

Staff Paper

**AN ASSESSMENT OF THE ECONOMIC IMPACTS OF
THE SEPTEMBER 11 TERRORIST ATTACKS:
TEN TENTATIVE CONCLUSIONS**

By

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Staff Paper No. 01-41

October 2001



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Abstract

As the United States attempts to recover from the September 11 terrorist attacks in New York and Washington, D.C., an issue of increasing concern is the impact of these events on the U.S. economy. One of the most frequently asked questions today, for example, is “Are we in a recession or are we likely to enter a recession in the next few months?” It is impossible for anyone to give precise predictions of the impact of these events on the economy, but it is critical that the status of the economy be understood as future events unfold. This paper reviews some evidence on the state of the U.S. economy before September 10, the state of the economy after September 12, and the policy alternatives available to address the possibility of a recession during the coming months.

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**David B. Schweikhardt
Department of Agricultural Economics
Michigan State University
September 29, 2001**

Executive Summary

This report was completed on September 29, 2001 and is based on information available at that time.

Conclusion 1: The employment and Gross Domestic Product data suggest that the economy was slowing during the months before September 10 and that the economy was headed toward slower growth during the last half of 2001.

Conclusion 2: Any direct or indirect job losses that occur from the attack will be in addition to the job losses that were already likely to occur from the weakening economy.

Conclusion 3: The immediate employment losses in the airline industry and Washington, D.C. region (102,000 to 122,000) could nearly equal the job losses for the entire country during the month of August, when the unemployment rate increased from 4.5 to 4.9 percent. Based on these direct job losses alone, the unemployment rate would be expected to increase. Any additional indirect job losses would lead to a further increase in unemployment. Such a result might not become apparent in the month of October, however, because the September employment data were collected on September 12. Thus, while the unemployment rate might show an increase in the September data (scheduled to be released in early October) based on trends that existed before September 11, a larger increase in unemployment would be expected to occur when the October data are released in early November.

Conclusion 4: With the introduction of new information technologies and new business strategies (such as just-in-time delivery), the impact of a decrease in activity in one sector of the economy may affect other sectors of the economy more rapidly than in past recessions. Because we have no experience with recessions since the introduction of these technologies and strategies in the 1990s, the impact on the speed with which a recession could develop is unknown.

Conclusion 5: If consumer confidence declines as a result of the events of September 11, consumer spending would decrease, thereby increasing the probability and possible severity of a recession during the last quarter of 2001 and early 2002. Early surveys indicate that consumer confidence decreased significantly after September 11, with a larger decrease in the United States than in Europe.

Conclusion 6: The history of oil prices during the Gulf War and during the weeks since the September 11 attacks indicates that higher oil prices are not likely to be a major problem. If military or terrorist actions disrupt oil supplies, the prices of oil and gasoline could increase, but a decrease in the demand for oil, caused by a slowing of the international economy, is likely to continue putting downward pressure on oil prices.

Conclusion 7: Most other nations' economies were showing weakness prior to September 11 and are likely to be subject to the same problems of declining consumer confidence as in the United States. Such trends increase the probability and possible severity of a recession in those countries and in the United States.

Conclusion 8: Because most national economies are increasingly interconnected through their trade sectors, a recession in one country is transmitted to another through a decrease in the demand for imported products. Consequently, if the United States enters a recession in the coming months, the decrease in U.S. consumers' demand for other countries' products will spread that recession to other countries. Such an outcome would be particularly severe for major U.S. trading partners, such as Canada and Mexico.

Conclusion 9: The attacks of September 11 and the military actions that may follow those attacks are unlikely to have a major impact on agricultural prices in the short run. If an international recession occurs in the next few months, however, that loss of income in those countries that buy U.S. agricultural products could reduce their demand for imports from the U.S. and could result in downward pressure on agricultural prices.

Conclusion 10: If a recession is now likely to occur, the United States and other major nations must use lower interest rates, increased government spending, or decreased taxes to encourage economic growth. The effectiveness of lower interest rates may be very limited, however, if borrowers are unwilling to accept new debt. Countries will be required to use increased government spending and tax reductions as the appropriate tools to avoid a recession or reduce its severity.

AN ASSESSMENT OF THE ECONOMIC IMPACTS OF THE SEPTEMBER 11 TERRORIST ATTACKS: TEN TENTATIVE CONCLUSIONS

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September 29, 2001

As the United States attempts to recover from the September 11 terrorist attacks in New York and Washington, D.C., an issue of increasing concern is the impact of these events on the U.S. economy. One of the most frequently asked questions today, for example, is “Are we in a recession or are we likely to enter a recession in the next few months?” It is impossible for anyone to give precise predictions of the impact of these events on the economy, but it is critical that the status of the economy be understood as future events unfold.¹

A Definition of Recession

The official definition of a recession used by National Bureau of Economic Research is as follows:

A recession is a significant decline in [economic] activity spread across the economy, lasting more than a few months, visible in industrial production, employment, real income, and wholesale-retail trade. A recession begins just after the economy reaches a peak of output and employment and ends as the economy reaches its trough. Between trough and peak, the economy is in an expansion [and between the peak and trough it is in recession]. Expansion is the normal state of the economy; most recessions are brief and they have been rare in recent decades (National Bureau of Economic Research).

The most commonly accepted indicator of economic activity is Gross Domestic Product (GDP). Gross Domestic Product is the dollar value output of all goods and services produced by labor and property located in the United States. This measure includes all consumer spending, business investment spending, government spending, and net exports (exports minus imports). When GDP is increasing, the economy is considered to be in an expansionary phase. When the GDP decreases for two consecutive quarters, the economy is considered to have entered a recession.

The U.S. Economy Before September 10

Any discussion of the impact of the events of September 11 on the U.S. economy must begin with an understanding of what we know about the state of the economy before the attacks. Both the national employment data and GDP data suggest that the economy was slowing in the months prior to September 11.

Employment Data: The Bureau of Labor Statistics (BLS) conducts a survey of U.S. employment on the twelfth day of each month. A review of these data show that the economy was slowing during the first half of 2001, though it had not yet entered a recession. Most analysts at that time believed that the U.S. economy was

¹The following, discovered in the process of researching this report, bears repeating: “Economic numbers can never convey the depth of human losses. The terrorist attack on the World Trade Towers in New York and the Pentagon in Washington caused an enormous loss of human life. The senseless of the act and the dimensions of the tragedy are difficult to fathom. These were innocent people going about their daily business. It is with great reluctance that [we must] turn to the task of attempting to measure the economic fallout from this attack” (Conference Board of Canada).

not in a recession in July and August but that it was showing signs of slowing that might lead to a recession during the last half of 2001.

Table 1 provides two monthly data series for employment from January 2000 to August 2001. The definitions of each series are as follows:

Nonfarm payroll employment: The number of employees on the payroll of nonfarm businesses. This includes all forms of employment in factories, offices, and stores, as well as Federal, State, and local government agencies. This employment does not include persons who are employed in the military. This data series is based on surveys of businesses and government agencies to determine the number of persons listed on their payrolls.

Unemployment rate: The unemployment rate indicates the percentage of the civilian labor force that is considered to be unemployed. This data series is based on surveys of households to determine whether members of the household are fully employed, partially employed, or unemployed.

These data show some general trends that were occurring before September 11:

- The unemployment level increased by 562,000 persons in August, from 6.3 million persons in July to 6.9 million persons in August.
- The unemployment rate increased from 4.5 percent in July to 4.9 percent in August.
- Nonfarm payroll employment decreased by 113,000 persons between July and August, reaching its lowest level (132.3 million persons) in 2001.

Gross Domestic Product Data: An examination of the Gross Domestic Product data also suggests that the economy was weakening prior to September 11. Table 2 provides estimates of the quarterly growth in GDP from January 1998 to June 2001 (the second quarter of 2001). The major components of GDP include Personal Consumption Expenditures (consumer spending on durable goods, nondurable goods, and services), Fixed Investment (business expenditures on plant and equipment), Residential Investment (spending on new home construction), Exports (goods produced in the United States that are exported for sale in other countries), and Imports (goods produced in other countries that are exported for sale in the United States).

These data show some general trends that were occurring before September 11:

- GDP increased very slowly in the second quarter of 2001, with GDP growth of 0.3 percent during the months of April to June.
- The GDP growth rate in the second quarter of 2001 was the lowest of any quarter since January 1998.
- Most sectors of the economy were showing weakness in the second quarter of 2001. Personal Consumption Expenditures and Residential Investment showed smaller increases than during earlier quarters of 2001. Fixed Investment actually declined by 14.6 percent during the second quarter, and exports declined 11.9 percent during the second quarter, indicating severe weakness in these sectors of the U.S. economy.

Table 1. Monthly Labor Force Statistics, 2000-2001.

| Dates | | Nonfarm Payroll Employment (Million Persons) | Unemployment Rate (Percent) |
|--------------|-----------|---|--|
| 2000 | January | 130.668 | 4.0 |
| | February | 130.843 | 4.1 |
| | March | 131.441 | 4.0 |
| | April | 131.683 | 4.0 |
| | May | 131.909 | 4.1 |
| | June | 131.969 | 4.0 |
| | July | 131.899 | 4.0 |
| | August | 131.837 | 4.1 |
| | September | 132.046 | 3.9 |
| | October | 132.145 | 3.9 |
| | November | 132.279 | 4.0 |
| | December | 132.367 | 4.0 |
| 2001 | January | 132.428 | 4.2 |
| | February | 132.595 | 4.2 |
| | March | 132.654 | 4.3 |
| | April | 132.489 | 4.5 |
| | May | 132.530 | 4.4 |
| | June | 132.431 | 4.5 |
| | July | 132.444 | 4.5 |
| | August | 132.331 | 4.9 |

Source: Bureau of Labor Statistics

Table 2. Annual and Quarterly Percent Change Gross Domestic Product and Components of GDP in 1998-2001.

| | 1998 | 1999 | 2000 | I 98 | II 98 | III 98 | IV 98 | I 99 | II 99 | III 99 | IV 99 | I 00 | II 00 | III 00 | IV 00 | I 01 | II 01 |
|-----------------------------------|------|------|------|------|-------|--------|-------|------|-------|--------|-------|------|-------|--------|-------|------|-------|
| Gross Domestic Product (GDP) | 4.3 | 4.1 | 4.1 | 6.1 | 2.2 | 4.1 | 6.7 | 3.1 | 1.7 | 4.7 | 8.3 | 2.3 | 5.7 | 1.3 | 1.9 | 1.3 | 0.3 |
| Components of GDP | | | | | | | | | | | | | | | | | |
| Personal Consumption Expenditures | 4.8 | 5.0 | 4.8 | 5.1 | 6.2 | 3.8 | 5.1 | 4.9 | 5.7 | 4.4 | 5.7 | 5.9 | 3.6 | 4.3 | 3.1 | 3.0 | 2.5 |
| Fixed (Business) Investment | 12.5 | 8.2 | 9.9 | 21.6 | 12.5 | 1.5 | 14.4 | 6.0 | 7.7 | 10.2 | 5.8 | 15.8 | 12.2 | 7.1 | 1.0 | -2 | -14.6 |
| Residential Investment | 8.0 | 6.7 | .8 | 10.4 | 9.2 | 11.1 | 9.3 | 10.3 | 3.0 | -8 | 1.6 | 8.5 | -8 | -10.4 | -1.1 | 8.5 | 5.9 |
| Exports | 2.1 | 3.2 | 9.5 | .5 | -4.0 | -2.2 | 16.3 | -6.8 | 4.2 | 9.7 | 12.1 | 9.0 | 13.5 | 10.6 | -4.0 | -1.2 | -11.9 |
| Imports | 11.8 | 10.5 | 13.4 | 15.9 | 11.3 | 4.2 | 12.2 | 8.4 | 13.3 | 13.8 | 10.5 | 17.1 | 16.4 | 13.0 | -5 | -5.0 | -8.4 |
| Government expenditures | 1.9 | 3.3 | 2.7 | -2.5 | 7.5 | 2.0 | 4.1 | 2.0 | 1.2 | 4.4 | 8.5 | -1.1 | 4.4 | -1.8 | 3.3 | 5.3 | 5.0 |

Source: U.S. Department of Commerce.

This review of data on employment and Gross Domestic Product led economists to conclude that the economy had not yet entered a recession by September 10 (using the standard definitions of a recession described above), but that such data probably foreshadowed a slowdown of the economy that would continue during the second half of 2001. An August survey found that economists ranked business overcapacity and excessive business and consumer indebtedness as the two major economic problems facing the U.S. economy, suggesting that growth in both consumer and business spending would be slow in the coming months (National Association of Business Economists, August 23).

These trends, which might have led to a recession, were in place before September 11 and will remain in place during the coming months. All these data suggest that the economy was weakening in July and August and that further weakness was possible in late 2001. These underlying trends, combined with the impact of the events of September 11, will determine the course of the U.S. economy during the coming months.

Conclusion 1: The employment and Gross Domestic Product data suggest that the economy was slowing during the months before September 10 and that the economy was headed toward slower growth during the last half of 2001.

The U.S. Economy after September 12

In examining the impact of the events of September 11 on the U.S. economy, there are at least four factors that must be considered. First, the events of that day have resulted in both direct and indirect job losses that will impact in economy in coming months. Second, the events of that day may have caused a significant loss of consumer confidence that will affect the economy in coming months. Third, the events of that day, and the events surrounding any U.S. response in the coming months, could have an impact on oil and energy prices. Fourth, the events of that day may have indirect impacts on the international economy that will resonate through the U.S. economy in coming months.

Direct and Indirect Job Losses: Evidence is now mounting of the direct and indirect job losses caused by the events of September 11. As discussed earlier, the next official report on unemployment will be released in early October, based on the results of the September 12 survey of employment. As noted earlier, that survey will not include the direct or indirect job losses caused by the events of September 11 because those those job losses did not occur until after the completion of that survey.

Based on press reports, however, it is possible to see the minimum number of job losses caused by the terrorist attacks (*Washington Post*, undated). As of the date on which this paper was written (September 29), the following employment losses have been reported in the airline industry:

| | |
|--|--------------------------|
| Direct loss of employment in airline industry: | 80,000 - 100,000 persons |
| Direct loss of employment due to closure of Reagan National Airport in Washington, D.C.: | 10,000 persons |

In addition to these direct employment losses, the reports of indirect employment losses are beginning to emerge. Elsewhere in Washington, D.C., for example, the Hotel Association of Washington, D.C. estimates that approximately one-half of the city's 25,000 hotel employees had been laid off or would be laid off between September 12 and September 29 because of the loss of business in the tourism industry (Hedgepeth).

To put these job losses in perspective, it is important to note two critical facts. First, these are job losses in only three areas – the airline industry, Reagan National Airport, and the Washington, D.C. tourism industry. To the extent that other industries that supply the airline industry are also being affected, or the extent that

tourism is being affected in other areas of the country, these numbers are a very low estimate of the direct and indirect job losses caused by the events of September 11.

Second, it is important to compare these job losses to the job losses that occurred during the month of August. As noted earlier, nonfarm employment for the entire U.S. economy declined by 113,000 jobs in the month of August. Thus, the job losses in these three industries alone – nearly 102,000 to 122,000 by the early estimates listed above – are approximately equal to the job losses experienced by the *entire* U.S. economy in the month of August. If travel and tourism in other regions of the country are similarly affected, or if the impact of reduced operations in the airline industry spreads to those industries that supply products and services to the airline industry, the increase in unemployment that should become visible in the October monthly survey will be significantly greater than was witnessed in the month of August.² This impact, excluding all other impacts of the terrorist attacks, would nearly guarantee that unemployment will increase in October and the already weakening U.S. economy will be at risk of entering a recession during the last quarter of 2001.

A final factor could make a recession in the coming months significantly different from recessions in the past. The last recession in the United States occurred in 1991, prior to the widespread introduction of information technology and business logistical strategies (for example, “just-in-time” delivery) now in use. These technologies and strategies are designed to provide close, direct links between the purchasing needs of one firm and production decisions of another firm. As the economy expanded during the past decade, such improvements resulted in a reduction of inventory holdings. In past recessions, reduced output in one firm would result in reduced orders for inputs from another firm. When the second firm began to observe an increase in its inventories, it would eventually reduce its own production. This process occurred rather slowly by today’s standards because firms were less informed about their buyers’ intentions. With the new information technologies and strategies in place, a reduction of output and employment in one firm will be immediately communicated to suppliers as a reduction in orders. Consequently, any decline in activity in one sector will rapidly affect activity in other sectors, perhaps causing a decline in employment to spread more rapidly through the economy. Because we have no experience with recessions in this new economy, the speed with which a recession would spread is unknown.

Conclusion 2: Any direct or indirect job losses that occur from the attack will be in addition to the job losses that were already likely to occur from the weakening economy.

Conclusion 3: The immediate employment losses in the airline industry and Washington, D.C. region (102,000 to 122,000) could nearly equal the job losses for the entire country during the month of August, when the unemployment rate increased from 4.5 to 4.9 percent. Based on these direct job losses alone, the unemployment rate would be expected to increase. Any additional indirect job losses would lead to a further increase in unemployment. Such a result might not become apparent in the month of October, however, because the September employment data were collected on September 12. Thus, while the unemployment rate might show an increase in the September data (scheduled to be

²The available information on these indirect job losses is incomplete, but reports of such losses are now appearing. After U.S. Airways and American Airlines cancelled all meal service on shorter-range flights in the United States in order to save costs, Swissair’s Gate Gourmet meal service unit announced layoffs. Bombardier of Canada, a supplier of regional jets, announced a layoff of 3,800 employees in Canada, the United States and the United Kingdom, partly in response to the decrease in the demand for air travel after September 11 (Done; Warn and Done). A September 25 report by the International Air Transport Association indicated that the airline industry was already facing a weak outlook before September 11 and that the decline in air travel after September 11 would cause additional worldwide reductions in employment. (Folley and Heuchan).

released in early October) based on trends that were already in place before September 11, a larger increase in unemployment would be expected to occur when the October data are released in early November.

Conclusion 4: With the introduction of new information technologies and new business strategies (such as just-in-time delivery), the impact of a decrease in activity in one sector of the economy may affect other sectors of the economy more rapidly than in past recessions. Because we have no experience with recessions since the introduction of these technologies and strategies in the 1990s, the impact on the speed with which a recession could develop is unknown.

Impact on Consumer Confidence: The second round of indirect effects could be caused by a loss of consumer confidence that would cause a reduction in consumer spending, thereby shrinking GDP and employment. The Conference Board, a nonpartisan research institute, surveys households each month to determine their opinions on (a) current business conditions, (b) their expectations regarding business conditions in six months, (c) current employment conditions, (d) their expectations regarding employment conditions in six months, and (e) their expectations regarding their total family income in six months. This index is widely used to determine consumers' current and future outlook on the economy.

In their August 28 report, the Conference Board's results indicated that consumer confidence had declined in July and August, with confidence suffering a larger decline during the month of August. Much of this decline in confidence was linked to the loss of jobs and the weakening of new job prospects during July and August. At that time, consumers were expressing a slight improvement in their confidence regarding the outlook for the next six months.

In the first analysis of consumer confidence after September 11, the Conference Board found that a significant decrease in consumer confidence occurred during the second half of September. Data on consumer confidence were released on September 25, including results from consumer surveys conducted in September both before and after September 11. The results of this survey found that the Board's Consumer Confidence Index fell from 116.3 in July to 114.3 in August to 97.6 in September. This represented the largest one-month decline since the index declined 23 points in October 1990. In releasing the results, the Conference Board concluded, "While consumers have managed to keep the U.S. out of a recession for several years now, that soon may no longer be the case." (Conference Board, September 25). Additional consumer surveys conducted by the University of Michigan found that their index of consumer sentiment had fallen from 91.5 in August to 81.8 in September. The index for consumers surveyed during the last week of September stood at 72.2 (Berry; University of Michigan). Other surveys conducted after September 11 found a smaller decrease in consumer confidence in Europe (Turner and Nicholson).

Conclusion 5: If consumer confidence declines as a result of the events of September 11, consumer spending would decrease, thereby increasing the probability and possible severity of a recession during the last quarter of 2001 and early 2002. Early surveys indicate that consumer confidence decreased significantly after September 11, with a larger decrease in the United States than in Europe.

Impact on Oil Prices: Because the world relies on the Middle East for a significant share of its oil supply, many questions have been raised about the impact of these events on oil and gasoline prices. On September 11 and the days immediately thereafter, lines were reported at many gasoline stations and price increases were reported in many locations. Within a few days, however, prices had declined below earlier levels.

Though the impact of these events on oil prices is difficult to predict, past history may be useful in analyzing the impact of these events on oil prices. During Operation Desert Storm, similar concerns were expressed

about the impact of that war on oil prices. An examination of oil prices before and during that period, however, does not support the view that such events will always result in a long-term increase in oil prices.

The events leading up to Operation Desert Storm began in August 1990, when Iraqi troops invaded Kuwait. In that same month, economic sanctions were imposed on Iraq in retaliation for the invasion, and most nations joined in those sanctions to block trade, including trade in oil, with Iraq. Deployment of U.S. and international troops continued until January 1991, when U.S. warplanes first attacked locations in Kuwait and Iraq. Military actions continued until March 1991, when Iraq accepted the cease fire terms.

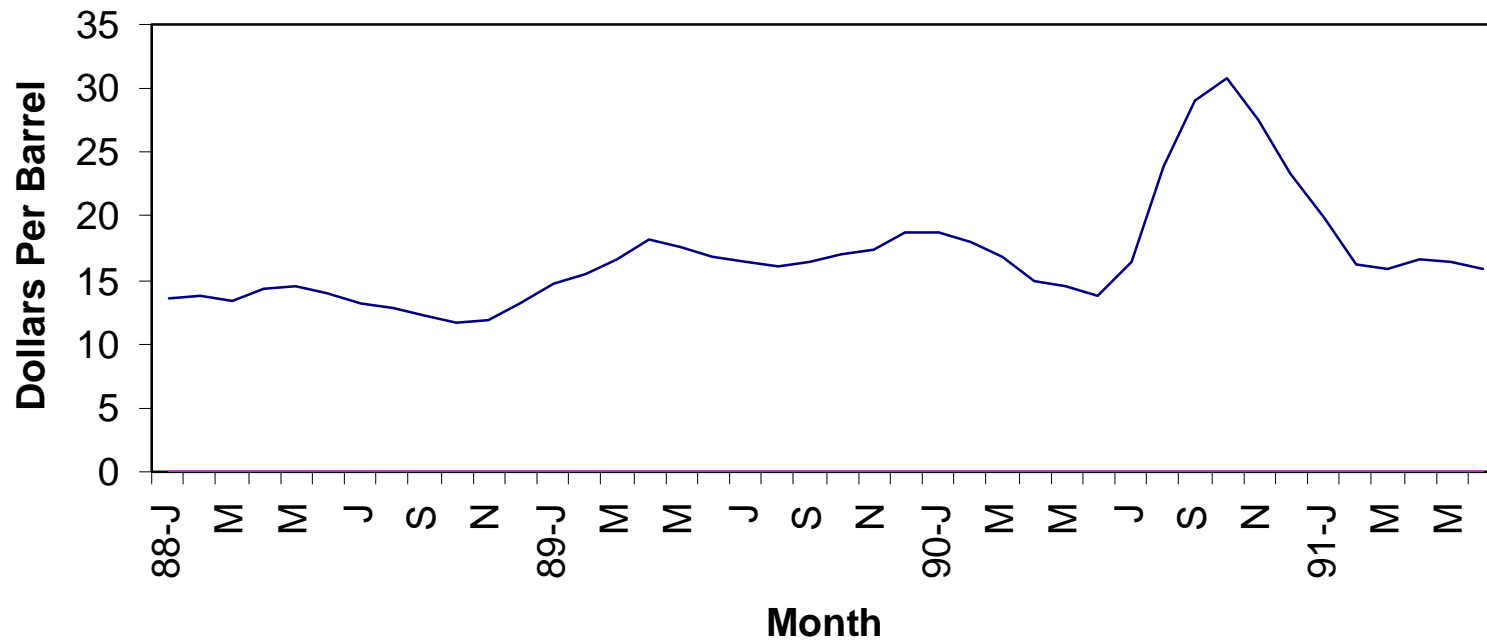
An examination of monthly average crude oil prices and monthly average U.S. gasoline prices indicates that the expected increases in prices never developed for long periods of time during that period (Figure 1 and Figure 2). From January 1988 to June 1990, the price of imported crude oil ranged from \$12.24 per barrel to \$18.80 per barrel. Prices rose from \$16.52 per barrel in July 1990 to \$23.84 following the Iraqi invasion of Kuwait in August 1990 and peaked at \$30.75 per barrel in October 1990. Prices fell to \$19.95 per barrel in January 1991 and to \$15.89 per barrel in March 1991 (U.S. Department of Energy). U.S. gasoline prices followed a similar pattern.

Though it is possible that oil supplies could be disrupted – particularly if terrorist attacks are successful at targeting oil shipping and exporting facilities – it is unlikely that oil prices would increase significantly for an extended period of time unless such attacks are successful on a wide scale. The OPEC oil producing nations have indicated that oil shipments will continue at the same level as before September 11. If such attacks were successful at disrupting oil supplies, a significant increase in oil prices that lasted for an extended period of time would further weaken the economy. The history of oil prices during Operation Desert Storm, however, suggests that such increases are not likely to continue for an extended period of time unless there is a long-term disruption in oil supplies. At the same time, the weakening economies in the United States and in other countries had already begun to weaken the demand for oil in the months prior to September 11. Such weakness in demand would create downward pressure on oil prices.

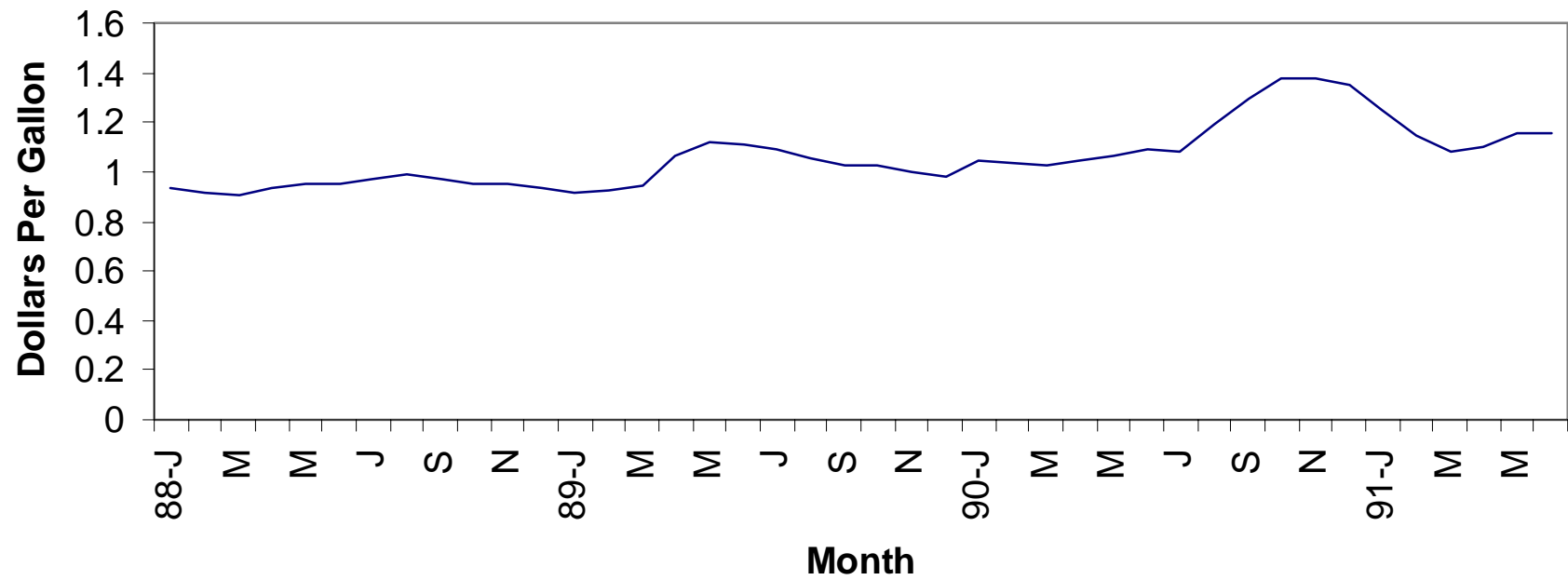
Conclusion 6: The history of oil prices during the Gulf War and during the weeks since the September 11 attacks indicates that higher oil prices are not likely to be a major problem. If military or terrorist actions disrupt oil supplies, the prices of oil and gasoline could increase, but a decrease in the demand for oil, caused by a slowing of the international economy, is likely to continue putting downward pressure on oil prices.

Impact on the International Economy: At the same time that the U.S. economy was slowing during the months leading up to September 11, the economies of most other nations were also showing signs of weakness. Prior to September 11, analysts were concluding that such weakness both inside and outside the United States would contribute to a slowing of the international economy. In their survey of international economic conditions, the Conference Board found that the economic indicators in six other countries (Japan, South Korea, France, Germany, United Kingdom, Mexico) weakened during July and August. Only the Australian economy showed signs of continued strength of economic growth. (The Conference Board, September 19).

**Figure 1. Monthly Average Crude Oil Prices,
January 1988-June 1991**



**Figure 2. Monthly Average Gasoline Prices,
January 1988-June 1991**



To understand the impact of such international economic weakness, it is essential to understand the interconnections between the economies of nations. In any economy, a portion of the income earned by workers will be saved, a portion will be spent on domestically-produced goods, and a portion will be spent on imported goods. That portion spent on imported goods ultimately becomes a share of the income received by workers in the foreign country, which in turn promotes economic growth in that country (and, in turn, will increase those workers' demand for products from other countries).

As economies go through expansions and contractions, these income effects will "spill" from one country to another, causing an expansion or recession in one country to be felt by other countries. A recent study found that a 1 percent change in the GDP of the United States would result in a 0.2 to 1.0 percent change in the GDP of other economies in the world (Arora and Vamvakidis). The impact of slower economic in the United States on other countries was being felt before September 11 and will reverberate through the international economy in the months ahead. Similarly, the 11.9 percent decline in U.S. exports reported in the second quarter of 2001 (Table 1) appears to have been caused by a slowing of economic growth in other countries.

The worldwide trend toward lower growth, based on forces in place before September 11, has caused analysts to reduce their estimates of economic growth for 2001 and 2002. On September 26, the International Monetary Fund (IMF) revised downward its estimates of world output growth (a worldwide measure similar to the U.S. measure of GDP). In its May 2001 report, the IMF predicted that this year's world growth to be 3.2 percent. In its September report, the IMF reduced that estimate to 2.6 percent. Similarly, the IMF had estimated world growth in 2002 to be 3.9 percent in its May report, but reduced that estimate to 3.5 percent in September. These estimates were based on the economic trends in place before September 11 and did not include the impact of that day's events (International Monetary Fund, 2001).

The relationship between the U.S. economy and the economies of Canada and Mexico provide clear examples of the interrelationships between national economies. The United States and Canada share the largest bilateral trading relationship in the world, with nearly \$350 billion in trade occurring in between the two nations. Mexico is the second largest trading partner for the United States, with \$195 billion in trade occurring between the two nations (International Monetary Fund, 2000). If the U.S. economy slows in the months ahead, then a recession in the United States will rapidly spread to our trading partners such as Canada and Mexico. The impact on other nations' economies can be seen in a report issued by the Conference Board of Canada on September 19:

The impact for Canada of the terrorist attack on the United States is unambiguously negative in the short term. . . . [T]he impacts of the attack on U.S. real GDP have a clear effect on Canadian exports. . . . The final tally of these various effects suggests that Canadian real GDP growth will be lowered by 0.4 percent in both the third and fourth quarters and by roughly 0.3 percent in the first quarter of 2002. The Canadian economy was already performing sluggishly as a result of the U.S. slowdown, and only very modest growth was anticipated for the latter half of the year. The terrorist attack should result in a Canadian economy that now demonstrates virtually zero growth in the latter half of 2001, although a negative quarter will most probably be avoided (Conference Board of Canada).

On September 21, the Bank of Canada (the Canadian central bank) issued a similar forecast for economic growth in the fourth quarter of 2001, stating "economic growth [in Canada] in the third quarter will likely be close to zero or slightly negative, and we will continue to feel the adverse effects into the fourth quarter" (Bank of Canada).

To the south, the Mexican economy faces the same risk. Since the creation of NAFTA in 1994, the U.S. and Mexican economies have become more deeply interconnected, and Mexico now relies on the U.S. market for

nearly 88 percent of its total exports. After 1997, Mexican economic activity became increasingly linked to the level of activity in the U.S. economy, thereby suggesting that any change in U.S. economic conditions will rapidly spill into the Mexican economy (The Conference Board, September 19). Any decline in U.S. GDP growth would translate into a decrease in U.S. consumers' demand for Mexican goods, which would result in a slowing of economic activity in Mexico. As other countries experience a loss of income due to their loss of exports to the United States, their own economies will weaken. Eventually, their consumers' spending on products from the United States will decrease, thereby adding another factor that could worsen a U.S. recession.

Conclusion 7: Most other nations' economies were showing weakness prior to September 11 and are likely to be subject to the same problems of declining consumer confidence as in the United States. Such trends increase the probability and possible severity of a recession in those countries and in the United States.

Conclusion 8: Because most national economies are now heavily interconnected through their trade sectors, a recession in one country is transmitted to another through a decrease in the demand for imported products. Consequently, if the United States enters a recession in the coming months, the decrease in U.S. consumers' demand for other countries' products will spread that recession to other countries. Such an outcome would be particularly severe for major U.S. trading partners, such as Canada and Mexico.

Impact on Agriculture: The events of September 11 are unlikely to affect agricultural markets during the coming weeks, but these events could have a larger impact on U.S. agriculture in the coming months. In the days since the attacks, commodity prices have remained relatively unchanged and responded more to the existing supply-demand outlook than the impacts of the attacks.

In the longer run, however, agricultural export prospects could be weakened if world economic growth declines and a recession begins. Agricultural exports depend on strong income growth to propel the demand among buyers in importing countries, particularly in the developing nations of Asia and Latin America. If an international recession causes income growth to slow in these countries, their demand for agricultural products will decline, causing continued weakness in U.S. export demand and U.S. farm prices. In addition, if income growth and demand growth weakens in Mexico, Mexican producers will face weakened market conditions in that country, leaving the United States as the most favorable remaining market. Such an outcome would likely cause an increase in Mexico's exports, including fruits and vegetables, to the United States. U.S. agriculture has a major stake in policy decisions that will avoid a further weakening of the U.S. and world economies.

Conclusion 9: The attacks of September 11 and the military actions that may follow those attacks are unlikely to have a major impact on agricultural prices in the short run. If an international recession occurs in the next few months, however, that loss of income in those countries that buy U.S. agricultural products could reduce their demand for imports from the U.S. and could result in downward pressure on agricultural prices.

Policy Alternatives: What Can Be Done?

This review of the state of the economy points toward three sources of weakness: (a) the weakening state of the economy prior to September 10; (b) losses in employment and economic activity resulting from the September 11 attack; and (c) the possible further weakening of the international economy. Given these sources of weakness, what policy alternatives are available to respond to the weakening of the economy? Standard economic theory suggests that three alternatives are available to respond to such weakness:

- A reduction in interest rates;
- An increase in government spending;
- A decrease in government taxes.

On September 17, the Federal Reserve announced a reduction in its discount rate (the interest rate at which it lends to commercial banks) by ½ percentage point to 3.0 percent in an effort to reduce banks' interest rates and prevent a further erosion in economic growth. A change of ½ percentage point is usually considered a major movement by the Federal Reserve, and the central banks of Canada and most European nations joined in this effort, reducing their interest rates by a similar amount. On October 2, the Federal Reserve reduced its discount rate by an additional ½ percentage point to 2.5 percent, its lowest level in recent history.

While this move is intended to encourage consumer and business borrowing, the effectiveness of this move remains unclear. Such a move could have a significant impact if consumer confidence remains steady and business expansion plans justify new borrowing. If consumer confidence or business expansion plans decline because of the uncertainty following the attacks, however, such a move will have a smaller effect on economic growth. This Federal Reserve action is based on the assumption that borrowers are anxious to respond to lower rates by expanding their debt load. When borrowers are unwilling to accept new debt, the reduction of interest rates will have a smaller impact on economic activity. Attempting to expand the economy by lowering interest rates when borrowers are unwilling to accept new debt has often been compared to "pushing on a string" because of its limited effectiveness. Under the current circumstances, where the Federal Reserve faces a combination of business overcapacity and reduced consumer confidence, further reductions in interest rates may do relatively little to simulate economic growth.

If the Federal Reserve's actions are unable to restore economic growth, Congress and the Bush administration will be faced with the need to reduce taxes, increase government spending, or enact a combination of both. The debate over when to pursue such policies and how large such measures should be will dominate the next few weeks, but it seems inevitable that Congress will be required to take such action. Because all such policies have a delayed effect on the economy, such decisions must be made quickly if additional signs of economic weakness become apparent in the coming weeks.³

Conclusion 10: If a recession is now likely to occur, the United States and other major nations must use lower interest rates, increased government spending, or decreased taxes to encourage economic growth. The effectiveness of lower interest rates may be very limited, however, if borrowers are unwilling to accept new debt. Countries will be required to use increased government spending and tax reductions as the appropriate tools to avoid a recession or reduce its severity.

³For other perspectives on the economic impact of the terrorist attacks, see the *Financial Times* of London at <http://specials.ft.com/aoa/FT3CTYVUSRC.html> and Paul Krugman's outstanding article from the September 30 edition of the *New York Times* at <http://www.nytimes.com/2001/09/30/magazine/30ECONOMY.html>

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