



PART 1 INTRODUCTION

The Nature of Economics

On March 11, 2010, thousands of students participated in events held at more than 60 university and college campuses across the country to stage Canada's first Bottled Water Free Day. Amid pledges to "kick the bottle" and get "back to the tap," the event organizers raised awareness regarding the wasteful and negative effects of consuming bottled water. To date in Canada, 76 municipalities, four municipal associations, eight school boards, five university campuses, and countless businesses have implemented restrictions on bottled water. Meanwhile, more than a billion people around the world are without safe drinking water. How are these events related? Why are they of interest to economists? Read on.

Source: "Thousands Mark Canada's First Bottled Water Free Day." *Canada NewsWire*. Ottawa. March 11, 2010.

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

- 1.1 Explain the meaning of scarcity.
- 1.2 Define economics and distinguish between microeconomics and macroeconomics.
- 1.3 Describe how resource use decisions are affected by the rationality assumption, costs and benefits at the margin, and incentives.
- 1.4 Explain the three key processes involved in the scientific method.
- 1.5 Distinguish between positive and normative economics.
- 1.6 Describe the relationship among theories, policies, and socioeconomic goals.



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DID YOU KNOW THAT...?

Canadians reported that they spend more of their weekly leisure time using the Internet than watching TV for the first time ever, according to a study released in 2010. On average, Canadians are now spending more than 18 hours a week online, compared to 16.9 hours watching television. Overall, 89 percent of Canadians have Internet access, with the highest rates of access reported in Ontario, British Columbia, and Alberta. Across all age groups, males are spending more time online than females. The most frequent online activity is e-mail, followed by social networking; music downloading; online gaming; and completing homework and research for school, college, and university. The world

around us continues to change rapidly, and much of that change stems from the decreasing cost and increasing convenience associated with information technology. As you will learn from this chapter, the increasing importance of the online world can be explained in terms of rational behaviour, an important premise that underlies the study of economics.

Sources: "Weekly internet usage overtakes television watching." News and Polls. Ipsos North America. March 22, 2010. <http://www.ipsos-na.com/news-polls/pressrelease.aspx?id=4720>; *The 2009 Canadian Internet Fact Guide*. Ipsos Canada. pg 2-3. <http://www.ipsos.ca/reid/interactive/ifg.cfm>

1.1 Scarcity

You can't have it all! You were probably first exposed to this very important economics lesson when you were a toddler and your parents denied your request to buy you a new toy at the supermarket. You undoubtedly experienced this same lesson many times over by the time you enrolled in this course. After you graduate, you may face such choices as buying a brand new car, putting a down payment on a condo, travelling to faraway places, or getting married and starting a family. As a senior member of your community, you may have to choose between spending tax dollars on building a new hospital and improving the education system for the next generation.

Whenever individuals or communities cannot obtain everything they desire, choices occur. Choices occur because of the fundamental economic problem of *scarcity*. Scarcity is the most basic concept in all of economics.

Scarcity refers to the condition that arises because wants always exceed what can be produced with limited resources.

As a result of scarcity, we do not and cannot have enough income and wealth to satisfy our every desire.

Scarcity is not the same thing as poverty. Scarcity occurs among the rich as well as the poor. Even the richest person faces scarcity because available time is limited. Low income levels do not create more scarcity. High income levels do not create less scarcity.

Scarcity and Wants

Wants refer to the goods and services that we wish to consume as well as the goals that we seek to achieve. **Goods** are physical items that we as consumers are willing to pay for, such as meat, jeans, DVDs, and cars. **Services** are the tasks performed by others that we as consumers are willing to pay for, such as haircuts, education, and medical, dental, and legal services. The goals that we seek to achieve can be individual or social in nature. The important thing to note is that we are referring to goods, services, and goals that require the use of our limited resources.

Scarcity and Resources

The scarcity concept arises from the fact that resources are insufficient to satisfy our every desire. Resources are the inputs used in the production of the things that we want. **Production** can be defined as virtually any activity that results in the conversion of resources into goods and services. Production includes the manufacturing, wholesaling, and retailing of goods as well as the delivery of services. The resources used in production are called *factors of production*, and some economists use the terms *resources* and *factors of*

Scarcity The condition that arises because wants always exceed what can be produced with limited resources.

Goods The physical items that consumers are willing to pay for.

Services The tasks performed by others that consumers are willing to pay for.

Production Any activity that results in the conversion of resources into goods and services.

production interchangeably. The total quantity of all resources that an economy has at any one time determines what that economy can produce.

Factors of production can be classified in many ways. Here is one such classification:

1. **Land** encompasses all the nonhuman gifts of nature, including timber, water, fish, minerals, and the original fertility of the land. It is often called the *natural resource*. **Land** Nonhuman gifts of nature.
2. **Labour** is the human resource, which includes all productive contributions made by individuals who work, such as steelworkers, ballet dancers, and professional baseball players. **Labour** Productive contributions made by individuals who work.
3. **Physical capital** consists of the factories and equipment used in production. It also includes improvements to natural resources, such as irrigation ditches. **Physical capital** Factories and equipment used in production.
4. **Human capital** is the economic characterization of the education and training of workers. How much the nation produces depends not only on how many hours people work but also on how productive they are, and that, in turn, depends in part on education and training. To become more educated, individuals have to devote time and resources, just as a business has to devote resources if it wants to increase its physical capital. Whenever a worker's skills increase, human capital has been improved. **Human capital** The education and training of workers.
5. **Entrepreneurship** is actually a subdivision of labour and involves human resources that perform the functions of risk taking, organizing, managing, and assembling the other factors of production to make business ventures. Entrepreneurship also encompasses taking risks that involve the possibility of losing large sums of wealth on new ventures. It includes new methods of doing common things, and generally experimenting with any type of new thinking that could lead to making more money income. Without entrepreneurship, virtually no business organization could operate. **Entrepreneurship** Human resources that perform the functions of risk taking, organizing, managing, and assembling other factors of production to make business ventures.

When resources are used to produce goods and services, they earn income. The incomes earned by land, labour, capital, and entrepreneurship are referred to as **rent**, **wages**, **interest**, and **profit**, respectively.

- Rent** Income earned by land.
Wages Income earned by labour.
Interest Income earned by capital.
Profit Income earned by the entrepreneur.

1.2 Defining Economics

What is economics exactly? *Economics* is one of the social sciences and, as such, seeks explanations of real events. All social sciences analyze human behaviour. The physical sciences, on the other hand, generally analyze the behaviour of electrons, atoms, and other nonhuman phenomena.

Economics is a social science that studies how people allocate their limited resources to satisfy their wants. That is, economics is concerned with how individuals, groups, and societies respond to the economic problem of scarcity.

Economics A social science that studies how people allocate their limited resources to satisfy their wants.

Resources are limited relative to wants. Consumers, managers, business owners, citizens, and politicians must continually make choices among alternative courses of action. For example, as a consumer, you choose how to spend your limited income on a vast array of goods and services. If you own a business or manage a government department, you will have to decide what resources to hire in order to best promote the goals of your organization, while working within a limited budget. As a citizen and potential politician, you make decisions that affect how limited tax dollars are used for the betterment of society. Economics helps us study how such choices can be made.

As Example 1-1 suggests, even a web page designer, who prefers to engage in artistic endeavours, must practise economics on a regular basis.

EXAMPLE 1-1 The Economics of Web Page Design

As noted in this chapter's Did You Know That . . . ? section, Canadians are spending more time on the Web than watching television. During a typical month, Canadians spent more than 45 billion minutes on the Internet.

continued



How does the economic problem of scarcity apply to a web designer?

Microeconomics The study of decision making undertaken by individuals and by firms in specific parts of the economy.

Macroeconomics The study of the behaviour of the economy as a whole.

Aggregates Economywide measures.

Companies that want to sell their products realize that the explosive growth in Internet use suggests that advertisements posted on the Web can potentially reach very large audiences, in Canada and worldwide. These companies also know that when people access the Internet, their home pages are typically those of their Internet service provider, a popular search engine such as Yahoo!, or their favourite media website. Consequently, many companies advertise on these web pages. In 2009, Canadian online advertising ballooned to a record \$1.82 billion, and it is projected to increase by 15 percent to \$2.1 billion in 2010. In all but one of the past 10 years, online advertising has increased at double digit annual rates, making it the fastest growing media in terms of advertising revenues. Online advertising is now the third most frequent form of advertising behind television and newspaper advertising.

The owner of any web page that carries advertising faces the economic problem of scarcity. For example, advertisers widely consider the Yahoo! search engine home page “prime real estate” because so many people see it each day. But there is relatively little space on the computer screen to view the page without having to scroll farther down the screen. Thus, when Yahoo! allocates space to promote its own services and products, it gives up space that it could sell to advertisers. On the other hand, if Yahoo! fills up too much of its prime screen space with ads, some users will switch to a less cluttered search engine. Web designers try to minimize the space taken up by ads on prime screen space by using animations that cycle through a number of different ads in the same space on a web page. However, Net surfers are willing to spend only a limited amount of time viewing such animations. All these considerations make web design a crucial economic concern.

For critical analysis: What are the “unlimited wants” and “limited resources” that face a person in charge of designing a frequently visited web page?

Source: IAB Canada. *2009 Actual + 2010 Estimated Canadian Online Advertising Revenue Survey Detailed Report*. Ernst & Young. August 10, 2010. http://www.iabcanada.com/reports/IABCanada_2009Act2010Budg_CdnOnlineAdRev_FINAL.pdf. (Accessed September 11, 2010.)

Microeconomics versus Macroeconomics

Economics is typically divided into two fields of study: *microeconomics* and *macroeconomics*.

Microeconomics studies decision making undertaken by individuals and by firms in specific parts of the economy. It is like looking through a microscope to focus on individual households, firms, industries, and occupations.

Macroeconomics studies the behaviour of the economy as a whole. It deals with economywide phenomena, such as changes in unemployment, the general price level, and national income.

Microeconomic analysis, for example, is concerned with the effects of changes in the price of natural gas relative to that of other energy sources. It examines the effects of new taxes on a specific product or industry. If price controls were to be reinstated in Canada, how individual firms and consumers would react to them would be in the realm of microeconomics. The raising of wages by an effective union strike would also be analyzed using the tools of microeconomics.

By contrast, such issues as the rate of inflation, the amount of economywide unemployment, and the yearly growth in the output of goods and services in the nation all fall into the domain of macroeconomic analysis. In other words, macroeconomics deals with **aggregates**, or economywide measures, such as total output in an economy.

The Power of Economic Analysis

Knowing that an economic problem of scarcity exists every time you make a decision is not enough. As you study economics, you will be encouraged to develop a framework of analysis that will allow you to effectively analyze possible solutions to each economic problem—whether you are a student trying to decide how much studying time you should devote to a course, a consumer making the choice between renting and owning your next home,

a business owner interested in setting the most profitable price for your product, or a government leader searching for the policy that would most effectively create jobs in your province.

The remainder of this chapter is concerned with introducing you to a powerful framework of analysis that includes the *economic way of thinking*, the *scientific approach*, and *policy analysis* based on valued economic goals.

Indeed, just as taking an art or literature appreciation class increases the pleasure you receive when you view paintings or read novels, taking an economics course will increase your understanding when viewing news clips on the Internet, watching the news on TV, listening to newscasts on the radio, or reading newspapers.

1.3 Rational Decision Making

The **economic way of thinking** assumes that the typical response to an economic problem of scarcity is rational behaviour. That is, individuals behave as if they compare the costs and benefits of different possible choices when they make resource use decisions. They behave in this manner in order to further their own self-interest.

Economists presume that individuals act *as if* motivated by self-interest and respond predictably to opportunities for gain. This central insight of economics was first clearly articulated by Adam Smith in 1776. Smith wrote in his most famous book, *An Inquiry into the Nature and Causes of the Wealth of Nations*, that “it is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest.” Otherwise stated, the *typical* person about whom economists make behavioural predictions is assumed to look out for his or her own self-interest in a rational manner. The word *typical* is very important. Economists know that not all people respond in the same way when faced with the same circumstances. If offered a free trip to Hawaii for participating in a marketing experiment, for example, most people will take part. There inevitably will be some who do not want to go to Hawaii, perhaps because they do not like travelling, so they will not participate in the study. But, *on average*, the promised trip to Hawaii will be sufficient to attract participants because people behave in a predictably self-interested way.

Economic way of thinking

Assumes that the typical response to an economic problem of scarcity is rational behaviour.

The Rationality Assumption

The **rationality assumption** of economics, simply stated, is as follows:

An individual makes decisions based on maximizing his or her own self-interest.

The distinction here is between what people may think—the realm of psychology and psychiatry and perhaps sociology—and what they do. Economics does *not* involve itself in analyzing individual or group thought processes. Economics looks at what people actually do in life with their limited resources. It does little good to criticize the rationality assumption by stating, “Nobody thinks that way” or “I never think that way” or “How unrealistic! That’s as irrational as anyone can get!”

Take the example of driving. When you consider passing another car on a two-lane highway with oncoming traffic, you have to make very quick decisions: you must estimate the speed of the car you are going to pass, the speed of the oncoming cars, the distance between your car and the oncoming cars, and your car’s potential rate of acceleration. If we were to apply a model to your behaviour, we would use the laws of calculus. In fact, you and most other drivers in such a situation do not actually think of using the laws of calculus, but we could predict your behaviour *as if* you did.

In practical terms, the rationality assumption implies that an individual will adopt a course of action if the action’s relevant benefits exceed its relevant costs. Let us proceed to examine what we mean by *relevant* costs and benefits.

Rationality assumption

An individual makes decisions based on maximizing his or her own self-interest.

Opportunity Cost

The natural fact of scarcity implies that we must make choices. One of the most important results of this fact is that every choice made (or not made, for that matter) means that some

opportunity had to be sacrificed. Every choice involves giving up another opportunity to do or use something else.

Consider a practical example. Every choice you make to study one more hour of economics requires that you give up the opportunity to do any of the following activities: study more of another subject, listen to music, sleep, browse at a local store, read a novel, or work out at the gym. Many more opportunities are forgone if you choose to study economics for an additional hour.

Because there were so many alternatives from which to choose, how could you determine the value of what you gave up to engage in that extra hour of studying economics? First of all, no one else can tell you the answer because only you can *subjectively* put a value on each alternative. Only you know the value of another hour of sleep or of an hour looking for the latest CDs. That means that only you can determine the highest-valued alternative that you had to sacrifice in order to study economics one more hour. It is you who must come up with the *subjective* estimate of the expected value of the best alternative.

The value of the best alternative that must be sacrificed to satisfy a want is called *opportunity cost*. The **opportunity cost** of any action is the value of what is given up—the highest-ranked alternative—because a choice was made. When you study one more hour, there may be many alternatives available for the use of that hour, but assume that you can do only one thing in that hour—your highest-ranked alternative. What is important is the choice that you would have made if you had not studied one more hour. Your opportunity cost is the *highest-ranked* alternative, not *all* alternatives.

In economics, cost is a forgone opportunity.

In this chapter's Issues and Applications we use the concept of *opportunity cost* to assess the value of allocating tens of billions of dollars a year of limited resources to the manufacture of bottled water products such as Aquafina and Dasani, which contribute to pollution and solid waste, despite the fact that we already have a much cheaper source of safe water flowing from our municipal water systems. The opportunity costs are that we forgo the option to have a healthier environment and we forgo allocating the invested resources to important causes such as providing drinking water to the more than one billion people around the world who don't have access to safe water.

In Example 1-2 we will examine how the relatively high opportunity cost of searching for a compatible romantic partner has helped create an industry based in cyberspace.

EXAMPLE 1-2 Is the Opportunity Cost of Finding a Mate Lower on the Internet?



Why are individuals willing to pay for online dating services?

For many single people looking for a companion, the biggest difficulty is not necessarily a lack of potential mates. The problem is that the time spent dating in search of "Ms. Right" or "Mr. Right" could otherwise be devoted to alternative activities. The highest-valued of these alternative activities is the opportunity cost of the time spent on each date.

This provides a fundamental rationale for the existence of such Internet-based companies as Match.com. For about \$35 per month, a person looking for "that special someone" with desired characteristics, similar interests, and so on can enter personal information into a database and be matched, by computer, with someone else. According to the company's "director of flirting and dating," its business is all "about numbers, and it's also about time." In short, it is about the high opportunity cost of finding a compatible partner. For the really picky people who face especially high opportunity costs of screening candidate mates for very specific characteristics, there are special Internet services available, albeit at higher prices. Goodgenes.com is open to graduates of Ivy League universities and a select group of other top-notch colleges and universities. For Jewish men and women, there is JDate.com, and Matrimony.org helps link Islamic singles.

For critical analysis: Why do the prices charged by websites specializing in people who share very specific characteristics tend to be higher than the prices charged by general dating services, such as Match.com?

Making Decisions at the Margin

As you progress through this text, you will be reminded frequently that in order to rationally evaluate a possible course of action, you must compare the action's *marginal benefit* with its *marginal cost*. **Marginal benefit** refers to all the *extra* benefits that one receives in pursuing a course of action, while **marginal cost** refers to all the *extra* costs or sacrifices incurred. In order to ensure that you properly identify the marginal cost relevant to your decision at hand, you must be careful not to include *sunk costs*. **Sunk costs** refer to irreversible costs incurred prior to your decision.

As an example, suppose you are in the process of estimating the extra (marginal) transportation costs associated with a Nova Scotia vacation that you are planning to take. You own your car and you have paid the annual insurance and car licence fee long before contemplating this vacation. If you decide to use your own car for this trip, the annual licence fee and insurance are sunk costs that are not relevant to the decision of travelling to Nova Scotia. As such, you should not include these two costs in your estimate of the extra (marginal) transportation costs. To better understand the notion of marginal and sunk costs, we refer you to Example 1-3: "What Does a Year at College Really Cost?"

Making decisions at the margin will often reveal that there can be too much of a good thing! As an example, suppose that at a time when marijuana use is at an all-time low, one of the contenders for prime minister, in a federal election campaign, proposes a policy for eliminating all marijuana use in Canada. While this type of zero tolerance policy proposal can win votes, if implemented, it can result in the transfer of a massive amount of policing resources away from the prevention of serious violent crimes in order to achieve a very small reduction in marijuana use. In other words, the marginal cost of the zero tolerance policy far exceeds the marginal benefit!

Marginal benefit All the extra benefits that one receives in pursuing a course of action.

Marginal cost All the extra costs or sacrifices incurred.

Sunk costs Irreversible costs incurred prior to your decision.

EXAMPLE 1-3 What Does a Year at College Really Cost?

Jane Sanders is currently earning \$2000 per month working full time in Hamilton, Ontario. She lives in a one-bedroom apartment and pays \$700 per month in rent. Her monthly food, personal care, and entertainment expenses are \$500 per month. Since she does not own a vehicle, she pays \$65 per month for a bus pass.

Jane is in the process of estimating the extra cost related to the decision to enroll full time in the first year of a business program at a college in the Hamilton area. If she enrolls, she will give up her full-time job for the eight-month period of the first-year program. If Jane goes to college, she plans to continue to live in her one-bedroom apartment, take the bus to the college campus, and maintain her current lifestyle. Jane estimates that her decision to enroll in college for the first year (eight-month period) will cost \$13 720, estimated as follows:

Rent	$\$700 \times 8 =$	\$ 5 600
Food, Personal Care, Entertainment	$\$500 \times 8 =$	\$ 4 000
Public Transportation	$\$ 65 \times 8 =$	\$ 520
Tuition, Books, College Fees		\$ 3 600
Total Cost		\$13 720

TABLE 1-1

For critical analysis: Did Jane correctly determine the extra cost related to the decision to enroll in college full time for eight months? What else must Jane try to estimate in order to make a rational decision? Explain.

Responding to Incentives

If it is reasonable to assume that individuals make decisions by comparing marginal costs and benefits, then we are in a position to better understand and predict how people respond to incentives. We define an **incentive** as an inducement to take a particular action. The inducement can be a reward, or a "carrot," which would take the form of an increase in

Incentive Inducement to take a particular action.

benefit or a decrease in cost. Alternatively, the inducement can be a punishment, or a “stick,” in the form of an increase in cost or a decrease in benefit. To the extent that a change in incentives implies a change in the relation between the marginal costs and benefits associated with various choices, individual decisions will change.

Indeed, much of human behaviour can be explained in terms of how individuals respond to changing incentives over time. School students are motivated to do better by a variety of incentive systems, ranging from gold stars and certificates of achievement when they are young to better grades with accompanying promises of a “better life” as they get older. The rapid growth in Internet use noted in this chapter’s Did You Know That . . . ? section can be explained in terms of increased incentives due to the decline in cost and increase in convenience associated with information technology.

In Policy Example 1–1, you are asked to help governments reduce incentives to engage in smuggling and counterfeiting activities by identifying policies that either increase the marginal costs or decrease the marginal benefits related to these illegal actions.

POLICY EXAMPLE 1–1 International Smuggling and Counterfeiting

In order to develop a domestic, state-owned cigarette manufacturing monopoly industry, the Chinese government has pursued strategies to keep out foreign-made cigarettes. One such strategy is the imposition of tariffs (taxes) as high as 430 percent on cigarettes imported into China that are manufactured by large, multinational cigarette companies such as British American Tobacco (BAT). These high tax rates have encouraged the annual flow of tens of billions of dollars in contraband cigarettes.

One example of contraband is the smuggling of foreign-made cigarettes into China, which avoids the government-imposed tariffs. In 2006, it was discovered that BAT, one of the world’s biggest tobacco companies, had restructured its operations to expand its own smuggling trade in China, where one-third of all the world’s smokers reside.

A second example of contraband is the rapid growth in the Chinese manufacturing and trade of counterfeit brand-name cigarettes such as Marlboro and State Express 555. It is estimated that hundreds of illegal Chinese cigarette businesses manufacture approximately 400 billion fake brand-name cigarettes a year. These businesses operate illicit factories hidden in thickly forested mountain regions and in deep caves buried metres below ground. Over the past decade, the production of counterfeit cigarettes in China has increased eightfold!

Why has there been this tremendous growth in counterfeiting, given that the Chinese government employs over 50 000 special agents to reduce this criminal behaviour? The answer is that the returns on counterfeiting are so high that many agents are bribed to “look the other way.”

Closer to home, on April 13, 2010, the Canadian federal government levied fines totalling \$225 million on two large multinational cigarette companies—JTI—Macdonald Corp. and R.J. Reynolds—for their roles in smuggling cigarettes into Canada. These fines, combined with additional monies paid to settle civil lawsuits, will put a total of \$550 million into the hands of the Canadian federal and provincial governments. The smuggling of cheap cigarettes into Canada is attributed to the relatively high tax rates that federal and provincial governments impose on legal cigarettes manufactured and sold in Canada.

For critical analysis: What actions can governments in China and Canada take to increase the marginal cost related to illegal smuggling and counterfeiting activities? Can you identify other policy actions that decrease the marginal benefit related to these illegal activities?

Sources: “Research reveals tobacco company’s role in China’s cigarette smuggling crisis.” Tuesday, July 18, 2006. London School of Hygiene and Tropical Medicine Press; Te-Ping Chen. “China’s Marlboro Country.” June 28, 2009. Tobacco Underground. Organized Crime and Corruption Reporting Project. http://www.reportingproject.net/underground/index.php?option=com_content&view=article&id=9&Itemid=22; Tibbetts, Janice. “Record fines for smuggled smokes.” Canwest News Service. Ottawa. *Edmonton Journal*. April 14, 2010. P. A5.

Defining Self-Interest

Self-interest does not always mean increasing one's wealth as measured in dollars and cents. We assume that individuals seek many goals, not just increased monetary wealth. Thus, the self-interest part of our economic-person assumption includes goals relating to prestige, friendship, love, power, helping others, creating works of art, and many other matters. As Example 1-4 illustrates, performing acts of kindness can go hand in hand with pursuing one's own self interest.

EXAMPLE 1-4 Nice Guys Can Finish First

An academic study published in 2010 discredits the popular myth that people who exhibit altruistic or generous behaviour are typically less attractive to potential romantic partners compared to "bad boys" or "selfish people."

This research study examined heterosexual men's and women's attraction to opposite sex photographs, which were matched with descriptions (profiles) that varied in the level of generosity portrayed. The research participants, whose mean age ranged from 19.15 to 20.10 years, each received a package consisting of four photographs and four descriptions. Each research participant saw a "neutral person" and a "generous person," each seeking a short-term relationship. The same research participant observed a "neutral person" and a "generous person," each seeking a long-term relationship. After viewing each picture with its description, the research participants rated how willing they were to associate with the person in different ways, including as a short-term romantic partner, as a long term romantic partner, as a fellow worker, and as a platonic friend.

An example of a "neutral person" would be a picture of a person of the opposite sex accompanied by a profile that did not reference any tendencies for generous acts and behaviour. The corresponding example of a "generous person" would be a picture of a person of the opposite sex accompanied by a profile that did reference tendencies for generous acts and behaviour, such as "I enjoy helping people" or "One of my hobbies is volunteering at the food bank."

All photographs were downloaded from an Internet site where each picture had already been rated by the opposite sex in terms of physical attractiveness. The pictures chosen for this study had been given neutral physical attractiveness ratings. This was done so that physical traits such as "good looks" or "unattractive appearance" would not affect the results of the study.

The findings of this study can be briefly summarized as follows. Research participants of both sexes rated people with generous tendencies as desirable for long-term relationships. Female research participants preferred the males that exhibited generous behaviour for short-term romantic relationships. However, male research participants tended to rate altruistic females as less desirable for short-term relationships.

For critical analysis: Based on this Example, critically evaluate this statement: "When individuals consistently engage in generous acts and behaviour, this contradicts the rationality assumption described in this chapter."

Source: Pat Barclay. "Altruism as a courtship display: Some effects of third party generosity on audience perceptions." *British Journal of Psychology*, February 2010, 101(1), 123-135.

1.4 The Scientific Method

Economics is a social science that makes use of the same kinds of methods used in other sciences, such as biology, physics, and chemistry. Similar to these other sciences, economics engages in key processes that include making assumptions, forming models or theories, and testing these models with real-world facts. Economic **models or theories** are simplified representations of the real world that we use to help us understand and predict economic

Models or theories Simplified representations of the real world used to understand and predict economic phenomena.