production would be closed.*

*The "precautionary measure" would help BP manage stock levels at the oil terminal near Baku that supplies BTC, she said. BP also is considering increased use of alternative export routes. These include a rail link to the Georgian Black Sea port of Batumi, a pipeline to Supsa, also in Georgia, and another pipeline to Novorossiisk, a Russian port on the Black Sea.*

*But the total combined capacity of the two alternative pipelines is 200,000 barrels a day—a fifth of BTC's capacity. The Baku-Novorossiisk pipeline is also unpopular because oil transported through it is blended during transit with lower-quality Russian crude. The resulting mix trades at a discount to the industry benchmark Brent, though the Russian pipeline monopoly Transneft pays no compensation for the loss in value, according to consultancy Wood Mackenzie.*

*—Guy Chazan, Wall Street Journal (August 8, 2008)*

### Questions

1. Be prepared to discuss in class the factors that bear upon the market price of crude oil as it moves from the production fields to the consumer in the form of home heating oil or gasoline for automobile travel.
2. With your fellow students, role-play a meeting of the Organization of Petroleum Exporting Countries (OPEC) and consider the following factors, as well as other sources of information, while formulating your recommendation for action by the OPEC Production Council.
  - OPEC members control approximately 80 percent of the world's "proven" petroleum reserves.
  - OPEC's petroleum production constitutes approximately 40 percent of the world's production of crude oil.
  - OPEC relies on production controls (supply) to effect changes in the price of crude oil in the world's petroleum markets.
  - Approximately half of OPEC members are concerned with optimizing their revenues, and the other half with "price stability."

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**REVIEW QUESTIONS**

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1. What did Adam Smith refer to by using the term “invisible hand of the market”?
  - a. That consumers and producers naturally find each other for transactions to happen in an unregulated market.
  - b. That free markets and competition can lead to socially desirable results (to optimality in production and consumption).
  - c. That a free market has self-regulation properties and no government intervention is therefore needed.
  - d. That a free market leads producers to produce in the correct quantities.
2. Which of the following terms refers to the facilities offered to market participants and rules and regulations that govern trading?
  - a. Market microstructure.
  - b. Market architecture.
  - c. Market efficiency.
  - d. Micro market.
3. Which of the following statements about fixed and variable costs is FALSE?
  - a. All costs are variable in the long run.
  - b. Marginal analysis cannot be applied to fixed costs.
  - c. Fixed costs are relevant for the decision making process.
  - d. Variable costs are relevant for the decision making process.
4. Elasticity
  - a. Is measured in percentage terms.
  - b. Is a percentage change in dependent variable (quantity) divided by the percentage change in independent variable (price).
  - c. Cannot be a negative number.
  - d. Is a measure of responsiveness of an independent variable (price) to a dependent variable (quantity).
5. What does “*ceteris paribus*” mean?
  - a. “In a dynamic environment.”
  - b. “Ignoring market frictions.”
  - c. “Given that market is competitive.”
  - d. “All else being equal.”
6. The market where newly issued shares of stock are traded is referred to as a
  - a. Secondary market.
  - b. Dealer market.
  - c. Primary market.
  - d. De-novo market.

7. Which of the following statements about trading and investing is correct?
  - a. Trading is the implementation of investment decisions.
  - b. Investing is the implementation of trading decisions.
  - c. Trading and investing are identical concepts.
  - d. None of the above is correct.
8. Which of the following is NOT a reason why market(s) may operate imperfectly?
  - a. Public goods.
  - b. Trading costs.
  - c. Imperfect information.
  - d. Rational behavior.
9. Which of the following terms refers to a contrast of the two different static equilibria that is attributable to a difference in the value of an independent variable?
  - a. Market microstructure.
  - b. Differential equilibria.
  - c. Comparative statics.
  - d. Smithsonian equilibria.
10. Which of the following statements about the adjustment process in the short run and in the long run is correct?
  - a. Decision makers' responses to the changes in economic variables do not occur instantaneously, and for that reason we differentiate between the short run and the long run.
  - b. The length of the "long run" is taken to be 3 to 10 years for the majority of the micro markets.
  - c. Short-run adjustments are more complete than the long-run adjustments.
  - d. Both a and b are correct.
11. A micro market that makes it possible for its participants to trade "reasonably quickly, in reasonable amounts, and at reasonable prices" is referred to as
  - a. Competitive.
  - b. Liquid.
  - c. Reasonable.
  - d. Balanced.
12. The study of operations of the equity markets is called
  - a. Micro market economics.
  - b. Equity market architecture.
  - c. Equity market microstructure.
  - d. Equity microeconomics.

13. The price of coffee went up by 20¢ from its previous level at \$2.00 and your demand for coffee went down from 10 cups a week to 9 cups. What is your elasticity of demand for coffee?
  - a. -1.
  - b. -5.
  - c. 1.
  - d. 5.
14. When there is only one firm selling a certain good in the marketplace, that firm is a
  - a. Monopsonist.
  - b. Monopolist.
  - c. Price taker.
  - d. Dealer.
15. Which of the following represents a classic (i.e., a conventional) set of factors of production?
  - a. Land, labor, physical capital, and financial capital.
  - b. Land, labor, physical capital, and human capital.
  - c. Land, labor, physical capital, and information.
  - d. None of the above.

## **APPLICATIONS AND ISSUES**

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### **1. Why was the New York Stock Exchange founded?**

During the first year of the federal government and the presidency of George Washington, Congress accepted the plan of Secretary of the Treasury Alexander Hamilton to refinance the Revolutionary War debt that accumulated while winning independence from the British. To fund this refinancing, the federal government sold bonds to various investors in what we might now call an initial public offering (IPO). Subsequently, those investors wished to buy or sell those federal government bonds. The brokers who traded those bonds gathered daily under a buttonwood tree on Wall Street to meet with the investors and to trade the government's "stock." Thus the "Buttonwood Agreement" was formed and the New York Stock Exchange was founded.

Common equity stock of industrial enterprises did not become widely owned and traded investments until the last years of the nineteenth century when investment banker J. P. Morgan and his firm brought the equity shares of many large companies to be traded on the floor of the NYSE.

## 2. Symmetric information, imperfect information, and the “lemon” problem

Market imperfections have often been recognized as imperfect competition and illustrated by the differing bodies of knowledge possessed by buyers and sellers in a micro market. For example, the seller of a good usually has been its owner and therefore is very familiar with its attributes, including its imperfections. It follows logically that a primary motive in selling a good is dissatisfaction with the good’s imperfections. Therefore, the owner knows he owns a “lemon” and wishes to sell (unload) it. Conversely, the buyer has no such knowledge of the good’s imperfections and therefore is at a disadvantage when compared to the knowledge possessed by the seller. Does this “Lemon” problem suggest that markets can never be fair because of asymmetric information? Those who complain of market failures and “imperfect competition” cite this phenomenon as a reason for inherent market failure. What is your view?

## 3. Elasticities of supply and demand

The supply of goods coming into the markets is determined by several different forces. Similarly, the demand for goods in the market is affected by a variety of forces bearing on buyers. As we have noted, the primary determinant of both supply and demand are the prices for the goods in the market. As prices increase, the demand by consumers for that good falls. Conversely, when the price of a good rises, the producers of that good see an increasingly lucrative profit opportunity and will therefore seek to increase production (that is, increase the quantity supplied of that good). So price would seem to be the primary determinant of quantity demanded and quantity supplied, as well as of the supply and demand.

Yet we need to go deeper into the consumer’s and the producer’s decision to produce or consume a good. For example, it seems logical that the consumer’s willingness to consume is determined by the amount of income that the consumer possesses. More income generally leads to more consumption. We can then suggest that the higher the income the higher will be the propensity to consume. Therefore consumption is not only price elastic, it is also “income elastic.” Surely, there are other attributes of the consumer that will bear on consumption, and the demand for a good will have many elasticities (one for each attribute).

On the supply side the same concept of elasticities holds true. Supply is price elastic, but it also responds to costs of production, so we know that production is “cost elastic.” Finally, we know that the demand and supply for goods responds to the prices of related goods.

When the price of gas goes up, the demand for cars goes down. We call this “cross price elasticity.” We treat this in more detail in Chapter 3.

**4. The market for gasoline and the alternatives of a “market-based” solution contrasted with government-directed “solutions”**

To spark debate and discussion, some members of the class should be assigned to be advocates for “alternative fuels” and their promotion by market action or by government sponsorship.

## **ADDITIONAL READINGS**

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**ANSWERS TO REVIEW QUESTIONS**

1. b
2. b
3. c
4. b
5. d
6. c
7. a
8. d
9. c
10. a
11. b
12. c
13. a
14. b
15. d