SEPTEMBER 11, 2001 AND ITS AFTERMATH

The fifteenth edition of Economics was published prior to the September 11, 2001 terrorist attacks on the United States. Those attacks, followed by the U.S.-led military campaign in Afghanistan, had serious economic repercussions. The purpose of the following chapter notes is to establish how those events and impacts relate to various economic ideas described in the textbook. In reading these notes, keep in mind that some of the analysis is necessarily speculative and new developments may occur as the war on terrorism progresses.

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Chapter 1. The Nature and Method of Economics

1) In our discussion of economics for citizenship (p. 5), we say that a basic understanding of economics is essential to being a well-informed citizen. The September 11, 2001 events and their aftermath are highly illustrative. Several public policy issues (p. 8) have emerged that citizens can better understand and assess with a basic understanding of economics. Examples:

- Should the Federal government provide subsidies to affected industries such as airlines and insurance? How much? Should it subsidize travel agents, hotels and motels, and car rental firms? Should it subsidize Boeing, the maker of commercial aircraft? Are other affected industries deserving of subsidies? If so, which ones?
- Should the Federal government reduce taxes or increase government spending to help the economy? If so, by how much? What if this comes at the expense of long-run funding for the social security program?
- Should the Federal Reserve further lower interest rates to help the economy? If so, by how much should interest rates fall?
- Should the Federal government take control of the security systems at airports? Should security screeners become Federal government employees?
- Should government divert some of its limited health care budget to developing antibiotics or vaccines to thwart possible future bioterrorism attacks? What if that comes at the expense of research for cancer, AIDS, heart disease, and birth defects?
- Should the U.S. carry the military fight against terrorism to countries other than Afghanistan? What are the marginal costs and marginal benefits of doing so?

2) The impacts of the terrorist attacks are useful in distinguishing between macroeconomics and microeconomics (pp. 9-10). The analysis of how the events have affected the nation's output (GDP) and employment illustrates macroeconomics. The study of how the events have affected ticket prices and profit in the airlines industry illustrates microeconomics.

3) The events of September 11, 2001 are relevant to the textbook's discussion of the "after this, therefore because of this" fallacy (pp. 11-12). Although the events *preceded* the initial official reports of a decline in U.S. output, they were not the sole *cause* of that decline. The economy was slipping toward recession (popularly defined as a decline in output lasting six months or more) before September 11, 2001.

Chapter 2. The Economizing Problem

1) The destruction of buildings and equipment and loss of lives in New York (World Trade Center) and Virginia (Pentagon) reduced total production capacity in the United States. This outcome is shown as an inward shift of the economy's production possibilities curve (p. 26); that is, as an opposite shift as that shown in Figure 2.4 (p. 30). But this inward shift was relatively slight because the attacks destroyed only a small fraction of the nation's labor force and capital assets. The losses of capital assets were similar to those experienced by the United States in natural disasters such as hurricanes and earthquakes. The loss of human capital, however, was far greater than in those natural occurrences.

2) The fact that the WTC buildings were insured does not reduce the true cost of their loss to the economy. The insurance reimburses the owners, but does not bring back the destroyed capital. Replacement requires the use of new resources, which have alternative, forgone, uses. The costs of catastrophes to the economy are independent of whether they are insured.

3) The costs of the U.S. military effort in Afghanistan—initially $500 million to $1 billion per day—can also be understood through production possibilities analysis. If we label the axes of Figure 2.1 (p. 26) "military goods" (or "guns") and "civilian goods" (or "butter"), then the opportunity costs of using more resources for military goods are the civilian goods given up. Both military goods and civilian goods are valuable because they both provide utility. But in an economy that is fully employed, more military goods are achieved at the opportunity cost of fewer civilian goods.

4) Discovering the optimal amount of military goods requires that society assess the marginal benefit and marginal cost of additional units of those goods. We can depict this in Figure 2.2 (p. 28) by relabeling the horizontal axis "Quantity of military goods" rather than "Quantity of pizza." Allocative efficiency requires that society expand production of military goods until their marginal benefit (MB) equals their marginal cost (MC). This analysis reinforces the axiom that there can be *too little* or *too much* of a particular good. Suppose in Figure 2.2 that the optimal amount of military goods was 2 units before the terrorist attacks. The events of September 11, 2001 increased the marginal benefits of military goods, shifting the MB curve to the right (not shown). If you pencil in such a shift, you will see that the optimal quantity of military goods rises.

5) The U.S. economy was receding before September 11, 2001 and the terrorist attacks made things worse. In Figure 2.3 (p. 29), a movement from a point on the production possibilities curve to a point such as *U* inside the curve represents a rise in unemployment.

6) The aftermath of the terrorist attacks helps illustrate the circular flow diagram (Figure 2.6, p. 35). The attacks reduced consumer confidence and decreased consumption spending by households. So revenue flowing to businesses declined and they cut back their employment and

production. The decline in employment (of land, labor, capital, and entrepreneurial ability) reduced wages and other income and therefore decreased household income.

Chapter 3. Individual Markets: Demand and Supply

1) Demand and supply analysis (Figure 3.5, p. 51 and Figure 3.6, p. 53) helps explain a number of economic effects of the terrorist attacks and their aftermath. Three examples:

- The equilibrium price and quantity of airline tickets both declined. Many people decided not to fly, greatly reducing demand. Although the airlines reduced ticket supply by dropping some flights, the sharp reduction in demand exceeded the service cutbacks. These changes are illustrated as a significant leftward shift of the demand curve accompanied by a lesser leftward shift of the supply curve. The result: Ticket prices and the number of passengers fell.
- The demand for cell phones rose rapidly immediately after the attack. In the demand and supply model, this change is shown as a rightward shift of the demand curve. The price of cell phones remained relatively constant because sales were made from inventories, but the quantity of phones bought and sold increased.
- Rising unemployment and the fear of becoming unemployed led many consumers to shift their purchases from expensive goods to less expensive goods. Demand and sales fell significantly at upscale department stores (for example, Nordstrom's) but remained relatively strong at large discount stores (for example, Wal-Mart). We would show these as relative changes in demand in the two markets.
- The slowing U.S. and world economy, together with the decline in the demand for jet fuel, reduced the demand for oil. Both the equilibrium price of oil and its quantity fell. So, too, did gasoline prices.

Chapter 4. The Market System

1) The events of September 11, 2001 and their aftermath provide good illustrations of consumer sovereignty, dollar votes, and resource allocation (pp. 64-68). For example, the attacks and the war on terrorism increased the demand for U.S. flags. Through their dollar votes, sovereign consumers declared that they wanted more of the economy's resources devoted to flags and, since income is limited, less to other goods. Producers, experiencing rising profits from producing flags, responded by stepping up flag production. Resources flowed into the production of flags, away from competing uses, just as if some (patriotic) invisible hand (p. 68) directed that change.

2) The events and their aftermath help illustrate the derived demand for resources (p. 65). Two examples:

- The demand for commercial airliners is derived from the demand for air travel. When the product demand for air travel fell, so did the resource demands for aircraft and aircraft workers.

- The increased demand for U.S. homeland security increased the demand for Arabic-speaking interpreters and translators by the Central Intelligence Agency (CIA).

Chapter 5. The U.S. Economy: Private and Public Sectors

1) The war on terrorism illustrates the difference between public goods (p. 81) and private goods. The war increased the demand for homeland defense and military power, both of which are public goods. The benefits of these goods are indivisible and accrue to all U.S. citizens. There is no practical way of excluding any American from receiving those benefits. Because of the free-rider problem, homeland defense and military power would be underprovided by the private sector. The U.S. government therefore provides these public goods and finances them through tax revenues and borrowing. Taxing, borrowing, and government spending reallocate the resources needed from the private sector to the public sector (see *The Reallocation Process*, p. 82).

2) The issue of whether security screening at airports should be privately or publicly provided illustrates the idea of quasi-public goods (p. 82). Either private firms, under contract by the airlines, or government can provide airport screening. The events of September 11, 2001, called into question whether airport screening should continue to be a private good or made a quasi-public good provided by government. The issue is whether airlines can be given sufficient incentives or penalties so they hire and train skilled screeners and provide a high level of security in the altered environment. Some economists think that is possible; others are doubtful. The doubters believe that airport screening is a defense function best provided by the Federal government.

3) Government spending resulting from the events of September 11, 2001 and their aftermath illustrates the distinction between government purchases (exhaustive expenditures) and government transfer payments (nonexhaustive expenditures) (pp. 84-85). The hiring of more CIA agents, the purchase of cruise missiles, and the purchase of antibiotics against anthrax are examples of government purchases. Financial support for families of fallen firefighters, subsidies to commercial airlines, and aid to Afghani refugees are examples of government transfer payments.

4) The war on terrorism is likely to increase national defense spending as a percent of the Federal budget (Figure 5.8, p. 86) and government purchases as a percent of U.S. output (Figure 5.7, p. 85). The public sector may get relatively larger in the next few years.

Chapter 6. The United States in the Global Economy

1) The events of September 11 and their aftermath slowed customs and immigration processing, impeding trade flows and resource flows between the United States and other nations (Figure 9.4, p. 94). For example, long waits by trucks and ships developed at the U.S.-Canadian border

and in U.S. ports. Also, tighter immigration restrictions are likely to impede the flow of workers from abroad.

2) The events did not significantly affect international exchange rates and the international value of the dollar. Immediately following the attacks, the Federal Reserve System flooded money markets with dollars to ensure that financial institutions had plenty of liquidity to carry out domestic and international transactions. As a result, there was no flight to other currencies such as the euro, Swiss franc, or yen. Such flight would have produced an increase in the demand for foreign currencies, an appreciation of those currencies, and a depreciation of the dollar.

Chapter 7. Measuring Domestic Output, National Income, & the Price Level

1) Department of Defense (DOD) spending on military pay and arms and ammunition are examples of *government consumption expenditures* (pp. 120-121). In contrast, DOD spending on runways and housing at military bases are examples of *government investment expenditures*.

Chapter 8. Introduction to Economic Growth and Instability

1) It is too soon to tell whether the terrorist attacks will alter the long-run trend of U.S. growth (Table 8.1, p. 138). On the one hand, added security measures throughout the economy may slow productivity advances and economic growth. More troublesome might be a significant shift of economic resources from business investment to defense spending. Also, research and development spending could shift toward the war on terrorism and away from private-sector innovations that enhance productivity and economic growth. If the war on terrorism impedes the accumulation of private capital and technological change, the long-run growth rate of the U. S. economy will diminish. On the other hand, military research and development often have positive, growth-enhancing spinoffs for the private sector.

2) The current recession reinforces the discussion of the differential impact of a decline in spending on durables and nondurables (p. 140). In 2001 industries producing capital goods (for example, telecommunications equipment) and consumer durables (for example, personal computers), suffered the largest sales declines in percentage terms. Industries producing nondurable consumer goods (for example, food products) and service industries (for example, health care) fared relatively better.

3) The unemployment rate (p. 141) was slowly rising before the September 11, 2001 attack, but jumped from 4.9 in September 2001 to 5.4 percent in October 2001. Employment declined by 415,000 jobs in October. The added unemployment was mainly cyclical unemployment, rather than frictional or structural unemployment (pp. 141-142).

4) A GDP gap (pp. 143, 144) is associated with the rising U.S. unemployment. The 5.4 percent unemployment rate for October 2001 exceeds the natural rate of unemployment of 4 to 5 percent.

5) Inflation is currently very low and the deepening recession is placing further downward pressure on prices. So it is unlikely that the added government spending on the war against terrorism will produce significant demand-pull inflation (p. 146). Also, few cost-push inflationary forces are currently at work in the economy. Oil prices have declined and wage increases have been in line with productivity advances. In October 2001, wholesale prices fell by 1.6 percent.

6) Stock values declined by more than $1 trillion in the first ten days of trading after the terrorist attacks. But within two months those values had fully regained their pre-September 11, 2001 levels. The attacks and the war on terrorism are not expected to create lasting declines in stock value and a "reverse wealth effect" (Last Word, p. 155). Such an effect had already occurred from the substantial decline in stock values in the 12 months preceding September 11, 2001.

Chapter 9. Building the Aggregate Expenditures Model

1) The events of September 11, 2001 adversely affected consumer expectations (p. 165) about future employment and income, triggering a decline in consumer spending and an increase in saving. We would show these outcomes as a downward shift of the consumption schedule and an upward shift of the saving schedule in Figure 9.4 (p. 165). Whether or not the decline in consumer confidence will be long-lasting remains to be seen. Typically, consumption and saving schedules are relatively stable over long periods.

2) In the months leading up to September 11, 2001, investment spending had plummeted, causing the economy to slow. The uncertainty and negative expectations of the events of September 11, 2001 reduced investment spending further. The Federal Reserve responded by reducing interest rates. By early November the Federal funds interest rate (the rate charged by banks to each other on overnight loans) was 2 percent, down from 6.5 percent just 11 months earlier. Without such cuts, investment spending undoubtedly would have declined even more.

The full set of macroeconomic circumstances can be shown graphically as follows:

- Because of lower expected returns on investment, the investment demand curve shifted inward, as from ID_0 to ID_2 in Figure 9.6 (p. 196). At any given interest rate, less investment was forthcoming.
- The Fed-engineered decline in the real interest rate moved the economy downward along its leftward shifted investment demand curve. Taken alone, the interest rate cuts increased investment spending.
- The reduced investment spending from the leftward shifts of the investment demand curve exceeded the increased investment spending resulting from the lower interest rates. So investment spending declined, but was higher than if the Fed had not cut interest rates.
- The decline in investment spending downshifted the economy's horizontal investment schedule (Figure 9.7, p. 171).

3) Shown via the aggregate expenditures model (Figure p. 9.9, p. 175), the events of September 11, 2001 reduced consumption and investment, dropping the aggregate expenditures ($C + I_g$) schedule and reducing equilibrium real GDP.

Chapter 10. Aggregate Expenditures: The Multiplier, Net Exports, and Government

1) The September 11 events did not affect the size of the multiplier (p. 185). That is, they did not change the slope of the consumption schedule (the MPS) or the slope of the saving schedule (the MPS).

2) Government expenditures increased significantly after the terrorist attacks. Added spending occurred for dismantling the rubble at the World Trade Center, beefing up homeland security, fighting the war in Afghanistan, and so on. This greater government spending would be shown as a larger amount of government purchases in column 6 of Table 10.3 (p. 190) and an upward shift of the aggregate expenditures schedule ($C + I_g + X_n + G$) in Figure 10.5 (p. 191).

3) Following the September 11, 2001 attacks the Federal government proposed tax cuts to help stimulate the economy. We would illustrate this tax cut as a lower amount of taxes in column 2 of Table 10.4 (p. 191) and an upward shift in the *after- tax* aggregate expenditures schedule ($C_a + I_g + X_n + G$) in Figure 10.6 (p. 192).

4) The current recession is another good application (pp. 196-198) of the private closed aggregate expenditures model. The recession occurred because of (a) a sharp decline in investment that followed the investment boom of the late 1990s, (b) a meltdown of the stock market that reduced consumption, and (c) declines in consumption and investment spending immediately after the events of September 11, 2001. The latter might be thought of as an "aggregate demand shock."

Chapter 11. Aggregate Demand and Aggregate Supply

1) In early 2000 the Federal Reserve's main concern was the prospect of demand-pull inflation. By January 2001 that concern gave way to a worry about sagging aggregate demand and recession. The events of September 11, 2001 greatly deepened that concern.

2) In 2001 aggregate demand declined, which would be illustrated as a leftward shift of the aggregate demand curve (as from AD_1 to AD_3 in Figure 11.3 (p. 206)). The main reasons for the decline are:

- a rapid drop in investment spending caused by a falling expected returns on investment (pp. 207-208)
- a decline in consumption spending caused by a reverse wealth effect (p. 207)

- worsening consumer expectations (p. 207) following the September 11, 2001 terrorist attacks.

3) The terrorist attacks did not appreciably affect aggregate supply (p. 209-213). A relatively small amount of U.S. production capacity was lost, productivity continued to advance, and oil prices declined.

4) Figure 11.10 (p. 217) describes the macroeconomic circumstances in the United States during the last half of 2001. Contrast this to the conditions between 1995 and 2000, as illustrated in Figure 11.12 (p. 219).

Chapter 12. Fiscal Policy

1) In mid-2001 the Federal government cut personal income tax and estate tax rates to respond to the slowing economy. Those actions constituted an expansionary fiscal policy (p. 225-226). Taxpayers received the first installment of their tax saving through checks of $300 per single taxpayer and $600 per taxpaying family. The purpose was to increase aggregate demand, as from AD_2 to AD_1 in Figure 12.1 (p. 225), and expand real GDP. The tax cuts, along with smaller tax revenues due to the faltering economy (Figure 12.3, p. 229), reduced but did not eliminate the Federal budget surplus.

2) Following the events of September 11, 2001, the Federal government boosted government spending to help New York cope with the aftermath of the attacks and to fight the war on terrorism. In November, the administration and Congress proposed a second set of tax cuts (final measure forthcoming). The combination of boosted government spending and reduced taxes constituted a second round of expansionary fiscal policy. Because of the two tax cuts and the increase in government expenditures, the full-employment budget surplus of 2000 (column 3, Table 12.1, p. 232) abruptly declined and moved toward a full-employment budget deficit.

3) Recognizing the administrative and operational lags (p. 233), the administration and Congress moved relatively quickly to enact the second round of tax cuts.

4) Policy makers do not believe the expansionary fiscal policy of 2001 will have a significant crowding-out effect (p. 234), since the Federal Reserve System has been lowering interest rates by expanding the money supply. Nevertheless, the expansionary fiscal policy could drive up interest rates and crowd out private investment if it is not eased as the economy recovers.

5) A few supply-side proponents of the tax cuts, which include lower marginal tax rates and tax breaks for investment, believe cuts eventually will stimulate investment and enhance productivity. If so, a secondary benefit of the tax cuts will be a rightward shift of the economy's aggregate supply curve, as illustrated in Figure 12.6 (p. 237). If it occurs, however, this impact probably will be modest.

6) The leading economic indicators (Last Word, p. 239) were falling before the terrorist attack and continued to decline in the two months after the attacks.

Chapter 13. Money and Banking

1) On page 257, we list the major functions of the Federal Reserve System. Not mentioned is an implied function that overrides all others: to ensure the economy has sufficient liquidity to conduct its business. The morning of September 11, 2001, the Fed recognized that the attacks directly affected many New York financial institutions and indirectly affected many more. So it flooded the financial markets with billions of dollars of money to make sure that payments were not disrupted due to a sudden lack of liquidity.

2) The events of September 11, 2001 caused no appreciable flight away from the dollar to, say, the euro, Swiss franc, or yen. The dollar remained a preferred currency in many parts of the world (Last Word, p. 261).

Chapter 14. How Banks and Thrifts Create Money

No impacts relating to this chapter.

Chapter 15. Monetary Policy

1) During the day of the September 11, 2001 attacks and the first few days thereafter, the Fed flooded the money market with dollars via open market operations (pp. 284-287) and a wide-open "discount window" (p. 288). On the Friday after the Tuesday attack, the Fed injected a one-day record $81 billion into the banking system through open-market operations. Loans from the Fed to banks (at the discount interest rate) surged to $46 *billion* on the day after the attack, compared to normal borrowing of about $200 *million*.

2) The European Central Bank and Bank of Japan also made unusually large injections of currency into their banking systems the days following the attack.

3) On the Monday following the Tuesday attack, the Fed cut the Federal funds interest rate by one-half percentage point by continuing to buy large amounts of U.S. securities in the open market. It also reduced the discount rate by one-half percentage point to 3 percent. The cut of the Federal funds rate was the eighth such reduction since January 2001 and thus a continuation of an easy money policy designed to increase aggregate demand. In Figure 15.2 (pp. 290-291), this expansionary monetary policy would be shown as a rightward shift in the money supply curve in graph *a*, a decrease in the real interest rate in graph *b*, and an increase in aggregate demand in graph *c*.

4) As can be confirmed at www.federalreserve.gov/fomc/fundsrate.htm, the Fed made two additional one-half percentage point cuts of the targeted Federal funds rate in the two months following the attacks. On November 14, 2001 the Federal funds rate stood at a very low 2 percent.

5) Potential cyclical asymmetry (pp. 295-296) of monetary policy remained a concern of the U.S. policy makers. The events of September 11, 2001 and their aftermath so eroded consumer and business confidence that some economists feared that the interest rate cuts would not induce sufficient new lending by banks (borrowing by households and firms) to keep consumption and investment spending from declining more. By failing to step up their borrowing, consumers and businesses can frustrate the Fed's intentions.

Chapter 16. Extending the Analysis of Aggregate Supply

1) As applied to recession, the extended AD-AS model (Figure 16.5, p. 311) implies that internal forces within the economy may eventually end a recession even without expansionary monetary or fiscal policy or even if such policies are inadequate. As the economy recedes and unemployment rises, workers are forced to accept cuts in their nominal wages and salaries. So short-run aggregate supply increases and the price level falls. Output then returns to its full employment level. In Figure 16.5, this scenario is shown by the moves from *a* to *b* to *c* in the economy. Most economists, however, believe this adjustment process is slow and uncertain because nominal wages tend to be inflexible downward. Few economists are willing to rely on these adjustments to right the economy.

2) In 2001 the U.S. economy exhibited the characteristics of the short-run Phillips Curve (pp. 312-313): The rate of inflation was falling as the economy's unemployment rate was rising.

3) The two sets of tax cuts in 2001—one before and one after the terrorist attacks—will likely have only modest supply-side effects (p. 317). They were mainly designed to return surplus tax revenues to Americans and stimulate a receding economy. But supply-side economists believe that these tax cuts will eventually increase incentives to work, invest, save, and take risk, each of which will enhance economic growth.

4) The tax cuts are expected to reduce tax revenue, not increase them. In the Laffer Curve (Figure 16.10, p. 318), the cuts would be depicted as a move from *m* to *l*, rather than a move from *n* to *m*. Nevertheless, to the extent that the cuts help move the economy from recession, the Laffer Curve will shift to the right and tax revenues will increase due to rising personal and corporate income.

5) If the impact of oil prices has indeed diminished in the economy (Last Word, p. 319), then the recent declines in oil prices may not have as great a beneficial effect on aggregate supply as one might think. The diminished impact would logically apply to oil price decreases as well as to increases.

Chapter 17. Economic Growth and the New Economy

1) The terrorist attacks and their immediate aftermath helped push the U.S. economy deeper into recession, but it is unclear whether these events and outcomes will alter long-run economic growth (Figure 17.5, p. 328). New measures to ensure the safety of air travel, mail delivery, and so on, may impede productivity advances and slow economic growth. For example, the increased amount of time needed to clear security at airports is a drag on the productivity of the many business travelers waiting in line. But traditional sources of productivity advances (pp. 328-331) and sources associated with the New Economy (pp. 331-335) are likely to swamp transportation-related effects of the attacks in the long run. A likely shift of economic resources from business investment to defense and security-related spending might prove more troublesome for growth. Also, research and development spending on homeland defense and the war on terrorism could come at the expense of innovations that enhance productivity and economic growth. To the extent that the war on terrorism impedes technological change and the accumulation of private capital, the long-run growth rate of the U. S. economy will be negatively affected. This outcome would be shown in Figure 17.3 (p. 326) as a smaller outward shift of the production possibilities curve in graph *a* and a smaller rightward shift of the long-run aggregate supply curve in graph *b*.

2) If typical, the recession that began in 2001 will partly reverse the "pleasant side-effects" of the New Economy (Last Word, p. 338). As personal income falls and unemployment increases, crime rates and welfare rolls will rise, charitable contributions will decline, and minority well-being will suffer.

Chapter 18. Deficits, Surpluses, and the Public Debt

1) The U. S. public debt was $5.8 trillion in November 2001, up slightly from $5.6 trillion in 2000 (Table 18.1, p. 343). The U.S. Treasury updates the debt continuously at www.publicdebt.treas.gov/opd/opdpenny.htm.

2) The attack and recession ended the attempt by politicians to exclude excess social security payments (p. 345) from the calculation of the annual budget surplus or deficit. The idea was to, in effect, place those funds in a "lockbox" and thus make them unavailable for either tax cuts or increases in current government expenditures. The rationale for the lockbox made little economic sense and Congress quickly abandoned it in view of the immediate priorities associated with the terrorist attacks.

3) The large budget surpluses projected for future years, as shown in Figure 18.3 (p. 348) will either be much smaller or nonexistent because of the:

- pre-September 11, 2001 tax cuts designed to return excess tax revenue to taxpayers over several years
- post-September 11, 2001 tax cuts as part of fiscal policy to stimulate the economy

- pre-and-post September 11, 2001 decreases in tax revenues caused by declines in personal income and corporate profits
- increases in Federal government spending for the war on terrorism.

4) In times of war and recession, a nation's attention turns away from balancing budgets and toward stimulating the economy and defeating the enemy. Fortunately, the Federal budget still had a considerable surplus in 2001, enabling policy makers to cut taxes and increase government spending without creating large budget deficits.

Chapter 19. Disputes over Macro Theory and Policy

1) The macroeconomic policies undertaken by the Bush administration and Congress reflect Keynesian-based mainstream views of macro theory (p. 358) and policy (pp. 367-368). The recession was mainly caused by steep declines in investment spending (reductions in aggregate expenditures and aggregate demand). Not expecting the economy to "self-correct" in a reasonable time frame, the Fed, the Bush Administration, and Congress initiated discretionary monetary and fiscal policy, rather than adhering to rigid policy rules such as expanding the money supply at a set rate or balancing the Federal budget.

Chapter 20. Supply and Demand: Elasticities and Government-Set Prices

1) The events of September 11, 2001 and their aftermath increased demand for some products (for example, antibiotics, military goods, and cell phones) and decreased demand for others (for example, airline tickets, hotel rooms, and car rentals). The extent to which these changes in demand affect equilibrium price varies between the immediate market period, the short-run, and the long run (Figure 20.3, p. 384). For example, the increase in the demand for U.S. flags caused a rapid price increase in the immediate market period, a smaller rise in the short-run, and a still smaller rise in the long run.

2) The greater the elasticity of supply, the less will be the price change resulting from a given change in demand. Example: Because of the short-run inelasticity of the supply of hotel rooms, the decline in demand after the terrorist attacks substantially reduced room rates. In contrast, the short-run supply of cell phones is more elastic. So the increased demand for cell phones did not substantially raise their price.

Chapter 21. Consumer Behavior and Utility Maximization

1) Air travel declined following the September 11, 2001 attacks largely for two reasons. First, the demand for air travel declined because of the increased apprehension about flying. In a sense, the perceived marginal utility (p. 395) of flying declined. Second, the "full price" of

flying increased because of the new security measures that forced flyers to arrive at the airport two or three hours before flights and stand in long lines to check in baggage and go through security checkpoints. Our section *The Value of Time* (p. 403) is particularly relevant. The added time requirements increased the "full price"—the ticket price *plus* the total time expended to reach the destination. The higher "full price" resulted in a lower MU/P value relative to MU/P values of other goods, leading to a reduction in the amount of flying. With only modest success, the airlines tried to counter this substitution by reducing ticket prices.

Chapter 22. The Costs of Production

1) The events of September 11, 2001 and their aftermath created temporary supply disruptions and increased fixed costs, variable costs, or both for many firms (Figure 22.5, p. 424). For example, many firms experienced increases in insurance premiums. Others experienced larger fixed and variable costs associated with added security equipment and personnel. Nevertheless, the main impacts of the events were on the demand side of markets, not on the cost and supply sides. Lower energy and raw material costs, for example, have offset the higher security and insurance costs. Productivity and labor costs remained steady. With some notable exceptions such as airlines and insurance providers, the short- and long-run average total cost curves of most firms have not appreciably shifted as a result of the tragic events.

2) Military aircraft and cruise missiles are produced by only a handful of large defense firms because of the extensive economies of scale (pp. 429-430) in their production. In other words, minimum efficient scale (p. 432) for these firms occurs at high percentages of total industry output.

3) In times of war, people commonly fail to comprehend the irrelevancy of sunk costs (Last Word, p. 433) to decisions about the future. For example, nations suffering losses from war often justify incurring more losses based on "the heavy sacrifice already made." But in deciding whether to continue a war, past sacrifices are irrelevant. They are sunk costs. The relevant decision is forward-looking and should be made through comparison of marginal benefits and marginal costs associated with continuing the war.

Chapter 23. Pure Competition

No impacts relating to this chapter.

Chapter 24. Pure Monopoly

1) The al-Qaeda terrorist organization of Osama bin Laden received some of its funds from the sale of "blood diamonds" or "conflict diamonds" diverted from production in war-ravaged

countries in Africa (Last Word, p. 482). These diamonds have long been a source of funding for civil wars in Africa.

Chapter 25. Monopolistic Competition and Oligopoly

1) As the U.S. economy and other world economies slowed in 2001, the worldwide demand for oil declined. The price of oil fell from above $30 a barrel in 2000 to about $20 in the months immediately following the terrorist attacks. This $20 price was below the $22-28 targeted price set earlier by the Organization of Petroleum Exporting Countries (OPEC) (p. 501). In late 2001 OPEC members agreed to reduce oil output, contingent upon convincing several non-OPEC nations to reduce their production too. For more on OPEC's recent actions go to www.opec.org. That site will also allow you to update Global Perspective 25.1 (p. 501).

2) Local television stations and the networks lost an estimated $700 million of advertising revenues (pp. 503-505) during the first week after the attacks because of the continuous, uninterrupted news.

Chapter 26. Technology, R&D, and Efficiency

1) The war on terrorism will undoubtedly alter expected rates of returns on various R&D expenditures (pp. 515-516) and therefore the pattern of R&D spending in the United States. For example, there will be more R&D focused on vaccines and antibiotics to counter anthrax, smallpox, and other potential sources of bioterrorism. R&D will also increase for security technologies for use at airports, train stations, harbors, and other public places. Additionally, the war on terrorism will boost both business and government R&D expenditures for national defense items such as defensive missile systems, unmanned military aircraft, and countermeasures against bioterrorism.

2) The rapid rise in inflation-adjusted business R&D expenditure shown in Figure 26.6 (p. 522) is likely to continue, but a larger proportion of that spending may be focused on technological change relating to security and defense.

Chapter 27. The Demand for Resources

1) Product demand as a determinant of resource demand (p. 537) is illustrated by the sharp decline in the demand for air travel following the terrorist attacks, which then reduced the demands for new commercial aircraft and airline workers.

Chapter 28. Wage Determination

1) The economic recession that was deepened by the terrorists attacks may temporarily slow the growth of real wages (Figure 28.1, p. 552) in the United States. But the long-run trend will probably be unaffected unless the recession is unexpectedly deep and long lasting (a depression). The long upward trend of real wages includes cyclical variations around the trend.

2) It is unclear whether monopsony power (Figure 28.4, p. 556) in labor markets rises or falls during recessions. On the one hand, workers have less mobility since there are fewer alternative job opportunities. Taken alone, reduced worker mobility increases an employer's monopsony power. But recessions tend to create pools of qualified unemployed workers in labor markets. Therefore, employers need not raise wage rates to attract additional workers. So the labor supply curve faced by employers becomes highly elastic (as in pure competition) and the conditions underlying monopsony power are eroded. As the labor supply curve *S* in Figure 28.4 (p. 556) flattens, the MRC curve collapses downward toward it and the monopsony conditions disappear.

Chapter 29. Rent, Interest, and Profit

1) Nominal interest rates fell in the months immediately following the events of September 11, 2001. We can explain this decline through the loanable funds model (Figure 29.2, p. 576). First, because the events occurred against a backdrop of an economy slipping into recession, they simply accelerated this downward momentum. The slowing of economic activity included a decline in the demand for loanable funds by households and businesses (a leftward shift of *D* in Figure 29.2). To counter the slowdown, the Federal Reserve System increased the supply of loanable funds (shifted the *S* curve in Figure 29.2 to the right). The decrease in demand and increase in supply for loanable funds together produced a lower equilibrium interest rate. Consequently, nominal interest rates were considerably lower in November 2001 than those shown for February 2001 in Table 29.1 (p. 579). To confirm this, go to www.federalreserve.gov and www.bankrate.com.

2) The events of September 11, 2001 severely reduced the revenues and profits (pp. 581-583) of many firms, including businesses related directly or indirectly to air transportation.

Chapter 30. Government and Market Failure

1) There is general agreement that providing protection against future terrorist attacks at home and conducting war against terrorists abroad are public goods (p. 588), best carried out by government.

2) Following the attacks, a debate occurred on whether airport screening is a private or public good. Those who said it was a public good and therefore should be provided by government argued that the benefits are indivisible, applying to the public at large. They also asserted that

private firms do not have sufficient profit incentives to provide a high quality of security service. To support their case, they point to the failure of the airport screeners to detect the box cutter knives used by the terrorists on September 11, 2001. Others believe that airport screening is a private good and should continue to be provided by private firms. In that view, high service quality could best be achieved by adding strong financial penalties for poor performance, such performance being assessed through random performance checks by undercover Federal personnel. The majority Congressional sentiment seems to be that screeners should be Federal employees.

3) How much homeland security should the Federal government provide? The ideas of the optimal amount of a public good (p. 590) and cost-benefit analysis (p. 591) are relevant to the answer. The Federal government should expand expenditures on homeland defense until the marginal benefit and marginal cost of the last dollar spent are equal.

4) Terrorism thrives on creating spillover costs (p. 592), also known as negative externalities. A relatively small action—for example, anthrax placed in a letter or a bomb placed in public place—directly affects a relatively small number of people but creates extensive social costs in the forms of grief, fear, anger, and a general reduction of society's total well-being.

Chapter 31. Public Choice Theory and the Economics of Taxation

1) The special-interest effect (p. 616) and rent seeking (pp. 616-617) are so powerful they come into play even in times of national tragedy. For example, the tax reduction proposals being debated in late October and early November 2001 contained many special interest provisions that would dispense "rent" to key constituents. Whether those provisions will remain in the final tax-cut law remains to be seen.

2) Increased airline security will be funded mainly through a special excise tax on airline tickets. This new "security fee" is based on the benefits-received principle of taxation, as opposed to the ability-to-pay principle (pp. 618-619).

Chapter 32. Antitrust Policy and Regulation

1) In the summer of 2001, a U.S. Court of Appeals upheld a District Court ruling that Microsoft had violated the Sherman Act (pp. 633-634) but rejected the lower court's remedy of breaking up Microsoft into two firms (see pp. Last Word, p. 646). The Appeals Court sent the case back to a new District Court to reconsider the remedy. The new District Court judge appointed a mediator and admonished the U. S. Department of Justice and Microsoft to negotiate a remedy acceptable to each. The events of September 11, 2001 and the national emergency it caused placed added pressure on the two parties to end litigation that might otherwise drag on and negatively affect the already deteriorating business climate. In October 2001 the Justice Department and Microsoft reached an agreement. But 9 of the 18 states involved in the litigation rejected the

agreement as being too soft on Microsoft. You can update the Microsoft story further through the standard news sites available on the Internet.

2) The terrorist attacks led to tightened regulations relating to aircraft and airport security, border crossings, student visas, and so on. These new regulations are an extension of social regulation (pp. 642-645), rather than industrial regulation (rate regulation).

Chapter 33. Agriculture: Economics and Policy

1) Because some of the terrorists had shown considerable interest in crop dusters, perhaps as vehicles to deliver chemical or biological agents, these planes were temporarily grounded. Following the grounding, security surrounding these planes was tightened. The terrorist attacks, however, are not expected to affect agricultural costs, output, or prices.

2) The huge amounts of food aid that the U.S. is expected to deliver during and after the war in Afghanistan will increase the demand for some U.S. agricultural products. But this increase in demand will be modest since this food aid will comprise only a small portion of total U.S. agricultural output.

Chapter 34. Income Inequality and Poverty

1) The terrorist attacks of September 11, 2001, taken alone, will not alter the income distribution (p. 670) or level of poverty (p. 677) in the United States. Those killed and injured in the attacks were from all income levels in the income distribution. But the attacks did worsen the recession that began earlier in 2001. Recession is accompanied by greater unemployment, which lowers household income and raises the poverty rate. Particularly hard hit are black and Hispanic households, as evidenced by an increase in their poverty rates during and immediately after the recession of 1990-1991 (see Figure 34.4, p. 677).

2) The recession that began in 2001and deepened because of the terrorist attacks will increase government spending on public assistance programs (p. 678-680). The longer the length of the recession and the greater its depth, the more this spending will increase.

3) The recession will increase the number of people receiving assistance under the Temporary Assistance for Needy Families (TANF) program (pp. 681-682). Many former welfare recipients will become unemployed. To maintain the work requirements under TANF, states will need to expand their very expensive public employment programs. The recession will undoubtedly strain the TANF reforms.

Chapter 35. Unionism, Discrimination, and Immigration

1) If discrimination occurs against Muslim Americans (or persons of Middle Eastern descent) in hiring, training, and promotion, the U.S. economy will lose output due to inefficiency (see Figure 35.3, p. 696).

2) Statistical discrimination (pp. 698-699) is a particular concern. Because relatively young men of Middle Eastern descent participated in the terrorist acts, there is a danger that all members of this age/ethnic group will be judged to be of greater security risk than others. This could affect hiring for certain jobs and constitute a clear example of statistical discrimination.

3) Tightened immigration requirements, additional visa scrutiny, and enhanced border control occurred after the terrorist attacks of the September 11, 2001. Those measures may slow legal and illegal immigration (pp. 702-703). Additionally, polls indicate Americans hardened their attitudes toward immigration following the terrorist attacks. And, according to the Immigration and Naturalization Service (INS), illegal border crossings from Mexico greatly slowed following the attacks. This decline probably resulted from deteriorating labor market conditions in the United States and the fear of being detained as a potential terrorist if caught illegally entering the United States.

Chapter 36. The Economics of Health Care

1) Rising unemployment associated with the recession threatens to reduce the number of Americans covered by health insurance (p. 711).

2) The threat of bioterrorism, heightened by the discovery of anthrax in the mail, will increase government spending relating to preventing and/or responding to that health threat. It remains to be seen whether this increased spending will be a net addition to health care spending or simply a reallocation of present spending. If the former, health care spending as percent of GDP (Figure 36.2, p. 712) may increase even faster than expected.

Chapter 37. International Trade

1) By increasing processing time at border crossings and customs, the events of September 11 and their aftermath impeded international trade (pp. 730-731). For example, long waits at the U.S.-Canadian border developed for trucks traveling between those two countries. Also, ships arriving at U.S. ports backed up. More troublesome, recession in the United States and slowdowns in other countries will diminish international trade. As national incomes fall, countries reduce their spending on imports. But the terrorist attacks to not nullify the economic basis for international trade (p. 731) and the concept of comparative advantage (pp. 732-737). The level of international trade will bounce back as the U.S. and other economies strengthen.

2) As a result of the terrorist events and the nationalism they provoked, some U.S. firms and industries may have greater political success with the "military self-sufficiency argument" (p. 743) in gaining trade protections. For example, steel producers may argue that a strong steel industry in the United States is required for national defense so that we need not rely on foreign sources of steel. Also, if the recession deepens, other industries may try to use the "increased domestic employment argument" (p. 742). Most of these pleas will be self-serving and not in the interest of the overall economy.

Chapter 38. Exchange Rates, the Balance of Payments, and Trade Deficits

1) The terrorist attacks and war in Afghanistan are unlikely to affect the U.S. balance of payments in a significant way. Following the war against Iraq, however, several coalition nations made direct payments to the United States to help defray U.S. war expenses. Those payments greatly affected the "Net transfers" (Table 38.1, p. 754) account in the U.S. balance of payments during the year they were made. It is unclear at this time whether similar payments will be made to the United States to help finance the war against terrorism.

2) Thanks mainly to actions of the Federal Reserve the events of September 11 had no significant effect on international exchange rates and the international value of the U.S. dollar. Immediately following the attacks, the Fed flooded the markets with dollars to ensure that financial institutions had plenty of liquidity to carry out transactions. So no flight to other currencies occurred to facilitate international transactions. Such flight would have meant an increase in the demand for those currencies, their appreciation, and a depreciation of the dollar.

3) The U.S. goods and services deficit (Figure 38.3a, p. 767) declines when the United States suffers recessions because U.S. consumers and businesses reduce their spending on imports. But this effect is muted if other industrial countries also suffer recessions. Then, they reduce their purchases of U.S. exports.

Chapter 39. Economics of Developing Countries

1) As shown in Figure 39.1 (p. 774), Afghanistan is a low-income developing nation with a per capita output of $755 or less in 1999. Pakistan, Uzbekistan, and Tajikistan— three of Afghanistan's neighbors that are supporting the U.S.-led war effort—are also low-income developing nations.

2) In November 2001, the Bush Administration announced a $1 billion foreign aid program (pp. 786-787) for Pakistan, which supports the U.S.-led war against terrorists in neighboring Afghanistan. Considerable foreign aid from the United States and other nations is expected to flow to Afghanistan if the Taliban and terrorists are defeated and a new government comes to power.

Web Bonus Chapter. Transition Economies: Russia and China

1) Russia is supportive of the U.S. efforts to ferret out terrorists in Afghanistan. It believes that Osama bin Laden and his al-Qaeda organization helped plan and coordinate terrorist bombings by Chechen rebels in Moscow in 2000. (Chechnya is a Muslim region of Russia that has tried to break away from Russia.) The former Soviet Union invaded Afghanistan in the 1970s, but eventually was driven out by Afghani fighters and foreign volunteer fighters from Arab nations. The United States provided considerable military equipment, including stinger missiles, to these fighters. Ironically, one such foreign fighter was Osama bin Laden.s