

Southwest Economy



Improving Public School Financing in Texas

The Texas Legislature will spend more than \$11 billion this year to fund public schools. Over the years, the state has helped educate millions of children, enhancing the productivity of the workforce and the vitality of the economy. Public education has been a good investment for the state. But disbursing \$11 billion is no easy task. Texas' finance formula has been subject to recurrent legal challenges. Recently, the state Legislature formed a special committee to evaluate the way funds are distributed and to possibly recommend improvements.

The state has an ambitious finance formula that distributes funds based on a school district's size, property wealth and other factors. Some districts receive substantial aid. Part of the formula—nicknamed Robin Hood—requires districts that are considered wealthy to give money to help other districts. Although it is intensely controversial, the Texas plan has bolstered many of the state's poorest schools and garnered national acclaim in so doing.

As the state takes a fresh look at public school financing, it is a good time to explore the economics

(Continued on page 2)

Down but Not Out: The U.S. Economy after Sept. 11

The terrorist attacks of Sept. 11 have profoundly affected the well-being of U.S. citizens. Our sense of invulnerability is gone. Comparable events are the October 1973 Arab oil embargo, which challenged our assumptions about the continued availability of abundant, cheap energy, and the October 1957 Sputnik launch, which raised fears of intercontinental missile attack. Both of those shocks triggered important changes in spending priorities. Both hit a U.S. economy that had already been slowing. Both were accompanied or promptly followed by recessions.

We can never know with certainty how the economy would have evolved had the Sputnik launch, the oil embargo or the Sept. 11 attacks not occurred. Such events are rare, and each has unique aspects. Moreover, our

(Continued on page 6)

*INSIDE:
Tough Decisions
for Argentina*

of school finance. Texas has a strong educational funding system. That system can be further strengthened by addressing some of its unintended consequences.

Public Education Can Be a Profitable Investment

Most people agree that there is an important role for the public funding of education.¹ The public benefits when individuals invest in themselves.² Communities with lots of highly educated residents tend to have higher property values, higher average wages and more productive businesses. Educated individuals' increased earnings lead them to contribute more income, sales, payroll and property taxes. Educated individuals are less likely to receive welfare, Medicaid or unemployment compensation. They and their children tend to be healthier, which should reduce their use of the public health system. Studies suggest that their children are less likely to live in poverty or suffer from severe child abuse—situations that can have grave social consequences as well as be a drain on the public purse.

Society also benefits because education fosters technological change and economic growth. Education boosts worker productivity and earnings. (For example, the lifetime earnings of a high school graduate are nearly twice those of a drop-

out.) Moreover, well-educated workers can help the people and machines around them become more productive. Educated workers are better able to move from job to job, which helps speed the economic transition that occurs when older industries fade and are replaced by newer industries. In a sense, then, education greases the wheels of economic growth by facilitating the churning of jobs and industries.

Clearly, education's public benefits are substantial and widespread. They also spill across school district boundaries as children move away, taking their education with them. One-third of U.S. adults do not live in the state in which they attended high school, much less the same city or school district. To match the benefits with the taxes, public school finance must also spill across school district boundaries and be handled by state and federal as well as local governments.

A U.S. Tradition

The United States has a rich history of public education. When the country was established, U.S. political and social leaders believed that a minimum level of education was necessary to unite people of diverse backgrounds, forge stronger communities and maintain a stable democracy.³ As the country grew,

many state constitutions contained explicit provisions for public education. States entering the union after the Civil War were required to make constitutional provisions for the equitable provision of education, though the implementation of these provisions varied from state to state.⁴

From those initial one-room schoolhouses, public education in the United States has grown into a big business, with more than 5 million employees and yearly spending exceeding \$300 billion. Each year, 45 million students (almost 90 percent of school-age children) collect their supplies and run to catch the bell at one of our nation's 88,000 public schools.

Those schools are financed through a labyrinth of federal, state and local funding formulas. On average, local governments finance 45 percent of school budgets, state governments 48 percent and the federal government 7 percent. State governments' share varies from less than 10 percent in New Hampshire to almost 90 percent in Hawaii (*Chart 1*). The patchwork of funding methods merely hints at the vigorous debate that has occurred as states strive to find fair and equitable finance formulas.

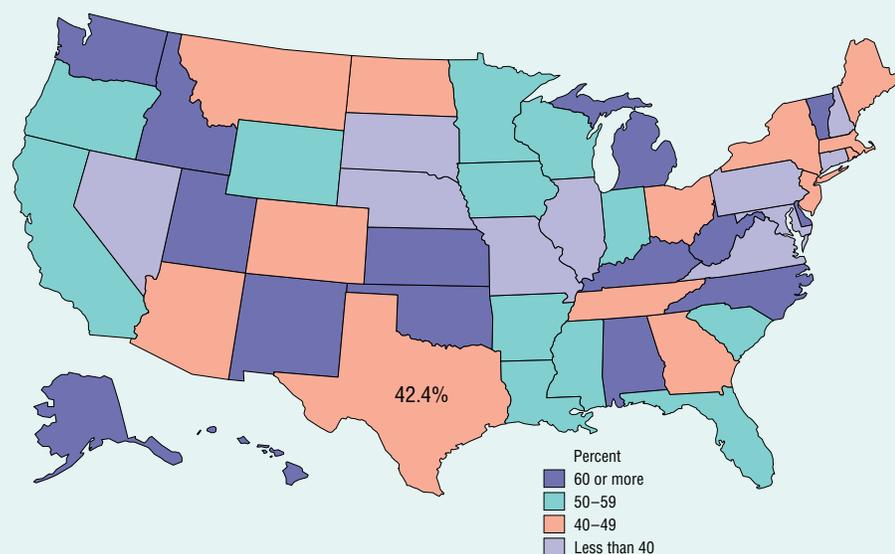
Public Education, Texas Style

Like many states, Texas has a constitutional commitment to public education. The Texas Supreme Court has interpreted the state's constitution as requiring that "districts must have substantially equal access to similar revenues per pupil at similar levels of tax effort."⁵ In response, the Texas Legislature designed a complex formula that distributes general state revenues and property tax revenues across the state.⁶ (See the box titled "Impact of the Texas School Finance Formula.")

The formula has successfully equalized, in rough terms, the amount of money any given district can raise per student. In particular, the state guarantees that each additional penny in tax per hundred dollars of taxable property will give the district between \$24.70 and \$29.50 in additional spending per pupil.⁷ If the district is unable to raise at least \$24.70, the state makes up the difference. If the district is wealthy enough that it raises more than \$29.50, the state

Chart 1

States' Shares of Public School Funding, 1998–99



SOURCE: National Center for Education Statistics.

Impact of the Texas School Finance Formula

One measure of a school finance formula is its impact on the price taxpayers pay for each dollar of revenue. A district's average tax price is its local tax revenues divided by its spending.¹ Districts with an average tax price above \$1 raise more money than they spend, with the difference going to help fund state education spending in other Texas districts. School districts with an average tax price below \$1 spend more money than they raise, with the difference coming from state and federal subsidies. The lower the average tax price, the more a district benefits from the school finance formula.

Most Texas school districts have an average tax price substantially below \$1. Average tax prices in 2000–01 ranged from 2 cents in Boles ISD to just over \$3 in Palo Pinto, Sabine Pass and Kenedy County ISDs. As the chart illustrates, average tax prices increase with property wealth and are higher in the Robin Hood districts than in other districts. This is also evident in the table, which presents average tax prices for the largest Robin Hood and non-Robin Hood districts.

Interestingly, even Robin Hood districts can have tax prices below \$1. In 2000–01, the tax price for Austin ISD was 96 cents because the district received more money from the state and federal government than it paid to the state to help other Texas school districts.

Average tax prices do not tell the whole story, however. Spending from the district's fund balance (accumulated reserves) lowers the average tax price, while adding to the fund balance boosts the average tax price. According to a district official, if spending from the fund balance were included as local revenue, Richardson ISD's average tax price for 2000–01 would increase from \$1.01 to \$1.05.²

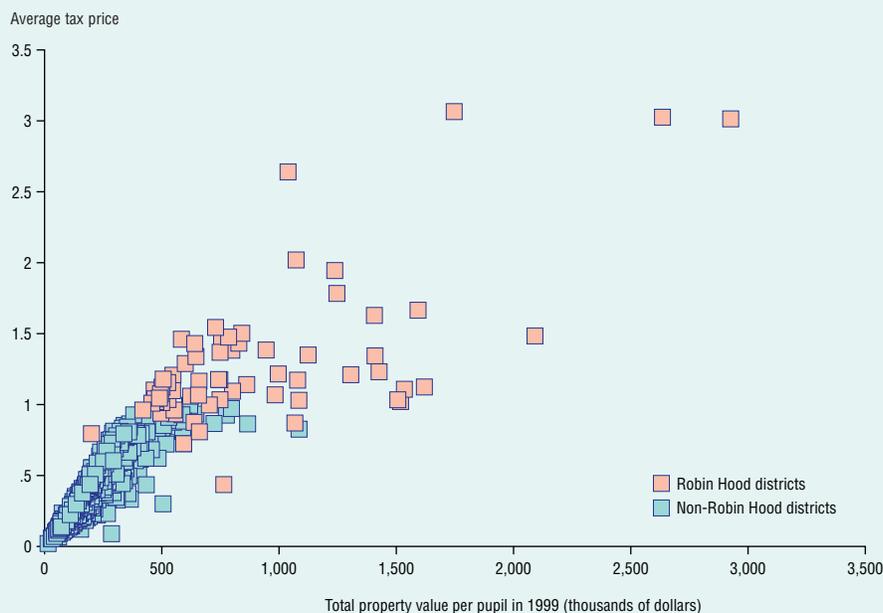
In addition, average tax prices say little about the formula's effect on *additional* revenue a district might choose to raise. As the district's tax base gets farther above the guaranteed tax base, an increasing share of local revenue must be paid to the state in Robin Hood payments. For example, the Grapevine–Colleyville ISD currently must raise \$1.42 for each additional dollar the district wishes to spend.

Notes

¹ For our measure, both revenues and expenditures exclude bonds and are based on budget figures reported to the Texas Education Agency.

² Data constraints limit our ability to incorporate changes in fund balance for all districts.

Distribution of Average Tax Price Among School Districts, 2000–01



SOURCES: Texas Education Agency; authors' calculations.

Average Tax Prices for Texas' Largest School Districts

	Enrollment	Average tax price	Robin Hood payment (millions of dollars)
Largest Robin Hood Districts			
Highland Park (Dallas)	5,848	2.02	41.1
Eanes	7,392	1.46	27.3
Deer Park	11,428	1.43	40.9
La Porte	7,632	1.34	24.8
Carrollton–Farmers Branch	24,134	1.18	45.0
Texas City	5,817	1.15	9.6
Coppell	9,243	1.12	16.6
Grapevine–Colleyville	13,584	1.08	20.0
Plano	47,161	1.05	75.3
Brazosport	13,161	1.04	8.5
Richardson	35,138	1.01	30.4
Austin	77,816	.96	30.8
Largest Non-Robin Hood Districts			
Dallas	161,548	.79	0
Arlington	58,866	.67	0
North East	50,875	.65	0
Houston	208,462	.60	0
Cypress–Fairbanks	63,497	.60	0
Northside (San Antonio)	63,739	.51	0
Fort Bend	53,999	.51	0
Fort Worth	79,661	.44	0
Garland	50,312	.43	0
El Paso	62,325	.38	0
Aldine	52,520	.32	0
San Antonio	57,273	.30	0
Ysleta	46,394	.22	0

SOURCES: Texas Education Agency; authors' calculations.

requires districts in effect to give the difference to poorer districts in what have come to be called Robin Hood payments.

Texas school finance equalization appears to have achieved dramatic results. The proportion of economically disadvantaged students passing all tests on the Texas Assessment of Academic Skills (TAAS) has increased from 39 percent to 73.6 percent since the wealth-equalization formula was implemented.⁸ For example, the property-poor Ysleta Independent School District (ISD) in El Paso raised its passing rate on the TAAS from 47.5 percent to 84.6 percent. Similarly situated, the Aldine ISD in Houston increased its passing rate from 50.7 percent to 84.1 percent. While not every property-poor district achieved such remarkable gains in student performance, the evidence is clear that some districts were able to use their newfound wealth to give students a better education.

As poorer districts in Texas have improved, the nation has taken notice. A recent study by the Texas Educational Excellence Project lauded the Texas system for largely eliminating the impact of school district wealth on student performance.⁹ Noted education analyst Lawrence O. Picus called Texas' school finance law "an excellent system of equity."¹⁰ And a representative of the National Conference of State Legislatures went so far as to say that many states now look to the Texas formula as a model because it is "one of the best systems out there as far as equity is concerned."¹¹

Unintended Consequences

There is little question that the Texas school funding system has helped promote a more equitable distribution of education across the state. In fact, the Texas system generally follows the basic principles of effective public finance (see the box titled "Four Principles of Public School Finance"). Yet there is reason to believe that some aspects of the Texas system are in need of revision. Several property-wealthy districts recently challenged the constitutionality of Robin Hood, and while the state Supreme Court dismissed their challenge, it pointedly did not dismiss the schools' concerns about Robin Hood payments.

The Robin Hood portion of the system is only a small part of the total Texas

Four Principles of Public School Finance

1. Treat equals equally.

Similar individuals should be charged the same price for basic educational services.

Several factors affect the cost of educating children, including variations in the cost of living or in the needs of students. Finance formulas should recognize variations in these costs and direct additional resources to high cost-of-education areas.

In addition, wide disparities in property tax base raise practical concerns about tax equity. School districts with ample commercial, industrial or mineral property wealth can reduce the homeowner's tax bill by taxing these sources, while residents of bedroom communities must foot the entire education bill themselves. Residents should be able to profit from variations in property wealth that arise from local school district policies but not variations that arise from other factors.

2. Respect local tastes.

A community that wishes to purchase a high level of education for its children should be allowed to do so.

Some parents strongly support education and are willing to tax themselves accordingly. It is inappropriate for the state to prevent these taxpayers from devoting extra resources to the educational needs of their children.

3. Match benefits with taxes.

Whoever receives the benefit should pay the taxes.

The benefits of education fall first and foremost to students and their families, and the lion's share of education costs also fall to them. In the high schools, between one-half and two-thirds of U.S. school resources come from the forgone earnings of students. Families also pay school taxes directly and pick up much of the school tax burden that originates at the business level.¹

The public benefits of education spill over school district boundaries. Ideally, municipal, state and federal governments should pick up part of the tab according to how far outside the local school district boundary the benefits of education reach.

4. Avoid unintended consequences of redistribution.

Be sure that school finance formulas preserve economic incentives.

Income redistribution can harm school efficiency by reducing local involvement in public schools. As the local share of school finance falls, residents have less incentive to monitor school performance because residents reap fewer rewards from such monitoring. A recent study suggests that the larger the state share in educational finance, the less efficient the public schools.²

Redistribution can also reduce economic output by fostering public policies harmful to business. As long as school district revenue is tied to the policies districts choose to pursue, school districts have an incentive to choose wisely. Redistribution severs this link by sending one district's gains across an entire state, making any particular district less likely to care about how its policies affect economic output in its district.

Notes

¹ Because capital must earn a comparable after-tax rate of return in all parts of the world, taxes on business capital or business income are actually paid by the people who work for the firm or buy its products.

² Thomas A. Husted and Lawrence W. Kenny (2000), "Evidence on the Impact of State Government on Primary and Secondary Education and the Equity-Efficiency Trade-Off," *Journal of Law and Economics*, vol. 43 (April), pp. 285-308.

educational funding system; 73 districts paid \$538 million during the 2000-01 school year, which is less than 5 percent of the state's \$11 billion education budget. However, the amount of money raised from property-wealthy districts rose by more than 10 percent from the previous year and has been predicted to rise by as much as 20 percent in the 2001-02 school year.¹² Robin Hood payments will play an increasingly important role in Texas school finance in coming years. This suggests to many that the finance formula's problems will become increasingly severe if not corrected soon.

There are four areas of concern. The finance formula weakens the link between success and funding, reduces spending on education in some districts, doesn't keep pace with the economy and distorts educational decision-making.

Weaker Link Between Success and Funding. The Texas school funding formula gives districts less financial incentive to improve their educational quality. A city that improves itself attracts families to the area, driving up property values and raising the amount of money that flows into city coffers. In Texas, increases in property value generate no

new revenue for most school districts. If property values rise in a Robin Hood school district, it is stripped of any additional revenue it might collect, even if the revenue stems from the district's successful efforts to offer a better education to its students. If property values rise in a property-poor district, local tax payments will increase, but any additional revenue results in a dollar-for-dollar decline in state aid. Thus, for most districts, funding is unchanged regardless of district performance.

Lower Spending on Education. Many districts face a financial incentive to reduce their educational expenditures. A Texas city that wishes to spend more on police or fire protection simply raises its tax rate by the appropriate amount and then spends the money. A property-wealthy school district, however, must give more revenue to the state if it chooses to raise its tax rate. Taxpayers can be understandably reluctant to support local tax increases when they result in larger payments to the state. This discourages school administrators from suggesting increased educational expenditures and discourages voters from supporting such increases. For districts that must pay money to the state, the Robin Hood portion of the finance formula has the same effect as a tax on education.

Furthermore, school districts are not allowed to raise their tax rate above \$1.50 per \$100 valuation for the operations portion of their budget. This cap prevents some residents from purchasing the higher level of public education they desire.

Slow to Change. The static nature of the finance formula may distribute revenue in ways the Legislature did not intend. Texas is one of the few states to adjust its school finance formula to reflect regional variations in the cost of education. Unfortunately, the formula has not been updated in the last decade, so it currently distributes revenue based on an outdated pattern of cost differentials. For example, the cost-of-education index treats Carroll ISD as a school district with less than 2,000 students, even though enrollment now tops 6,600. The finance formula also suffers from bracket creep. In 2000, the median home price in Texas increased by 13 percent, but the effective tax base for determining revenues under

the school finance formula didn't increase at all. Districts received less state aid, and some started making Robin Hood payments simply because a rising economic tide lifted their boat along with all the others.

Distorted Decision-Making. While most revenue and tax sources are included in the revenue-sharing portion of the Texas funding formula, taxes levied to build schools or facilities are not. This gives affluent districts an incentive to spend money on buildings rather than on teachers or books because issuing long-term debt does not increase their Robin Hood liability to the state.

Conclusion

Texas has developed a complex formula for disbursing and reallocating funds to the state's 1,041 traditional school districts. This formula helps thousands of Texas children receive a better education and has garnered national accolades for its role in equalizing educational opportunities. However, the formula has also produced unintended side effects that likely reduce the demand for education in some districts and lower the incentive for some schools to improve educational quality.

These problems do not negate the significant benefits poor and average-income districts reap from the Texas funding formula. But they do suggest opportunities to further improve the school finance system in Texas. Mending these frayed edges can make an already strong educational funding system even stronger and help the citizens of Texas meet the challenges of the 21st century.

— Jason L. Saving
Fiona Sigalla
Lori L. Taylor

Saving and Sigalla are economists and Taylor is a senior economist and policy advisor in the Research Department of the Federal Reserve Bank of Dallas.

Notes

¹ There is great debate over whether governments should do this by providing public schools or by offering vouchers, but this debate is beyond the scope of this paper.

² For a more complete discussion of the social benefits of education, see Lori L. Taylor, "The Government's Role in Primary and Secondary Education," Federal Reserve Bank of Dallas *Economic Review*, First Quarter 1999, pp. 15–24.

³ Andrew J. Coulson (1999), *Market Education: The Unknown History* (New Brunswick, N.J.: Transaction Publishers), p. 75. It should be noted that U.S. policymakers did not always live up to these lofty ideals, such as the separate but equal educational system for Southern blacks that persisted for a century after the Civil War.

⁴ David Tyack, Thomas James and Aaron Benavot (1987), *Law and the Shaping of Public Education, 1785–1954* (Madison: University of Wisconsin Press), pp. 20–21.

⁵ *Edgewood Independent School District v. Kirby*, 777 S.W. 2d 391 (Tex. 1989).

⁶ The Texas school finance formula has two major components. The first part, "Tier I," provides a minimum level of funding for all school districts that levy a property tax rate of 86 cents per \$100 of property valuation. Each district's Tier I funding is determined by adjusting a basic allotment per pupil to reflect three factors: a cost-of-education index, the size of the district and the presence of expensive-to-educate students such as those with learning disabilities. The state calculates each district's Tier I level of funding, subtracts the local share (86 cents times the value of taxable property in the district) and makes up the difference.

The second part of the formula, "Tier II," guarantees that school districts will raise roughly comparable revenue per pupil (adjusted for factors such as expensive-to-educate students) for each penny increase in their property tax rate between 86 cents and the statewide cap of \$1.50. In effect, the state guarantees that each district can behave as if it had a tax base of at least \$247,000 per weighted pupil and no more than \$295,000 per weighted pupil. (Although the law provides a guarantee of \$24.99, according to the Texas Education Agency, other costs reduced the guarantee to \$24.70.)

⁷ The formula is adjusted for variations in the cost of providing educational services. For example, expensive-to-educate students (such as those with learning disabilities) count as more than one pupil for funding purposes.

⁸ Nearly half of Texas schoolchildren are considered economically disadvantaged. The passing rate for all children increased from 56 percent to 82.1 percent between the 1993–94 school year and the 2000–01 school year.

⁹ Texas Educational Excellence Project (1999), "Examining the Effects of School Finance Reform in Texas," <http://bush.tamu.edu/kmeier/teep/reports.htm>.

¹⁰ Jacques Steinberg (2001), "NY on a Familiar Road to School Financing Reform," *Dallas Morning News*, January 19, p. 10A.

¹¹ Associated Press (2001), "Group Praises State for School Funding," *Dallas Morning News*, October 27, p. 37A.

¹² The number of Robin Hood contributors is expected to rise from 73 to 101 and the amount of revenue raised may be as high as \$650 million in the 2001–02 school year.

Down but Not Out: The U.S. Economy After Sept. 11

(Continued from front page)

understanding of the terrorist threat and the measures necessary to combat it are still developing. With this caveat in mind, it appears that the Sept. 11 terrorist attacks subtracted perhaps 1 percentage point from annualized third-quarter GDP growth, making what would have been a small, positive number small and negative. Spillover from the attacks makes a much more significant GDP decline likely in the current quarter. In contrast, the outlook for the first half of 2002 has been little affected. Unfortunately, that outlook calls for output growth so sluggish that jobs will shrink and the unemployment rate will continue to rise.

Preattack Trends

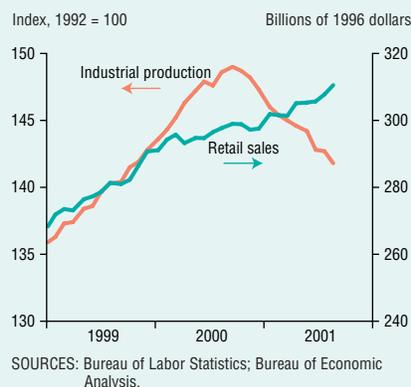
Chart 1 summarizes the economic situation we were facing leading up to the attacks. Consumer spending decelerated early last year but continued to increase right through August 2001. Industrial production rose unabated until September 2000 and has fallen more or less steadily since. Obviously, output cannot contract indefinitely in the face of rising consumer demand. Consumer demand cannot expand indefinitely if firms continue to cut production and jobs. One or the other of these trends was going to have to give way.

There were hints, at least, that industrial production might soon stop falling. In early August and early September surveys by the National Association of Purchasing Management, more manufacturers reported increases in orders than decreases. The Conference Board's composite leading index was also signaling improvement. Most analysts were calling for a modest pickup in GDP growth during the third quarter and a further increase in the fourth.

Monetary policy played an important role both in slowing demand growth in the second quarter of last year and in maintaining positive demand growth in the face of a rising unemployment rate in 2001. Judging by the inflation-adjusted, or real, federal funds rate, monetary policy

Chart 1

Trends in Industrial Production and Retail Sales Are Inconsistent



tightened from early 1999 through the middle of 2000 and has eased almost continually during 2001.

For evidence that monetary policy still packs a punch, one need only look at the construction materials and consumer durables manufacturing industries, two important interest-sensitive sectors. In both, new orders topped out in early

2000—less than a year after the Federal Reserve began to raise short-term interest rates and roughly coincident with the peak in real rates. In both sectors, demand growth resumed quickly once the Fed began easing in 2001 (Chart 2).

Was the policy tightening in 1999 and early 2000 a mistake? Inflation statistics released over the past two and one-half years suggest not. The GDP price index, for example, accelerated by a full percentage point during 1999 and 2000 before finally leveling off. While one can quibble over the exact timing of the Fed's interest-rate moves, these results suggest that policy was basically on the right track.¹

Supply-Side Impact of the Attacks

What was the likely impact of the Sept. 11 attacks on the economy's capacity to produce goods and services? A good place to start is with the effects of a natural disaster like the 1994 Northridge quake in Southern California.

Chart 3 illustrates how the level of output is typically affected by a Northridge-style event. The chart assumes that output has been rising at a more or less steady pace and is expected to continue to do so in the future (as indicated by the dotted line). Instead, disaster strikes, causing output to drop sharply. The level of output remains depressed for a time, but as damaged homes and factories are

Chart 2

Construction and Consumer Durables Sectors Show Effects of Fed Policy

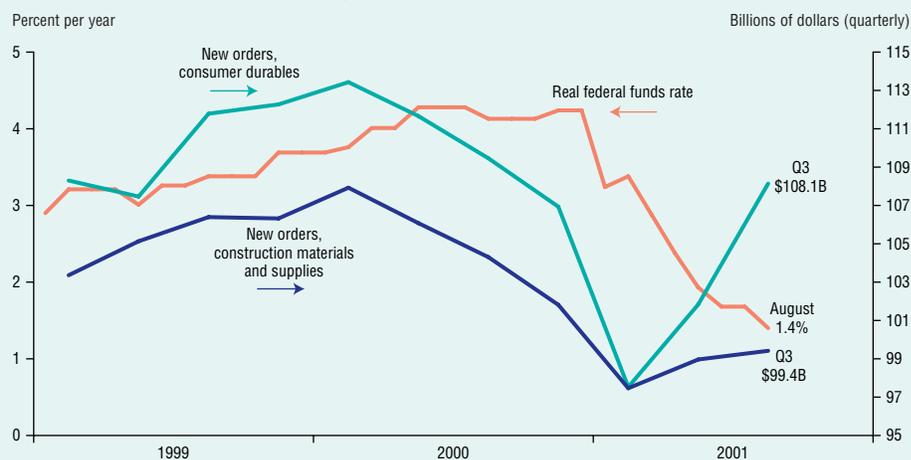
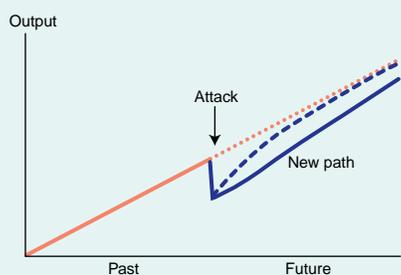


Chart 3

Security Measures Impact Productivity, Reduce Wealth



SOURCE: Author's calculations.

rebuilt and damaged furnishings and equipment are replaced, output growth is elevated (dashed line). The economy is soon back on its predisaster path.

Although the events of Sept. 11 fit the natural disaster mold in many ways, they are also reminiscent of the 1973 Arab oil embargo and the 1957 Sputnik launch. Like these earlier events, the attacks brought previously unappreciated, continuing risks to the public's attention. It's as if we not only experienced a damaging earthquake on Sept. 11, but also discovered a whole network of fault lines beneath our major cities.

Consequently, we are likely to see a larger and more sustained shift of resources than would typically follow a natural disaster: instead of simply rebuilding, we must build anew—differently from before. Unfortunately, it takes time to plan new factories and train workers in new skills, so layoffs, plant closings and bankruptcies will initially dominate the headlines and the statistics. Instead of the immediate, strong boost to growth that occurs during the recovery from an earthquake or hurricane, we end up with an output trajectory resembling the solid line labeled “new path” in Chart 3.

Note that output never quite makes it all the way back to its original path. That's because going forward we will have to sacrifice efficiency gains for the sake of enhanced security. For example, firms may hesitate to consolidate their operations or rely on foreign parts suppliers. A larger military budget will take resources away from the private sector. Despite our efforts, some future terrorist attacks may succeed.

The actual and prospective destruc-

tion of capital, the disruption associated with resource reallocation, and the prospect of higher military and security spending all make households financially worse off by lowering asset values and reducing future after-tax earnings.

The evidence suggests that, given a constant real interest rate, consumption shifts sharply downward in response to a decline in wealth or earnings prospects (Lettau and Ludvigson 2001). There's the rub. For in the wake of Sept. 11, new investment projects will not get under way immediately, and military and security spending will take time to ramp up to their new, higher levels. Any sudden decline in consumer spending may consequently cause a shortfall in aggregate demand.

To mitigate this potential problem, the Fed can lower real, short-term interest rates by enough to induce households to scale back their spending plans gradually, rather than all at once.² As military, security and investment spending pick up, monetary policy will need to reverse course and raise short-term real interest rates to normal or even above-normal levels. Getting the timing of this switch right will be the major monetary policy challenge in the year ahead.

The Outlook

Just how big a hit is the U.S. economy likely to take from the September attacks? When will their impact begin to fade and growth resume? Two forecasting tools developed at the Dallas Fed can help answer these questions.

The first tool is a forecasting equation for current-quarter GDP growth. Official GDP growth estimates don't come out until a full month after the end of each quarter. Our forecasting equation provides us with a GDP prediction a month and a half earlier than these estimates. The forecast is based on monthly employment, industrial production and retail sales figures for the first two months of the quarter. The forecasting equation's unique feature is that it uses only data that were actually available at the time, instead of data that have gone through many rounds of revisions. The resulting performance is superior to that of the average professional in the Blue Chip survey of forecasters (Koenig, Dolmas and Piger 2001).

Based on monthly data through August, our model forecast 0.7 percent GDP growth in the third quarter.³ Actual third-quarter GDP growth came in at -0.4 percent, according to the Commerce Department's “advance” estimate. So, our best estimate is that the Sept. 11 attacks subtracted about 1 percentage point from third-quarter growth, turning a small, positive number into a small, negative number.

The impact of the terrorist attacks on third-quarter GDP growth would have been even larger had the attacks taken place in July or August instead of September. An extreme example illustrates the point. Suppose the attacks had occurred on the very last day of September. Then the average level of output in the third quarter would hardly have been affected, and third-quarter GDP growth—which compares the average third-quarter level of output with the average second-quarter level—would also hardly have been affected. Instead, we would have seen weak *fourth*-quarter GDP growth.

Well, the 11th of September isn't at the very end of the quarter, but it's pretty close. So if the direct impact of the attacks subtracts 1 percentage point from third-quarter growth, it is likely to subtract roughly 3.5 percentage points from fourth-quarter growth.⁴ This timing story helps explain why most private forecasters are calling for a moderate decline in fourth-quarter GDP instead of a moderate increase.

Our second tool is an equation that forecasts future employment growth using financial-asset and oil prices. (Details are given in the box titled “Forecasting Employment Growth.”) Financial-asset prices are available daily and are not subject to revision. Because they reflect investors' expectations, they often provide the earliest warnings of changes in the economy's direction. Although they are often individually unreliable, false signals often cancel one another out when several indicators are considered as a group.

The first indicator we use to forecast employment growth is the junk-bond spread, equal to the difference between the returns on high-yield and aaa-rated corporate bonds. It measures the risk that marginal borrowers will default on their loans. The spread widened markedly in

September and rose further in October, to its highest level since the end of last year. Bond investors are clearly concerned that the economy will be weak in the months ahead.

Stock prices are another important (but not very reliable) indicator of future employment growth. As of Sept. 10, the Standard & Poor's 500 index was down 28 percent from its all-time high in March 2000. At its postattack low, it was down almost 37 percent. However, as of this writing the index has recovered to its Sept. 10 level. So the stock market's signals, although not encouraging, are no worse than before the attacks.

Oil-price increases both disrupt the economy and act much like a tax hike imposed by oil exporters (Brown and Yücel 2000). Oil prices initially rose following September's attacks but have since fallen substantially. Unfortunately, because the economy responds to oil prices with a long lag, the residual effects of the relatively high prices of 2000 and early 2001 will remain a drag on growth in 2002.

The only indicator that is giving us a positive signal about future employment growth is the real short-term interest rate. It fell sharply in the first half of the year as the Fed aggressively eased monetary policy and fell sharply again following Sept. 11.

Chart 4 shows actual employment growth along with a forecast made nine months earlier. Forecasts are calculated using the four indicators discussed above. You can see that earlier this year,

Forecasting Employment Growth

The forecasting equation that underlies Chart 4 is estimated using jobs, money, Consumer Price Index (CPI) and Producer Price Index¹ (PPI) data from the last month of each quarter, and financial and oil-price data from the 15th of the following month (reflecting the fact that jobs, money, CPI and PPI data are released with a lag). Once the equation has been estimated, real-time monthly data are substituted into its right-hand side to generate a monthly sequence of forecasts. The last two and one-half years of forecasts displayed in Chart 4 are generated recursively (that is, estimated coefficients are updated from quarter to quarter) to accurately depict the equation's recent real-time forecasting performance.

The latest estimate, for the sample period running from 1986:Q1 through 2001:Q3, is as follows:

$$\begin{aligned} \Delta\text{Jobs} = & 3.936 - .994\text{Dum90Q3} - 1.997\text{Dum90Q4} - 2.737\text{Dum91Q1} + .315\Delta\text{Jobs}(-3) \\ & (.522) (.167) \quad (.160) \quad (.212) \quad (.111) \\ & + .025\Delta\text{Money}(-3) + .155\Delta\text{Stocks}(-3) - .338\text{Spread}(-3) - 5.577\text{Oil}(-6) \\ & (.030) \quad (.103) \quad (.095) \quad (2.312) \\ & - 2.561\text{Oil}(-7) - 7.059\text{Oil}(-8) - .530\text{Tbill}(-3) \quad \text{Adj. } R^2 = .849 \\ & (1.615) \quad (1.843) \quad (.092) \quad \text{S.E.} = .579 \end{aligned}$$

The standard errors (in parentheses) are corrected for heteroskedasticity and a moving-average error term. The variables entering the equation are defined as follows:

ΔJobs: Annualized six-month growth rate of private nonfarm employment

ΔMoney: Annualized six-month growth in M2 – annualized six-month growth in CPI

ΔStocks: 100 × 12-month change in S&P 500 / nominal GDP lagged four quarters

Spread: Merrill Lynch yield on low-grade corporate bonds – Moody's yield on seasoned aaa-rated corporate bonds

Oil: Max[0, (WTI spot price / PPI) – (three-year average of WTI spot price / PPI)] × (preceding year's oil refinery inputs / preceding year's real GDP)

Tbill: Yield on three-month Treasury bills – one-year inflation expectations, GDP price index, from the most recent Survey of Professional Forecasters

In addition, three dummy variables are used to eliminate the effects of the Gulf War, on the grounds that this shock to employment growth could not have been anticipated. (Similar treatment will have to be given to the Sept. 11 terrorist attacks in future estimations as the sample period is extended.)

I include money in the forecasting equation for the sake of consistency because in other research (not reported here) I have found that it helps forecast changes in the unemployment rate. I don't discuss money in the main text because it is unimportant for forecasting employment growth. Another financial variable often touted for its forecasting power, the slope of the yield curve, has no marginal predictive power for either employment growth or unemployment-rate changes at the horizon considered here.

Note

¹ Finished goods excluding food and energy.

Chart 4

Employment Growth Outlook Stays Weak

Percent per year



SOURCES: Bureau of Labor Statistics; author's calculations.

the forecasting model was predicting essentially zero job growth in late 2001 and early 2002. However, in July, well before the terrorist attacks, forecasted employment growth turned sharply negative. Employment growth forecasts calculated in August and September were also negative. The most recent (October) forecast indicates that jobs are likely to decline at a 0.7 percent annual rate over the first six months of 2002. So, the terrorist attacks didn't make the early 2002 outlook any worse than before, but that outlook wasn't bright to begin with. Although job cuts will not be so great as to keep GDP growth negative, they will drive the unemployment rate up to about 6 percent by June.

Conclusion

There were conflicting trends in production and sales prior to Sept. 11, with production falling despite rising consumer demand. Sooner or later, one of these trends had to give way, and there were encouraging signs that production might soon bottom out. The attacks had a mild, negative effect on third-quarter GDP, turning a weak increase into a small decline. We'll see a bigger negative impact in the fourth-quarter statistics. The already bleak growth outlook for the first half of 2002 hasn't really changed very much, however. We're likely to see output rising, but too slowly to prevent further increases in the unemployment rate.

(Continued on back page)

Tough Decisions for Argentina

With the Argentine economy in its third year of recession and struggling with debt, the global economic downturn has created special complications for Argentine policymakers. Speculation as to how Argentina will pull itself out of its deepening recession is reigniting the debate over exchange rate regimes: Will Argentina maintain its current system, devalue its currency or dollarize (abandon its currency, the peso, and accept the U.S. dollar as legal tender)?

Hard-money currency regime non-conformism is already a tradition in Argentina. In 1989, when Carlos Menem was elected president, Argentina had a floating exchange rate and hyperinflation. In 1991, the Argentine Congress established the Convertibility Plan, whose cornerstone is a currency board-like system that forbids monetizing government deficits, that is, printing money to pay the bills.

Under a currency board system, outflows of foreign currency reserves must be matched by reductions in domestic monetary base. The domestic currency can be issued only in exchange for a specified foreign currency at a fixed rate. The Convertibility Plan allowed the use of either U.S. dollars or Argentine pesos in any transactions except wage and tax payments. The Argentine peso was pegged to the U.S. dollar at 1:1.

Argentina's average annual inflation rate fell from 600 percent in 1983–91 to 4.7 percent in 1991–99. The government also initiated privatization of state-owned industries and liberalized trade. The reforms returned the economy to growth. GDP grew an average 4.7 percent per year from 1991 to 1999, two recessions notwithstanding.

Economic Health Declines

Unfortunately, successes at the beginning of the decade waned toward its end. By the time Menem left office in 1999, Argentina had an increasing fiscal deficit and 14.3 percent unemployment,

high by historical standards. (Unemployment averaged 4 to 5 percent during the 1980s and 7.3 percent in 1990.)

Not only was Argentina's economy suffering adverse effects from internal forces; it was also experiencing external pressures. As financial crises swept Asia in 1997 and Russia in 1998, investors who were pulling their capital out of those countries also began to withdraw it from Argentina.

Dollarization and currency boards help establish fiscal credibility, but they do not guarantee fiscal health. Argentina benefited from the currency board-like system in the early years, but that success did not lead to consistent fiscal reform and investment. As a result of expanding public debt and higher international risk premiums, interest payments alone now account for a fifth of total federal spending.

To add to the problem, until recently the current system guaranteed Argentina's 24 provinces a monthly minimum of \$1.35 billion from federal tax revenues regardless of how much had been collected. Because of Argentina's continuing economic downturn, tax receipts fell 14 percent in September 2001 compared with September 2000, forcing the government to reduce payments to the provinces so it could keep paying on the national debt. Diminishing tax revenues put pressure on Argentina to meet its zero-deficit pledge.¹

Argentina's prime lending rates have more than tripled since last March. August 2001 industrial production fell about 6 percent from the prior year, and preliminary September numbers indicate a decline of over 10 percent—the largest year-over-year drop since July 1999.

Argentina has not had one year of positive current account balance since 1990; the current account deficit has exceeded 4 percent of GDP in three of the last four years. While a negative current account deficit can reflect positive aspects of an economy, Argentina's case has required some kind of price adjust-

ment to push the current account toward balance. The typical price adjustment for international balance is devaluation, but that is not an option under Argentina's currency regime.

The other option is deflation, which has been occurring in Argentina since 1998. Deflation helped bring the current account deficit under 4 percent of GDP last year. Deflation has significant implications for Argentina's debt burden, however. When a country with debt has deflation, nominal GDP can fall even when real GDP is growing. If the nominal value of debt remains the same, deflation means that the debt's real value increases.

Currently, Argentina's country risk premium, which reflects the perception of increased risk as measured against U.S. Treasury bonds, is its largest since 1995, when Mexico's Tequila Crisis was hammering Latin American markets. Argentina's country risk premium has risen significantly against those of Latin America's largest economies, Brazil and Mexico (*Chart 1*). Along with Argentina's ever-widening country risk premium, consumer confidence is very low. According to a recent poll, two-thirds of Argentines have little hope that recovery is on the way. Because domestic consumption accounts for about 70 percent of Argentina's GDP, reviving consumer spending is necessary to spur growth, raise tax revenues and balance the budget.

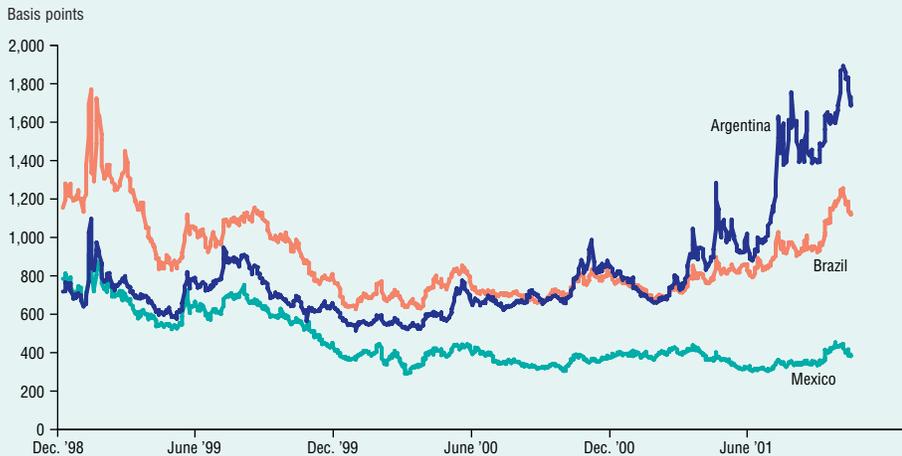
Domestic confidence in the banking system also continues to weaken, making banks vulnerable to runs. July and August saw about 10 percent of private sector savings withdrawn.

Coping with the Debt

To address these difficulties, the government is considering a debt swap as a means of reducing the monthly interest payments on both federal and provincial debt. The swap would allow creditors (local banks, pension funds and provincial governors) to exchange their existing bonds for new bonds with

Chart 1

Argentina's Risk Outpaces Others in Latin America



SOURCE: J. P. Morgan, Emerging Market Bond Index.

a lower interest rate. Policymakers depict the plan as a means of coping with the debt burden and instilling confidence. However, world capital markets have reacted negatively. Rating agencies have warned that the debt swap could be interpreted as a default if the bondholders suffer significant losses.

Ten years after the introduction of the Convertibility Plan, Economy Minister Domingo Cavallo has introduced the Competitive Plan in an attempt to reinvigorate the Argentine economy. The plan modifies the currency board. Ex-

ports (except oil) would be transacted with a devalued peso and imports with a revalued peso. Also, when the euro reaches parity with the dollar, the peso's anchor would change from the 100 percent dollar peg to a fifty-fifty dollar-euro peg.

The new rules provide an unofficial devaluation or at least attempt to achieve the effects of a devaluation: increased exports and limited imports. Since Argentina trades very little, the magnitude of the new rules may initially be limited. Argentina's exports-to-GDP ratio

is currently 8 percent, the fourth lowest in the world behind Rwanda, Burundi and Haiti. The country's debt-servicing costs continue to rise in relation to exports (Chart 2).

Some Argentine policymakers are suggesting dollarization as an answer to Argentina's woes. They argue that market speculation over a possible devaluation has resulted in a loss of credibility and that the replacement of Argentine pesos with U.S. currency as the only official medium of exchange would eliminate Argentina's currency risks, lower interest rates and instill confidence. They consider the Convertibility Plan, which established the currency board-like system, the best policy decision of the 1990s. Now they want to take it further—with dollarization.

Conclusions

Both domestic and foreign investors remain concerned about Argentina's ability to pay its debt and retain its fixed exchange rate with the dollar. The zero-deficit spending policy is a mammoth challenge. Spending cuts are very difficult to impose when people are suffering. Declining growth and, consequently, low tax revenues do not help lessen the debt burden. However, one of Argentina's greatest strengths is its populace, whose level of education is significantly higher than that of other Latin American countries. The hope is that they will be able to make some tough decisions to ultimately manage their difficulties.

—Sherry L. Kiser

Kiser is an associate economist in the Research Department and coordinator of the Center for Latin American Economics at the Federal Reserve Bank of Dallas.

Note

¹ In July, the Argentine Senate passed a zero-deficit bill that requires the government to spend only what it receives in tax revenues on a month-by-month basis.

Chart 2

Debt Servicing Costs Rising Relative to Exports



SOURCES: Argentina Ministerio de Economía; International Monetary Fund, *International Financial Statistics* and *World Economic Outlook*.

Before Sept. 11

Prior to Sept. 11, the Texas economy was weak but beginning to show a few signs of stabilization. Texas' nonfarm employment growth was weak in the second and third quarters of 2001 but continued to grow faster than the nation's. Private employment growth appeared to have bottomed out in April. The Texas Leading Index was predicting soft growth over the coming three to six months. Energy prices were less volatile, and the housing sector was healthy. TCPU (transportation, communication and public utilities) and services posted strong employment gains in the third quarter, while employment in the manufacturing and construction industries slipped in August and September.

After Sept. 11

As of this writing, little post-Sept. 11 data are available. The September employment data do not fully reflect the events of Sept. 11. The data are for the pay period that includes the 12th day of the month, and those industries thought to be most affected do not show any significant change from prior patterns.

Anecdotal evidence gives the best picture of Texas' new landscape since the terrorist attacks. The Beige Book reports that while not fully recovering to preattack levels, many of the hardest hit industries, such as airlines, hotels and retail trade, have bounced back a little from the steep declines they saw immediately following the attacks. At the same time, however,

a broad array of industries that had seemed only slightly harmed are showing signs of increased weakness.

Immediately following the attacks, the transportation and distribution industry clearly suffered. Leisure travel declined sharply, and business travel weakened further. American Airlines and Continental Airlines announced layoffs as well as other cutbacks, such as in-flight meals and curtailed flight schedules. Hotels, restaurants and amusements all suffered in the aftermath but have since begun to level off.

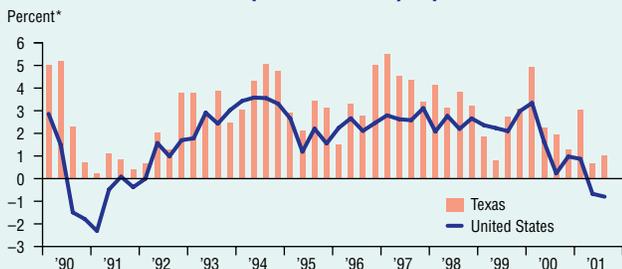
Increased border enforcement is also slowing travel between Mexico and Texas. Waiting times during rush hour have increased to three to four hours. The delays have reduced crossings and decreased retail activity by an estimated 15 to 50 percent in Texas border cities.

Weakening demand clouds the energy sector's outlook. After reaching around \$30 per barrel after Sept. 11, oil prices have settled back down to \$22 to \$23 per barrel. Drilling has weakened, with the Texas rig count falling in the last week of October to its lowest level since the first weeks of 2001. Texas well permits declined 43 percent in September.

What little data are available confirm a slipping Texas economy. Announced layoffs for the state spiked in September, and all seven of the Texas leading indicators declined in September, causing the Texas Leading Index to suffer its largest decline to date at 5.2 percent.

—Charis L. Ward

Texas and U.S. Quarterly Nonfarm Employment Growth



* Quarter-over-quarter, seasonally adjusted, annualized rate.

SOURCES: Bureau of Labor Statistics; Federal Reserve Bank of Dallas.

Layoffs in Texas Jumped in September



SOURCES: Texas Workforce Commission; Federal Reserve Bank of Dallas.

Regional Economic Indicators

TEXAS EMPLOYMENT*

	Texas Leading Index	TIPI† total	TEXAS EMPLOYMENT*				Private service-producing	TOTAL NONFARM EMPLOYMENT*		
			Mining	Construction	Manufacturing	Government		Texas	Louisiana	New Mexico
9/01	114.2	130.6	162.6	576.6	1,064.1	1,592.3	6,226.1	9,621.7	1,933.7	759.2
8/01	120.3	131.1	163.3	576.9	1,065.4	1,588.7	6,221.9	9,616.2	1,938.9	758.7
7/01	118.7	131.7	163.2	578.1	1,070.5	1,577.0	6,208.8	9,597.6	1,936.7	757.0
6/01	118.9	131.5	162.2	578.1	1,071.3	1,585.9	6,200.2	9,597.7	1,938.4	754.7
5/01	119.8	131.0	161.2	574.9	1,074.3	1,582.9	6,193.7	9,587.0	1,941.6	754.2
4/01	118.7	131.0	160.7	572.4	1,078.1	1,583.3	6,185.2	9,579.7	1,945.8	754.2
3/01	120.0	131.1	158.6	571.1	1,081.9	1,580.7	6,189.5	9,581.8	1,948.0	753.6
2/01	121.2	131.7	156.5	567.8	1,083.3	1,579.1	6,170.8	9,557.5	1,950.5	751.0
1/01	123.9	131.2	156.1	566.6	1,083.0	1,575.4	6,155.1	9,536.2	1,946.1	750.7
12/00	122.7	131.2	155.3	564.2	1,080.8	1,570.4	6,139.8	9,510.5	1,934.8	748.9
11/00	123.2	131.1	153.6	562.6	1,083.2	1,567.4	6,129.6	9,496.4	1,931.1	748.9
10/00	124.8	131.1	152.6	559.0	1,083.2	1,564.8	6,111.3	9,470.9	1,931.0	748.2

* In thousands. † Texas Industrial Production Index.

For more information on employment data, see "Reassessing Texas Employment Growth" (*Southwest Economy*, July/August 1993). For TIPI, see "The Texas Industrial Production Index" (*Dallas Fed Economic Review*, November 1989). For the Texas Leading Index and its components, see "The Texas Index of Leading Indicators: A Revision and Further Evaluation" (*Dallas Fed Economic Review*, July 1990). Online economic data and articles are available on the Dallas Fed's Internet web site, www.dallasfed.org.

Down but Not Out

(Continued from page 8)

There are several risks to these forecasts. For example, we may see major new terrorist attempts or political upheaval abroad. A less obvious risk is that the Fed will “get behind the curve,” much as the Japanese central bank did in the 1990s, and lower interest rates too slowly to keep up with declining inflation expectations. The October University of Michigan survey of households shows a sharp fall in expected inflation that bears watching.

On the plus side, the Fed has demonstrated a willingness to act quickly and boldly when economic developments warrant it. Policy has proven itself to be effective, first by slowing consumer spending growth in 2000 and then by sustaining it in the face of rising unemployment during the first eight months of 2001. By the spring of 2002, the economy will benefit from the additional stimulus the Fed has added to the pipeline since Sept. 11. Tax incentives designed to kick start investment spending are likely. Finally, no other economy can so quickly shift resources from shrinking to expanding industries.

We're down, but not out. Brighter days lie ahead.

—Evan F. Koenig

Koenig is a senior economist and vice president in the Research Department of the Federal Reserve Bank of Dallas.

Notes

- ¹ For discussions of the shifting economic environment in which the Fed was operating over this period, see Koenig (2000a, b).
- ² At the same time, fiscal policy can provide temporary favorable tax treatment for investment, encouraging firms to accelerate their plant and equipment spending.
- ³ All growth rates in this paper are annualized.
- ⁴ Counting only weekdays, Sept. 11 is 78 percent of the way through the third quarter. Assuming that the terrorist attacks shift the level of output downward from Sept. 11 through the end of 2001 without affecting the day-to-day growth rate of output (except on the 11th), the attacks' impact on fourth-quarter GDP growth will be approximately $78/22 = 3.5$ times their impact on third-quarter GDP growth.

References

- Brown, Stephen P. A., and Mine Yücel (2000), “Oil Prices and the Economy,” Federal Reserve Bank of Dallas *Southwest Economy*, Issue 4, July/August, 1–6.
- Koenig, Evan F. (2000a), “Productivity, the Stock Market and Monetary Policy in the New Economy,” Federal Reserve Bank of Dallas *Southwest Economy*, Issue 1, January/February, 6–9, 12.
- (2000b) “Monetary Policy: On the Right Track?” Federal Reserve Bank of Dallas *Southwest Economy*, Issue 6, November/December, 1, 6–9.
- Koenig, Evan F., Sheila Dolmas and Jeremy Piger (2001), “The Use and Abuse of ‘Real-Time’ Data in Economic Forecasting,” Federal Reserve Bank of Dallas, Working Paper no. 00-04 (Dallas, August).
- Lettau, Martin, and Sydney Ludvigson (2001), “Consumption, Aggregate Wealth, and Expected Stock Returns,” *Journal of Finance* 56 (June): 815–49.

Southwest Economy



Southwest Economy is published six times annually by the Federal Reserve Bank of Dallas. The views expressed are those of the authors and should not be attributed to the Federal Reserve Bank of Dallas or the Federal Reserve System.

Articles may be reprinted on the condition that the source is credited and a copy is provided to the Research Department of the Federal Reserve Bank of Dallas.

Southwest Economy is available free of charge by writing the Public Affairs Department, Federal Reserve Bank of Dallas, P.O. Box 655906, Dallas, TX 75265-5906, or by telephoning (214) 922-5254. This publication is available on the Internet at www.dallastfed.org.

Robert D. McTeer, Jr.
President and Chief Executive Officer

Helen E. Holcomb
First Vice President and Chief Operating Officer

Harvey Rosenblum
Senior Vice President and Director of Research

Robert D. Hankins
Senior Vice President, Banking Supervision

W. Michael Cox
Senior Vice President and Chief Economist

Executive Editor
Harvey Rosenblum

Editors
Stephen P. A. Brown
William C. Gruben
Alan D. Viard

Publications Director
Kay Champagne

Associate Editors
Jennifer Afflerbach
Monica Reeves

Art Director
Gene Autry

Design & Production
Laura J. Bell

Federal Reserve Bank of Dallas
P.O. Box 655906
Dallas, TX 75265-5906

ADDRESS SERVICE REQUESTED

PRSRT STD
U.S. POSTAGE
PAID
DALLAS, TEXAS
PERMIT NO. 151