Extended Examples

Extended Example: *Comparative Advantage and Nations*

Suppose that there are two countries, Canada and England. Each country can produce either bacon or muffins. The following table shows the number of each good produced per hour. Assume that the countries have identical labor forces.

	Muffins (per hour)	**Bacon** (per hour)
England	100	50
Canada	200	200

1. Does any country have an absolute advantage in any good(s)? How do you know?

2. Does any country have a comparative advantage in any good(s)? How do you know?

3. Explain why both countries could gain from trading.

Extended Example: *The North American Free Trade Agreement*

In 1994, the United States, Canada, and Mexico signed the North American Free Trade Agreement (NAFTA). NAFTA will eliminate virtually all tariffs and many nontariff trade barriers between these countries over a 15-year period. The United States and Canada had previously agreed to a United States-Canada Free Trade Agreement in the late 1980s.

NAFTA has been a controversial issue, particularly in the United States and Canada.

> In the United States, it has been feared that NAFTA would lead to job losses due to migration of firms to Mexico to take advantage of lower labor costs.
>
> In Canada, industry was historically protected by high average tariff rates, and thus, industries were able to operate inefficiently and at low output levels.

1. Explain why comparative advantage should imply that all three of these countries will gain from the agreement.

2. In what types of goods would each country be likely to have a comparative advantage?

3. One of the most vocal opponents of NAFTA was United States organized labor (unions). Explain why unions were so fiercely opposed. Likewise, what groups in the United States should favor this agreement?

Economics Applied—Using What You've Learned

School Vouchers:

In a recent article, "An Unfair Grade for Vouchers", Jay Greene examines the results of research on school voucher programs. School voucher programs allow families to choose the school they want to attend instead of having to attend the school in their district. Private and public schools compete for students. He concludes that the results of seven studies of five school voucher programs, indicate that the programs have had positive benefits for students in every case. Test scores have increased. He also points out that public schools in areas that have voucher programs have been forced to become better. They have an incentive- if they do not, their enrollments will decline.

Questions for Discussion:

1. Is there a market for education?

2. Do vouchers change the demand or the supply?

3. Is the market efficient?

Economics Applied—Using What You Learned

Advertising can add value to a product?:

In a recent opinion article entitled, "Advertising can add value to a product?", John Hegarty discussed advertising in the beer industry. He argued that two major obstacles face marketers attempting to reach today's consumers—media fragmentation and choice proliferation. The beer category, for example, currently suffers from choice proliferation generated by competition from wine, spirits and ready-to-drink brands. When you ask the general public what they think is good advertising, they tell you it makes them laugh and stimulates them, that it captures their imagination and articulates their aspirations. If beer advertising can deliver these things, it stands a good chance of getting talked about—creating famous and valuable brands.

But how, even with great advertising, can we guarantee success when media fragmentation makes it increasingly difficult to ensure people will see it?

Media should no longer be about OTS (Opportunities To See) but about OTE—Opportunities To Engage. The successful advertiser will be the one with the best ideas; not necessarily the one with the most money.

Peter Wells of Nilewide, the strategic marketing consultants, said—'Too often marketing is focused on hiding similarities between products rather than celebrating differences', he could have been suggesting that the beer category should put at least as much emphasis on innovation in product, design, dispense, and retailing as it does on its advertising.

Allowing the beer category to stagnate, whilst all around it new and exciting developments are taking place is not a recipe for success. To quote Michael Porter of the Harvard Business School—'Innovation is the central issue in economic prosperity'. We must be daring and embrace change—not succumb to the desire to consolidate and proceed cautiously. We must accept the prospect of failure—recognizing that the only way to avoid stumbling is to stand still.

Questions for Discussion:

1. What is the goal of advertising?

2. How does advertising affect demand?

3. How does advertising impact equilibrium?

Gasoline Prices

An article by Peter Huber in his column in Forbes entitled, "Gasoline and the Grid" offers some interesting information about oil consumption. About 60% of the fuel we use today isn't oil—it's coal, uranium, natural gas and hydroelectric. About 60% of our GDP now comes from industries and services that use electricity as their front-end fuel. Some 60% of all new capital spending—what's left of it—is on information-technology equipment, all of it powered by electricity. All the fastest-growing sectors of the economy over the past decade—information technology and telecom, most notably—depend entirely on electricity for their fuel. In the U.S. almost no electricity is generated with oil.

Electric power plants now account for about 40% of our total energy consumption, compared with (roughly) 30% each for transportation and heating. And electricity is progressively eating its way into those two smaller sectors. Lasers, microwaves and other forms of electrically generated power are now superseding conventional furnaces, ovens, dryers and welders—to heat air, water, foods and chemicals. Finely tuned, all-electric radiant ovens and beams work far better than most conventional ovens.

The automobile itself is going electric. A steadily rising fraction of the power produced under the hood of a car is being used to generate electricity, because electrical modules are progressively displacing components driven by belts, pulleys, gears and shafts. Over the course of the next decade a 42-volt power system will replace the existing 14-volt wiring in all cars. Steering, brakes, suspension, fans, pumps and valves will go electric; in the end, the wheels will be driven electrically too. Batteries, hydrogen, fuel cells and environmental mandates have nothing to do with this transition; electric drives are taking over because the electric drive train delivers better performance, lower cost and less weight.

Questions for Discussion:

1. **What are the substitutes for gasoline?**

2. **How has the price of gasoline impacted the quantity demanded?**

3. **What do you think will happen to the demand for gasoline over the next fifty years? Why?**

Economics Applied—Using What You've learned

Minimum Wage:

The Chicago Tribune recently reported that legislation to raise the hourly minimum wage to $6.50 from $5.15 over the next 19 months was approved by the General Assembly. Under the measure, the state's hourly minimum wage will increase to $5.50 in January and will rise to $6.50 in January 2005.

Illinois will become the nation's 12th state to increase the minimum wage above the federally mandated $5.15 per hour, which was established six years ago. The District of Columbia also has a higher minimum wage. About 450,000 workers, or 6 percent of the Illinois workforce, earn between $5.15 and $6.50 per hour. This includes: 58 percent of restaurant workers, 39 percent of gasoline service station attendants, 34 percent of people working in movie theaters, and 32 percent of those working for grocery stores.

Kim Clarke Maisch, Illinois director of the National Federation of Independent Business, said increasing the minimum wage above the federal level is bad policy. "Someone will lose their job over this," she said, noting that small-business owners "don't grow money on trees." Will they hire one less person? Probably. Will they fire someone? Probably, "Maisch said.

Questions for Discussion:

1. Who are the demanders and suppliers in a labor market?

2. Is the demand for labor elastic?

3. Is the supply of labor elastic?

Cable Choices:

The Wall Street Journal recently reported that Congress is considering legislation that would force cable companies to allow consumers to choose the individual channels they want to subscribe to, instead of paying for the entire package. The rational is that average household watches only 17 channels, cable rates continue to increase, and that cable companies already sell some premium channels (HBO) separately.

The cable company's response is that these changes would ruin the industry, less popular channels would be discontinued, overall rates would increase and the cots of providing service would increase dramatically.

Questions for Discussion:

1. Are there substitutes for cable TV?

2. Is the demand for cable TV elastic or inelastic? Why

3. Why is there only one cable company in your neighborhood?

Allocating an Advertising Budget to Different Markets

You are responsible for allocating a fixed advertising budget for your firm in various markets. Your budget is $12 million. The benefits and costs of advertising in the markets are shown in the following table (in millions of dollars)

Market	B	C	D	E	F	G	H
Benefit of campaign	$3	$14	$6	$15	$40	$30	$48
Costs of campaign	$1	$2	$2	$3	$4	$5	$6

a. How would you allocate the budget?

b. How would the total benefits change if you spent the $12 million budget on the least expensive campaigns

The Market for Blue Jeans:

A recent newspaper article examined the market for blue jeans. The article reported that Seven, Joie and Earl jeans, which can set you back from about $120 to $150, seem almost "affordable" when compared with prices commanded by Christian Dior, Diesel, Evisu and Habitual, which crack the $200 level and easily soar to nearly twice that. Levi Strauss would roll over in his grave if he saw how even his classic red tabs are now expensive enough to play in the designer denim leagues. "We've seen denim evolve from riveted, die-hard workwear into being a total fashion statement," said Gregg Andrews, Nordstrom's East Coast fashion director. "A lot of the new details—washing, distressing—all require extra steps. The additional steps are going to increase the price." But there's more than just bleaching and whiskering to account for the big bucks today's jeans are fetching. "The attack of the $200 jeans is relevant. We've accepted denim as part of our normal, everyday wardrobe, but now we want to take it further," said Tom Julian, fashion trend analyst for Fallon Worldwide. "Look at the Japanese denim or the treated denim that is European inspired. It's like silk or cashmere. It simply costs more. Seven redefined the silhouette and that's a whole different parameter. It's modern, and you're paying for that." Some consumers justify expensive jeans because they're such an integral part of the wardrobe. "Consumers do think that jeans are a 'good investment' because they can be worn absolutely everywhere now, and they never seem to wear out," Wolfe said. Andrews agrees: "People are willing to spend that amount of money for jeans because they do double, triple duty in the wardrobe. They're seasonless." Still, no matter how wonderful those jeans look and feel, there's always a new brand waiting to make your Diesels look downright drowsy. A recent fashion item claimed that Sevens and Habituals were so yesterday. The new kid on the block? Alice + Olivia jeans, the brainchild of twenty-somethings who know jeans. The denims of choice of Lizzie Grubman and Gwyneth Paltrow, A Plus Os are flying out of Bergdorf Goodman in New York at $200 a pop. Is any jean worth $200 or more? It depends. "Jeans are ultimately cool," Andrews said. "Whether you're wearing them with a T-shirt or sequin top, they say cool." But they're still just jeans, Julian reminded: "At the end of the day, it's still denim," he said, "in the same way that cologne is water."

Questions for Discussion:

1. What must be true about consumers who buy expensive blue jeans?

2. Are all jeans substitutes for each other?

3. What role does marketing play in the demand for high-priced blue jean?

Extended Examples

Extended Example: *Minimum Wages*

In the United States, employers (demanders of labor) must pay their workers (suppliers of labor) a minimum wage. A minimum wage is equivalent to a price floor, but unlike the agricultural case, the government does not purchase the surplus labor created.

1. Draw a graph of the labor market, showing the demand for labor (by firms), the supply of labor (by workers), and the equilibrium wage (price of labor) and quantity of labor employed.

2. Suppose that the government sets a minimum wage above the equilibrium wage. Show this on your graph. What happens to the quantity of labor demanded? What happens to the quantity of labor supplied? What happens to total employment? Show the effects on total surplus in the market.

3. Who gains and who loses from this policy?

4. One reason why minimum wages are imposed is to help unskilled, low-wage workers. Do you think that a minimum wage will really help these workers? (Hint: If labor becomes more expensive, which workers will be laid off first?)

5. It is often claimed that the minimum wage set by the government is actually below the market equilibrium wage. If so, what is its effect on the market?

Using the Tools

1. Price Controls for Medical Care

Consider a town where the equilibrium price of a doctor's visit is $60 and the equilibrium quantity supplied is 90 patient visits per hour. For suppliers (doctors), each $1 increase in price increases the quantity supplied by two visits. For consumers, each $1 increase in price decreases the quantity demanded by one visit. Suppose that in an attempt to control the rising costs of medical care, the government imposes price controls, setting a maximum price of $50 dollars per visit,

a. Use a completely labeled graph to show the effects of the maximum price on (i) the quantity of visits to doctors and the total surplus of the market.

b. What sort of inefficiencies does the price control cause?

c. Would you expect patients and doctors to find ways around the maximum price?

2. Barber Licensing

Consider the market for haircuts in a city. In the market equilibrium, the price of haircuts is $6 and the quantity is 240 haircuts per day. For consumers, each $1 increase in price decreases the quantity demanded by 20 haircuts. For producers, each $1 increase in price increases the quantity supplied by 60 haircuts. In the market equilibrium, there are 24 barbers, each of whom produces 10 haircuts per day. Suppose the city passes a law requiring all barbers to have a license and then issues only 18 barber licenses. Each licensed barber continues to provide 10 haircuts per day. Use a completely labeled graph to show the effects of licensing on (i) the price of haircuts and (ii) the total surplus in the haircut market.

3. Bidding for a Boston Taxi Medallion

In 1997, there were 1,500 taxi medallions in the city of Boston, and each generated a profit of about $14,000 per year. In 1998, the city announced that it would issue 300 new taxi medallions, auctioning the new medallions to the highest bidders. Even with the new medallions, the number of taxis in the city will still be less than the number that would occur in an unregulated market. Your job is to predict the new annual profit from a medallion after the new medallions were issued. To predict the new annual profit, assume the following:

- The cost of providing taxi service is constant at $2.00 per mile of service.
- The initial price of taxi service (with 1,500 medallions issued) is $2.14 per mile.
- Each taxi (or medallion) provides 100,000 miles of service per year, so issuing the 300 new medallions increases the total quantity of taxi service from 150 million miles to 180 million miles.
- For consumers, each $0.01 decrease in the price of taxi service increases the quantity demanded by 10 million miles.

4. Shifting a Housecleaning Tax.

Consider a city where poor people clean the houses of rich people. Initially, housecleaning firms charge their customers $10 per hour, keep $1 per hour for administrative costs, and pay their workers $9 per hour. Like many luxury goods, the demand for housecleaning service is very elastic. Housecleaning workers are not very responsive to changes in the wage.

a. Use supply and demand curves to show the initial equilibrium in the market for cleaning services (price = $10 per hour; quantity = 1,000 hours of cleaning per week), and label the equilibrium point with an *i*.

b. Suppose the city imposes a tax of $3 per hour of cleaning services, and one-third of the tax is shifted forward to consumers. Use your graph to show the effects of the tax on the housecleaning market. Label the new equilibrium point with an *f*. What is the new price?

c. Is it reasonable that only one-third of the tax is shifted forward? Explain.

d. Suppose that firms continue to keep $1 per hour for administrative costs. Predict the new wage.

e. Who bears the bulk of the housecleaning tax, wealthy households or poor ones?

Tariffs:

The Wall Street Journal discussed tariffs in a recent article entitled, "The Price of Tariffs". The article posed the following question: What do apples, pears, T-shirts, trousers, bib overalls, blankets, stainless steel products, doors, men's suits, drums, and ink-jet printers have in common?

The answer: they are all part of a much longer list of U.S. products that currently sell well in Europe but won't in the future if they are slapped with 100% tariffs. And that is precisely what the European Union is promising to do in retaliation for the steel tariffs that the Bush Administration imposed in March 2002 to last until 2005.

Europe will have every legal right to apply those levies following Friday's ruling by the World Trade Organization that the U.S. tariffs violate global trade rules. The U.S. immediately said it would appeal, which only means delaying the inevitable. If a 30% tariff designed to price foreign goods out of the U.S. market isn't a violation, then nothing is.

Questions for Discussion:

1. How does a tariff impact the equilibrium price?

2. Who benefits from a tariff? Who is hurt?

3. Why would a government impose a tariff?

Extended Examples

Extended Example: *Student Loans*

Imperfect information can be a problem in student loan markets. Lenders do not have enough information to be able to determine whether the student will repay the loan, given the lack of a credit history or even a certain profession.

1. Suppose that lenders would charge a 6% rate to good credit risks and a 15% rate to bad credit risks. What will the market interest rate tend to be, and who will get loans?

2. The result of this informational asymmetry is an inadequate amount of student funding. Thus the government may wish to intervene. How could the government correct this problem, and why would the government want to?

Extended Example: *Winning the Lottery??*

In a fair lottery, such as state lotteries, the chance of having a winning ticket is known, and the probability of any one number being chosen is exactly equal for all numbers. As the draw is random, there should be no way of predicting the winning numbers.

1. You can purchase the following items that claim to help you win the lottery: calculators that generate random number combinations; books on choosing winning numbers; and magazines that tell stories of how people won the lottery and how you can, too, using these techniques. Assuming that the lottery is not rigged, what is the value of these products?

2. Why do people purchase such products?

3. If someone had a guaranteed method for winning the lottery, would it be for sale? Why or why not?

Skydiver Question

Several of your friends have offered to take on a tandem skydiving adventure: Strapped together with a single set of parachutes (main and emergency), you jump out of an airplane and then either float to earth or crash. All of your skydiving friends are equally skillful and none of them has the thrill seeker gene. You can ask each of them one (only one) question. What is your question? Provide the answer you are looking for in a skydiving mate.

Economics Applied—Using What You've Learned

Financial Scandals

A recent editorial in the Chicago Tribune entitled, "Is Anyone Honest Anymore?" discussed the current financial scandals. Our current cycle of boom-bust-scandal-reform isn't over yet. Still, the unfolding of more than a dozen corporate scandals—Tyco, WorldCom, Andersen and so on—have already nudged Congress to pass the Sarbanes-Oxley revamp of corporate governance, prompted a top-to-bottom appraisal of accounting standards, provoked an ongoing debate about the future of regulatory oversight at the New York Stock Exchange, and catalyzed an ethical reassessment in boardrooms across the country. What will come out of the now-burgeoning mutual fund scandal has yet to be determined.

But once the fog has lifted, it will be clear that the financial scandals of the late 20th and early 21st Centuries stemmed from many of the same causes as those of 75 years ago; that is, an investment frenzy plus lax regulation.

The American Enterprise Institute analyzed results from three polling organizations—Gallup, the National Opinion Research Center and Harris Interactive—and concluded that most Americans have never much trusted the honesty of those who run major corporations, although they do trust their own bosses. More than half of Americans also believe, and have since at least the mid-1990s, that, "People on Wall Street would be willing to break the law if they believed they could make a lot of money and get away with it." (The pollsters didn't ask, but we suspect investors are less fretful about this when they, too, are making money on stocks.)

In the recent scandals, some executives deliberately broke the law. But many more got swept up in a moment when cutting corners seemed not only acceptable, but necessary. Investors were rewarding companies that pushed the ethical envelope to boost stock prices, and were dumping as fuddy-duddies companies that couldn't produce stellar returns.

Questions for Discussion:

1. Is there a problem with imperfect information in the stock market?

2. What would you expect to happen to stock prices if investors had perfect information?

3. What would you do to increase the availability of information in this market?

Simple Premise

A recent newspaper article, "The premise is simple" related the following story. The premise is simple: Hard-working entrepreneur wants to sell stock to help her business grow. She lines up a group of experts for her company's board, which ensures that management acts in the best interest of shareholders, and finds an investment banker. A savvy investor believes in the company, and buys in when shares are offered. Wall Street analysts research the company and give clients the unvarnished lowdown. Entrepreneur tallies up her revenue and costs, announces company's profits. Independent auditor checks the books. If things are going badly, company fesses up. If entrepreneur is selling shares, investors know about it. Someday, the savvy investor decides to sell. Efficient stock market gets him the best available price, down to the penny. At least that's the ideal. Two backbones, of course, are supposed to be fairness and transparency—no sweetheart deals, no cutting corners, honesty, integrity, and prompt disclosure. But as millions of investors have learned from the multibillion-dollar debacles at Enron, WorldCom, Merrill Lynch and Chicago-based Andersen, it doesn't necessarily work that way.

Questions for Discussion:

1. Would national incorporation standards improve information for buyers of stock

2. What would an insurance plan (similar to the one in place for bank deposits) do for the stock market?

3. Would it be possible to eliminate all risks in the stock market?

Extended Example: *Taxing Gasoline*

Emissions from automobiles contain carbon monoxide and a variety of other harmful gasses that contribute to global warming and increase urban smog. The United States attempts to control automobile emissions through a variety of programs, including gasoline taxes and emissions requirements for new automobiles.

1. We know that the demand for gasoline is very inelastic, particularly in the short run. What are the effects of the gas tax on the quantity of gasoline consumed? On the total amount spent by consumers on gasoline? On government revenue?

2. In Japan and most European countries, taxes on gasoline are substantially higher than in the United States. As a result, much less gasoline per capita is consumed and fewer people drive cars. Should the United States have a sharp increase in the gas tax? Why or why not?

3. One criticism of gasoline and other carbon taxes is that they are regressive; that is, poorer people pay a higher *percentage* of their income in these taxes than rich people. Explain why a gas tax would be expected to be regressive and what the government could do to ease the problem.

Extended Examples

Extended Example: *Calculating Costs*

Consider a firm that has just built a small plant, which cost $4,000. Each unit requires $2.00 worth of materials. Each worker costs $7.00 per hour.

a. Based on the information, fill in the table.

Number of Worker Hours	Output	Fixed Cost	Variable Cost	Total Cost	Marginal Cost	Average Fixed Cost	Average Variable Cost	Average Total Cost
0	0				—	—	—	—
50	400							
100	900							
150	1300							
200	1600							
250	1800							
300	1900							
350	1950							

b. Graph all of the cost curves that you calculated.

c. How would the curves shift if (1) wages fell to $5/hour, (2) material costs increased to $3.00, or (3) the factory had cost $8,000 to build?

Charitable Giving

A recent Forbes article entitled, "Charity Isn't Cheap", discussed charities and charitable giving. The article reported that in 2004 Americans will donate $160 billion to churches, opera houses, universities and art museums. About 25% of the money will go to "charity," narrowly defined: family shelters, drug treatment centers, soup kitchens, programs to vaccinate children in Africa and so on.

Yet most donors, if asked, would be hard-pressed to define what a "good" charity is. There are no market forces that shape the sector. Most donors have settled on low administrative overhead as the barometer to determine the proficiency of an organization.

Just because an organization has next to nothing in administrative overhead doesn't mean it's an effective nonprofit. In fact, administrative overhead is essential if we are to develop programs that go beyond Band-Aid responses and build the kind of infrastructure and collaborations that address the root causes of social ills.

Remember the controversy involving the American Red Cross after Sept. 11? The organization wanted to reserve a portion of the $850 million Liberty Fund for purposes outside of immediate relief to the victims and their survivors. The public was outraged, but what was lost during this debate was the reason the Red Cross wanted to earmark a portion of this money. It needed to invest in administration to handle the volume of donations, as well as things like telecom networks and freezers for blood storage to achieve a better level of efficiency in case of future attacks.

Relying on any single barometer or even a series of percentages to evaluate a program's worth is a mistake. Would you balk at funding a program that spends 23% of its budget to raise money? Well, Habitat for Humanity, one of the most effective nonprofit organizations in the country, has to spend that much to build as many homes as it does.

The next time you think about donating instead of looking at percentages, look for quality of services and effectiveness of programs.

Questions for Discussion:

1. How are charities different from most for-profit firms?

2. Are the lowest cost charities the most efficient?

3. List all the fixed costs you can think of for the Red Cross

Extended Examples

Extended Example: *Pharmaceuticals and Patents*

There are several barriers to entry in the pharmaceutical industry, including brand preference and scale economies in research and development.

The 1984 Drug Price Competition and Patent Restoration Act had two major effects on patent law in the pharmaceutical industry. First, it extended patent life by not counting the time while the drug was waiting for FDA approval. Secondly, it facilitated the entry of generic competitors after the patent had expired.

1. What effect would the first provision have on efficiency and social welfare if a drug had developed without the extension? What effect would it have on total number of drugs developed?

2. What effect would the second provision have on efficiency and social welfare? Explain.

3. Why would Congress pass an act that simultaneously increases and decreases the competitiveness of this industry?

Extended Example: *A Natural Monopoly*

Starting an electrical plant is very costly, but once it is built, the marginal cost of generating electricity is very small. Assume that the cost of building the plant is $20 million, but the marginal cost per kilowatt hour (kWh) is then a constant $5.

1. Graph the approximate shapes of the marginal-cost and average-cost curves.

2. On your graph, draw a representative demand curve for the industry. Given your demand curve, what is the efficient price? Why doesn't the regulatory agency require the monopolist to charge the efficient price?

3. On your graph, show the average-cost price and indicate the deadweight loss. What will happen to the size of the deadweight loss if the monopoly does not minimize its costs?

4. Because there is deadweight loss, why is it beneficial to society to have only one firm in this market? Wouldn't competition make the market more efficient?

Extended Examples

Extended Example: *The Price of Breakfast*

There are a wide variety of breakfast cereals on the market; in grocery stores, they usually take up an entire aisle. As a result, it is possible to purchase many cereals that are highly similar but have small distinguishing characteristics that differentiate them.

1. List some cereals that are very close substitutes for one another.

2. What does society gain from having all of these varieties of breakfast cereal?

3. What does society lose by having all of these varieties of breakfast cereal?

4. Can you think of any way to determine whether the gains outweigh the losses?

Extended Examples

Extended Example: *OPEC*

Perhaps the most famous example of oligopolistic collusion is the Organization of Petroleum Exporting Countries (OPEC). During the 1970s, this cartel, which controlled much of the world supply of oil at the time, was able to control output and significantly raise world oil prices. However, since that time, OPEC has been largely unsuccessful in controlling the supply of oil.

1. OPEC nations as a group would make more profit from oil if they restricted the supply and thus sold less but at a higher price, as the demand for oil is relatively inelastic. If that is true, why has it been so difficult for OPEC to keep its members from cheating (and selling more oil than agreed on)?

2. Another factor that has weakened OPEC control is oil discoveries in other countries, induced in part by expected profits due to high prices. How does this increased supply of oil reduce OPEC's ability to set world oil prices?

3. Would it be possible for United States oil companies to form a cartel to attempt to raise United States oil revenues? Explain.

Extended Example: *The Advertising Game*

Two companies that produce soft drinks, Popsi and Croak, are each trying to decide whether to start a new advertising campaign. If one firm advertises and the other doesn't, that firm will increase its market share and gain profits of $10 million, while the other firm loses $5 million. If both firms advertise, neither will have an increase in sales, and advertising is expensive, so each will lose $1 million. If neither firm advertises, market shares remain the same but expenses fall, for a gain of $2 million to each firm.

1. Draw the game tree for one of the firms.

2. What is the firm's dominant strategy?

3. What would be the best thing for the firms to do if they could collude and agree on a strategy?

4. Is it likely that these firms will decide to advertise or not? Explain.

Extended Examples

Extended Example: *Who Gains from Minimum Wages?*

1. Draw a graph of the labor market, showing the demand for labor (by firms), the supply of labor (by workers), the equilibrium wage (price of labor), and quantity of labor employed.

2. Suppose that the government sets a minimum wage above the equilibrium wage. Show this on your graph. What happens to the quantity of labor demanded? What happens to the quantity of labor supplied? What happens to total employment? Who gains and who loses from this policy?

3. Some critics of the minimum wage claim that it is too low; in fact, they say there are very few workers who actually get paid the minimum wage (such as college work-study students) because it is set below the equilibrium wage. Draw the labor market again and show the effect of a minimum wage set below the market wage. Who gains from this policy?

Extended Example: *The Effects of Immigration*

An always-controversial national issue is the benefits of immigration. Consider, in general, the effects of immigration on the labor market.

1. Draw a graph of the labor market, showing the demand for labor (by firms), the supply of labor (by workers), the equilibrium wage (price of labor), and quantity of labor employed.

2. Suppose that there is immigration of workers from another country or another geographical area. Show the effect on the labor market, the wage, and the quantity of labor employed.

3. Is it possible to tell what will happen to total wages paid? To wages per worker? On what do these things depend?

4. Lower wages mean lower costs to the firm. What effect will this have on the output market? How will this affect workers who are also consumers of these products?

Extended Examples

Extended Example: *Unions For College Professors?*

1. What would happen if the professors at a university formed a union? Illustrate graphically the changes to supply, demand, and equilibrium wages?

2. List the possible goals of a union of college professors

3. How might the union impact the following; wages, number of professors employed, class size, number of classes taught, quality of instruction.

Extended Example: *Efficiency Wages*

1. Would you go to a doctor that charged the lowest fees? Why or why not?

2. Are professional athletes overpaid? Why or why not?

3. Why would a university pay new professors lower wages than professors with years of experience?