Lesson 8 — Is Efficiency an Ethical Concept?

The students play the role of a doctor facing a critical shortage of life-saving serum and learn that any definition of efficiency requires judgments about what most improves society's welfare.

OVERVIEW

Economics
In a world of scarcity, eliminating waste creates new possibilities — for saving more lives, feeding more families and overcoming real material limitations. So economists are justly concerned with efficiency. As this lesson shows, however, economists define efficiency in relation to society's goals. Whether they realize it or not, economists operate within an ethical framework when they evaluate economic efficiency.

Ethics
Welfare economics is the branch of economics that studies economic institutions, individual actions and public policies. Every public-policy analysis involves a judgment about what welfare is and how welfare can be enhanced. By understanding the ethical judgments required to define and measure efficiency, economists can better understand and address real-world public-policy problems.

LESSON DESCRIPTION

In this lesson the students discover how goals and value judgments affect decisions about efficiency and welfare. They also learn how economists measure efficiency. First, the students discuss the concepts of positive economics, normative economics, productive efficiency and allocative efficiency. Then they play the role of a doctor facing a critical shortage of life-saving serum and discuss the role of efficiency in allocating this serum. They read an Activity and answer questions about how economists approach the issues of efficiency and welfare. Returning to the case of the doctor, the students see how economists analyze efficiency and welfare.

CONCEPTS

Allocative efficiency
Consumer welfare
Incentives
Normative economics
Positive economics
Productive efficiency
Welfare economics

CONTENT STANDARDS

3. Different methods can be used to allocate goods and services. People, acting individually or collectively through government, must choose which methods to use to allocate different kinds of goods and services.

4. People respond predictably to positive and negative incentives.

8. Prices send signals and provide incentives to buyers and sellers. When supply or demand changes, market prices adjust, affecting incentives.

9. Competition among sellers lowers costs and prices, and encourages producers to produce more of what consumers are will-

ing and able to buy. Competition among buyers increases prices and allocates goods and services to those people who are willing and able to pay the most for them.

OBJECTIVES

The students will:

1. Distinguish between normative and positive economics, and see how both types of analysis are necessary for debating public-policy issues.

2. Describe how economists define welfare and efficiency.

3. Explain why economic efficiency sometimes conflicts with other objectives of society.

4. Evaluate alternative conceptions of efficiency and welfare.

TIME REQUIRED

45 minutes

MATERIALS

1. Visuals 8.1 and 8.2

2. One copy of Activities 8.1 and 8.2 for each student

PROCEDURE

1. Tell the class that the purpose of this lesson is to learn how economists measure the performance of the microeconomy in terms of efficiency. As part of the activity, they will evaluate the efficiency of different allocations of health care.

2. Display Visual 8.1 and review the definitions of positive economics (facts) and normative economics (values). Tell the class that economists must often analyze public-policy proposals. To make a policy recommendation, they must collect facts (positive economics) and weigh the importance of different goals (normative economics).

3. Tell the students that efficiency means being effective at achieving an objective. Economists must always define efficiency in relation to the goals of society. For example, a doctor in a hospital has to make life-and-death decisions. We can measure the doctor's efficiency in several different ways — for example, by the number of lives the doctor has saved.

4. Divide the students into small groups, and give each student a copy of Activity 8.1. Ask the students to work in their group to answer the questions. Then discuss the answers with the class.

   Question 1: How many lives could you save if you gave all the serum to patients with Disease A? ***You have 10 doses of serum, and each patient with Disease A can be cured with one dose. Therefore, you could save 10 lives if you gave all the serum to Disease A patients.***

   Question 2: How many lives could you save if you gave all the serum to patients with Disease B? ***Each Disease B patient requires two doses of serum to be cured. Therefore, with only 10 doses of serum, you could, at most, save five lives. You wouldn't save any lives if you divided the serum equally among the Disease B patients, since each patient would get only one dose and each would die.***

   Question 3: Which allocation option is the most efficient at saving lives in this situation? ***Giving the serum to Disease A patients would save twice as many lives as giving it to Disease B patients. Allocating serum to Disease A patients is the most efficient option.***

   Question 4: Assuming you have no additional information, which option would you use to allocate the serum and why? ***If a doctor's goal is to save the most lives at this moment, the doctor would give all the serum to patients with Disease A and none to patients with Disease B.***

   Question 5: Suppose you learn that

patients with Disease B are all young children and patients with Disease A are all more than 80 years old. Would this change your serum allocation, and if so, why? ***Answers will vary, but many students would now be inclined to save as many children as possible, because the number of years each child has to live exceeds the likely survival years of an elderly person. This approach is called saving the most "life-years extended."***

Question 6: In light of your answers to Questions 4 and 5, is being efficient at saving the most lives today the only value society should be concerned with? ***Society has other concerns in addition to saving specific lives today. For example, society has a strong concern for the preservation and reproduction of its members, which would place greater weight on saving the lives of children. Also, society is often concerned with treating patients fairly. In addition, society may be concerned about the incentives that different allocation methods create. Lives lost today must be weighed against lives potentially lost in the future.***

Question 7: Which of the questions above can you answer using positive economics and which involve normative economics? Explain your answer. ***Questions 1, 2 and 3 can be answered by facts alone and are thus positive. Question 4 requires a normative judgment that saving the most lives today is the highest goal, and therefore the allocation options should be judged on that basis. Questions 5 and 6 are also normative because they require judgments about what society's goals ought to be.***

5. Ask the students what they learned from this role-play experience. ***The key point to bring out is that people must know the objective or goal before they know how to act.***

6. Use Visual 8.2 to highlight the way economists currently define welfare and efficiency. Society has many possible goals that provide for the general welfare. These include preserving freedom, maintaining national security, improving standards of living and providing opportunities for all citizens. In an economic context, we can define consumer welfare more precisely: It is the ability of an economy to satisfy individual consumer preferences.

Allocative efficiency means that consumers are able to obtain the goods and services that best satisfy their individual preferences, given their income constraints. To help the students understand the importance of this concept, ask: "If a dictator were to require everyone to buy only classical music, would this satisfy individual consumer preferences? Is the dictator concerned about consumer welfare?" Most command economies such as communism take away the freedoms of consumers to make their own choices about what to buy.

7. Give each student a copy of Activity 8.2. This activity describes how economists define efficiency in relation to society's goals. Give the students time to read the activity and work in small groups to answer the questions. Begin the class discussion with Questions 1, 2 and 3.

Question 1: Anthony drove to New York's Kennedy Airport in record time. However, his plane was leaving from a different airport — in Newark, N.J. Was Anthony's driving efficient? ***No. Since his goal was to fly out of Newark, driving to Kennedy Airport in New York was not efficient, regardless of how quickly he got there. This answer highlights the importance of knowing the goal before trying to measure efficiency.***

Question 2: Why should you define a goal before you measure efficiency? ***Being efficient means achieving some objective in the best possible manner. So, you should first define the objective or goal.***

Question 3: Are the definitions of welfare and efficiency part of positive or normative economics? ***Choosing one welfare goal among competing goals requires us to decide what is most important. Doing so involves a consideration of values, not facts. Because we must choose a welfare goal before defining efficiency, both concepts relate to normative economics.***

8. Tell the students that any discussion about what improves the welfare of society will be controversial because people don't necessarily agree on the most important goals of society. Economists themselves have had diverging viewpoints historically. As a result, the way economists define welfare and efficiency has changed over time.

9. Discuss the answers to Questions 4 through 11 with the class.

Question 4: How do consumers express their preferences in the marketplace? ***In a market system, consumers express their preferences by spending money in ways that send profit or loss signals to producers. In competitive markets, businesses make profits by trying to satisfy consumer preferences.***

Question 5: If Manuel, who loves rock music, had received an inheritance instead of Mary, how might the outcome in terms of the concert tickets have changed? Would this change be allocatively efficient? ***Manuel may have ended up with the concert tickets instead of Mary. This would have been allocatively efficient because Manuel now has the income with which to express his preferences (but Mary does not). Accordingly, there will be a different allocatively efficient outcome for each different distribution of income.***

Question 6: If Bill has no income, how are his preferences accounted for in the market? ***The preferences of consumers who have no income (or choose not to spend it) are not counted in a market. In practice, however, even people with no income usually have some spending power because of gifts or social programs such as Social Security.***

Question 7: Suppose that Disease A patients have low incomes and Disease B patients have high incomes. Which option for allocating serum would be most efficient in terms of satisfying individual consumer preferences in the market? ***Assuming no market failures, allocative efficiency is achieved when consumers get to buy what they want within the limits of their incomes, and their preferences are satisfied. People with higher incomes will bid up the price of the serum. A rise in price serves to ration the scarce serum to people who are most willing and able to buy. Patients with Disease B will get all the serum in this case. The price allocation mechanism is efficient if the goal is satisfying consumer preferences.***

Question 8: How many lives are saved in the short run using the market-allocation approach? ***In the short run, only five Disease B patients — those with the greatest willingness and ability to pay — are saved. Note that this outcome may seem paradoxical because the market-efficient approach results in fewer lives saved. Tell the students that this paradox will be resolved in Question 9 by considering the long-run situation.***

Question 9: In this example, what are the advantages and disadvantages of the market approach to drug allocation? ***One disadvantage of the market approach in this example is that more patients would die in the short run if Disease B patients buy all the serum. Satisfying the preferences of well-off patients may seem unfair to poor patients. But economists are interested in how incentives alter behavior in the long run. Relying on markets and profits may attract more resources into research and development of new drugs and innovative treatments,***

thereby creating long-run dynamic efficiency gains. Accounting for these long-run supply effects, the market approach has the potential to save more lives in the long run. Market supporters also note that any nonmarket allocation system — for example, price controls, rationing and favoritism — would require government force. What government entity will decide who gets the serum? The resulting loss of personal freedom and the destruction of incentives needed for production would produce high costs for any alternative system.

Question 10: In considering how health care is provided, what values besides allocative efficiency are important to society? ***Public policy is based on consideration of a broad mix of goals and values in addition to allocative efficiency. These goals include public safety (saving the most lives), fairness, freedom, national security, human rights and income distribution. When these goals conflict, people must rank them in order to reach a decision. Economists have long noted the conflict between efficiency and equity concerns.***

Question 11: Would government decisions about health-care allocation be more fair than market decisions? ***The students' answers may vary, and this question can provoke some lively discussion.***

If government allocated health care by using a lottery, for example, this might benefit some poor consumers who otherwise might not be able to pay. But a lottery would also mean that a patient who is less sick than another patient might win the treatment. The students could see this as unfair, since someone in greater need of care goes without.

If government allocated health care using some degree of favoritism — based, say, on the severity of illness — the sickest patients would get treatment first. But patients then have an incentive to lie to their doctors about the severity of their illnesses or even to bribe doctors to provide a more severe diagnosis. Medical-care favoritism might be biased toward patients who wield the greatest power or have the strongest political connections. Thus there is no guarantee that government allocations would go to people in greatest need.

This brief analysis suggests that there is no easy answer about which allocation system is most fair. The market solution, by virtue of providing proper incentives, creates conditions in which consumer welfare can be maximized. Some consider this more fair than other allocation mechanisms since each consumer's dollar is weighted equally, without favoritism.

CLOSURE

10. Ask the students to consider how they might allocate scarce serum in the hospital. What values would be most important to them in reaching their decision? ***Answers will vary. Many students will find it highly objectionable to allow the market to make life-and-death decisions, particularly in this case since more patients might die in the short run. It is important for the students to realize that the visible effects in the short run are not the only effects. An economic perspective would analyze long-run consequences for society as well.***

In the long run, the market approach may save many more lives. Values of efficiency come into conflict with other values such as perceived fairness and basic human rights. While it may be easy for the students to mandate nonmarket allocations in this case, ask them to consider whether government intervention would be desirable in other areas such as electricity, housing and food. The loss of individual freedom and the loss of incentives for production and innovation are large concerns for society.

The bottom line: Efficiency must always be defined in relation to the goals of society. Achieving such efficiency may conflict with other values of society. By understanding the judgments required to define welfare and efficiency, economists can better understand real-world public-policy problems.

ASSESSMENT

Multiple-Choice Questions

8.1 What welfare goal is allocative efficiency based on?

A. The satisfaction of individual consumer preferences

B. The greatest happiness for the poorest members of society

C. Saving the most lives

D. Being fair to all citizens

8.2 Joan received a birthday gift of an expensive pink sweater. She hates pink and would prefer to return the sweater to the store and use the money for dinner and a movie. From Joan's perspective, the current allocation of goods is

A. efficient because people should treasure the gifts they receive.

B. efficient because Joan hasn't yet returned the sweater.

C. inefficient because the gift was from a family member.

D. inefficient because it doesn't satisfy Joan's preferences.

8.3 An economic policy could create economic efficiency but might not be fair. To resolve this problem requires the use of

A. aggregate economics.

B. normative economics.

C. inflation economics.

D. positive economics.

Essay Questions

8.1 What do modern economists mean by welfare and allocative efficiency? How do economists apply these concepts to public-policy analysis? What problems exist with the use of these concepts? ***Economists define welfare as "the satisfaction of consumer preferences." Allocative efficiency means the economy is producing the right mix of goods and services, and no voluntary trade is possible that would make one person better and leave no one else worse off. The economic definition of efficiency may conflict with other definitions of efficiency such as saving the most lives. Other values besides welfare and efficiency arise in public-policy deliberations: fairness, freedom and public safety, for example.***

8.2 There are 10 people and space for only five in a life raft. How would you decide which people get a place on the raft? What solution to this problem would economists consider allocatively efficient? What other values besides efficiency are important in analyzing this situation? ***All definitions of welfare and efficiency involve normative judgments about what is most important to society. Allocative efficiency means allowing consumers to buy goods and services that satisfy their preferences. Hence, the highest bidders could satisfy their preferences by bidding for a spot on the life raft. This could be considered fair if the income distribution in society is considered fair. However, the efficient approach comes into conflict with other social values, which include fairness, basic equality of all and human dignity. In deciding public-policy issues, society considers not only efficiency but also a host of other values.***

GOING FURTHER

Health Data and Costs: The debate about whether to pay for medical care with private or public financing is contentious precisely because of the issues raised in this lesson. The United States relies more heavily on market forces to allocate health care than other industrialized countries. Hence, about 41 million Americans do not have any health-insurance coverage, although most still have some access to care. Health expenditures per capita are far higher in the United States than in other industrialized countries, even though some health indicators lag. To review comparative health indicators and expenditures, see Gerard F. Anderson, Varduhi Petrosyan and Peter S. Hussey, "Multinational Comparisons of Health Systems Data, 2002," The Commonwealth Fund, October 2002, available online at http://www.cmwf.org/usr_doc/Anderson_healthpop_multi99_354.pdf

Market-Based Health Care: For a general overview of the pros and cons of market-based health care, go to http://www.oheschools.org/index.html

Innovation and Market-Based Health Care: A key argument for the support of market-based health care is that it produces dynamic gains in health-care quality through innovation. For support of the market view, see the list of online publications at http://www.amatecon.com/

Health-Care Rationing in the Movies: The movie *John Q* (2002) provides a potent example of medical-care rationing to the uninsured or underinsured. The movie is generally antimarket, but it does illustrate the short-run versus long-run issues raised in Activity 8.2.

VISUAL 8.1
POSITIVE VERSUS NORMATIVE ECONOMICS

POSITIVE ECONOMICS involves statements of fact.

Fact: If cigarettes are taxed, fewer teenagers will be able to afford to buy cigarettes.

NORMATIVE ECONOMICS involves judgments of value.

Judgment: Parents should discourage teenagers from smoking.

PUBLIC POLICY involves both positive and normative analyses.

Fact and Judgment: Public-policy recommendations involve the desire to achieve the normative goal (fewer teenagers who smoke) and a positive model (facts) that predicts how a tax might achieve the desired goal.

VISUAL 8.2
WHAT IS EFFICIENCY?

1. DEFINING THE GOAL: What is most important?

Society has many possible goals. These include preserving freedom, maintaining national security, improving standards of living and providing opportunities for all citizens. In addition, economists often focus specifically on the goal of enhancing "welfare."

Consumer welfare means the ability of an economy to satisfy individual consumer preferences.

2. MEASURING SUCCESS: How do we know we have achieved the goal of enhancing consumer welfare?

Allocative efficiency means that consumers are able to obtain the goods and services that best satisfy their individual preferences, given their income constraints.

ACTIVITY 8.1
SOLVING A PUBLIC-HEALTH PROBLEM

You are a doctor who runs a hospital in an isolated rural area. You have 20 very sick patients: 10 patients have Disease A and 10 patients have Disease B. All the patients will die unless they quickly receive the correct dose of life-saving serum.

- Each patient with Disease A needs one dose of serum to be cured.
- Each patient with Disease B needs two doses of serum to be cured.

Problem: You have only 10 doses of serum, and you don't have time to get more.

Questions

1. How many lives could you save if you gave all the serum to patients with Disease A?

2. How many lives could you save if you gave all the serum to patients with Disease B?

3. Which allocation option is the most efficient at saving lives in this situation?

ACTIVITY 8.1 (continued)
SOLVING A PUBLIC-HEALTH PROBLEM

4. Assuming you have no additional information, which option would you use to allocate the serum and why?

5. Suppose you learn that patients with Disease B are all young children and patients with Disease A are all more than 80 years old. Would this change your serum allocation, and if so, why?

6. In light of your answers to Questions 4 and 5, is being efficient at saving the most lives today the only value society should be concerned with?

7. Which of the questions above can you answer using positive economics and which involve normative economics? Explain your answer.

ACTIVITY 8.2
WELFARE, EFFICIENCY AND ETHICS

Directions: Read the following information, and work in small groups to answer the questions.

How should economists measure efficiency? And is greater efficiency always a good thing?

Miles per gallon (MPG) measures the efficiency of a vehicle's engine in terms of how many miles you can drive on one gallon of gas (outputs produced per inputs used).

Productive efficiency means producing the most output possible using the fewest input of resources.

Productive efficiency is scientific and objective. But this doesn't mean a higher MPG is always the best outcome. Getting more miles per gallon could be good, assuming everything else is constant. Sometimes it is possible to achieve higher mileage just by making sure the air pressure in the tires is correct. But in real life it is rarely possible to get something for nothing. Getting more miles per gallon might require auto manufacturers to make the car lighter. A lighter car might not be as safe, so having a more efficient engine might reduce efficiency in something you value even more: saving your life.

We need to know which goal is most important. Because society has competing goals, deciding what is efficient requires choosing the goal that most improves the welfare of society. This requires a value judgment rather than facts alone.

Welfare And Efficiency

Welfare concerns the question "what makes society better off?" Any definition of welfare is open to debate and could change over time. One economic definition of welfare isn't something tangible like a life saved or miles per gallon. Instead, the goal of an economy is to satisfy the preferences of individual consumers. With this goal in mind:

Allocative efficiency is achieved when individuals are able to obtain the goods and services that best satisfy their preferences.

ACTIVITY 8.2 (continued)
WELFARE, EFFICIENCY AND ETHICS

Suppose Manuel has a pair of rock-concert tickets that he values at $200, but Mary, a wealthy heiress, is willing and able to buy them for $1,000. Is society's welfare maximized by the current allocation?

No. The current allocation of tickets does not reflect consumer preferences. Manuel has the tickets, but Mary values them more. This outcome is inefficient because it doesn't maximize the welfare of society.

How can the economy be made more efficient? Manuel and Mary can improve their welfares through voluntary trade. If Manuel is permitted to sell the tickets to Mary, he receives $1,000, which he values more than the tickets. Mary gets the tickets, which she values more than the $1,000. The welfare of society is improved through trade. Economists would say the economy is allocatively efficient only after all voluntary trades between individuals have been allowed. After this point, it is impossible to make one person better off without making another person worse off.

Economists infer that Manuel and Mary are better off after trading (more preferences satisfied) by observing their actions. In a marketplace, consumers reveal their preferences (and their buying power) when they engage in market activity.

Competitive markets do a reasonable job of achieving allocative efficiency because businesses have a profit incentive to make products that consumers want and to get these products to the consumers who desire them the most. As noted, however, the conclusion that markets serve the needs of society is the result of science (involving theories of supply and demand) and important value judgments about the desired goals of an economy.

Reconsidering Lives Saved

Let's return to the case of the hospital in Activity 8.1. The hospital has 20 patients who will die without the life-saving serum, but only 10 doses of the serum are available today. To save the most lives today, we discovered that a doctor would administer all of the serum to patients with Disease A. We have already shown that if the goal is different — to save the most lives of children

ACTIVITY 8.2 (continued)
WELFARE, EFFICIENCY AND ETHICS

— the doctor might efficiently choose to allocate the serum differently by giving it to half of the children with Disease B.

Allowing the serum to be sold in the marketplace would also result in a different outcome. Since consumer preferences are expressed through market activity, welfare is measured by what consumers are willing and able to pay for life-saving serum. The allocatively efficient outcome is achieved when patients can bid for the scarce serum. Patients who are willing and able to pay the most would get the serum (their preferences would be satisfied).

With a market approach there is no guarantee that only Disease A patients would get the serum, so this approach isn't likely to save the most lives in this short-run scenario.

The Long Run

The previous section provides insight into some of the controversies about the U.S. health-care system. Millions of poor people don't have the spending power to buy health care or health insurance. Consequently, critics note that although the United States spends a larger share of its GDP on health care, it lags other industrial countries in several basic indicators of health achievement, especially for the poor. Because of this, some people say the market approach to allocation is cruel and unfair. These people believe all individuals have the same right to treatment, and ability to pay shouldn't be a factor in health-care allocation. Other people might criticize the market approach, saying it justifies the treatment of patients as commodities. For many people, there are some decisions about health that shouldn't be left to the market.

Supporters of the market reply that the reason the United States lags in some health indicators is complex and may have more to do with lifestyle and genetics than health policy. They also note that poor patients are still able to receive life-saving treatment through government programs and by showing up at emergency rooms where certain types of care are provided regardless of the patient's ability to pay. In short, patients still have health coverage even if they don't have health insurance.

ACTIVITY 8.2 (continued)
WELFARE, EFFICIENCY AND ETHICS

Most importantly, the short run may be the wrong time period of analysis. Economists believe that a long-run perspective is often more useful at illustrating the real-world trade-offs that society must face. In particular, economists concern themselves with the invisible and often unintended consequences of policies whose effects may appear only in the long run.

To illustrate, let's go forward in time five years to see how patients are faring under two different allocation systems.

Suppose that medicines were allocated in a marketplace, and consumers were bidding up serum prices. Economists reason that as prices rise, businesses have an economic incentive to manufacture more serum. Thus, in the long run, the expansion of existing firms and the entry of new firms could greatly increase the quantity of medicines available. These conditions could also spur innovation and the discovery of new and better medicines. The result: In the long run, the market-allocation approach might save more lives.

Economists can't know this outcome in advance, so they must have faith in the way markets work. Economists are quick to note that this desirable outcome relies on competition, or at least the threat of competition, which may not exist in some health-care markets. Historical evidence indicates that the United States is far ahead of other countries in terms of new medical innovations.

By contrast, allocating goods without concern for price, cost or profit in the short run might save more lives today (the visible effect) but cost more lives in the long run (the invisible effect). Without profits, firms would leave the industry and innovation would stagnate. Patients might have to wait a long time for critical supplies. In other words, the way medicines are allocated in the short run could affect the availability and quality of medicines in the long run. Thinking like an economist means trying to discern the invisible long-run effects.

ACTIVITY 8.2 (continued)
WELFARE, EFFICIENCY AND ETHICS

Questions

1. Anthony drove to New York's Kennedy Airport in record time. However, his plane was leaving from a different airport — in Newark, N.J. Was Anthony's driving efficient?

2. Why should you define a goal before you measure efficiency?

3. Are the definitions of welfare and efficiency part of positive or normative economics?

4. How do consumers express their preferences in the marketplace?

5. If Manuel, who loves rock music, had received an inheritance instead of Mary, how might the outcome in terms of the concert tickets have changed? Would this change be allocatively efficient?

ACTIVITY 8.2 (continued)
WELFARE, EFFICIENCY AND ETHICS

6. If Bill has no income, how are his preferences accounted for in the market?

7. Suppose that Disease A patients have low incomes and Disease B patients have high incomes. Which option for allocating serum would be most efficient in terms of satisfying individual consumer preferences in the market?

8. How many lives are saved in the short run using the market-allocation approach?

9. In this example, what are the advantages and disadvantages of the market approach to drug allocation?

10. In considering how health care is provided, what values besides allocative efficiency are important to society?

11. Would government decisions about health-care allocation be more fair than market decisions?