

ISSUE 1



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THE 1997 TEXAS ECONOMY BEATS EXPECTATIONS

SURPRISING STRENGTH IN the national economy and the energy sector eclipsed any weaknesses in the Texas economy, leading to another year of vigorous growth for the state. Texas gross state product grew at a robust 7.4 percent annual rate in the first half of 1997, despite labor market tightness and slower growth in high-tech manufacturing and exports to Mexico. Energy sector expansion and a pickup in national demand fed strong growth in the construction, financial, business services and distribution sectors.

INSIDE

Regional Roundup

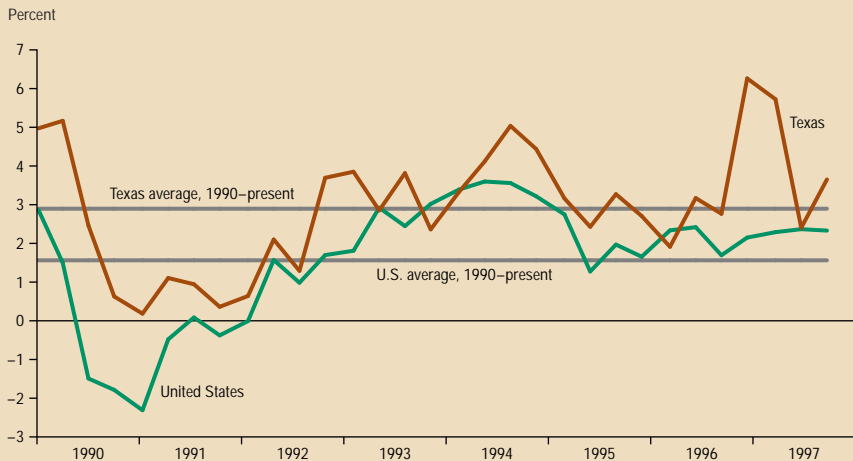
Counting Our Chickens

The Asian Meltdown

National Economic Growth Spurred Texas' Growth

The strength of the U.S. economy was a surprise to many. At the end of 1996, the consensus among analysts was 2.2 percent growth in 1997.¹ In contrast, GDP growth through the third quarter averaged nearly 4 percent, providing a positive boost to the Texas economy.

Chart 1 Employment Growth Was Robust in 1997



Texas employment grew at a 3.6 percent annual rate in 1997, quite a bit better than the nation's 2.4 percent growth over the same period (*Chart 1*).² Texas' employment growth was fairly broad-based. In 1997, all private sectors grew above trend; *Chart 2* shows the difference between 1997 employment growth and the average rate of growth in the 1990s for each sector.

Energy Sector Boosted 1997 Growth

The energy sector, one of the hottest sectors in 1997, helped to push Texas' growth rate ahead of the nation's. Relatively high oil and natural gas prices over the past year led to increased activity in the oil fields. Employment in oil and gas extraction increased at a 5.4 percent annual rate in 1997, the best growth since 1990.

The health of the energy industry has always been closely linked to strong oil prices. Although this still holds, improvements in technology have changed the definition of "strong oil prices" in recent years. New technologies such as three-dimensional seismic imaging have lowered costs of exploration and development while expanding possibilities for new fields once deemed too risky to explore. In fact, oil companies have seen their costs halved in the past 10 years, making it possible for companies to earn profits at much lower oil prices than in the past. With oil prices averag-

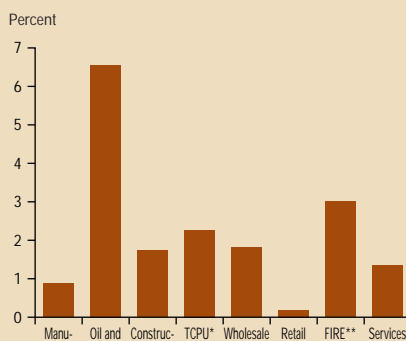
ing near \$21 per barrel, the oil industry did very well in 1997 (see page 7, "Houston Heats Up").

Not Much Upward Risk for Oil Prices

After spending much of the year in the lofty \$20+ range, oil prices fell to near \$18 per barrel in December, the lowest price since the end of 1995. Warm weather, the easing of tensions with Iraq and larger OPEC quotas all exerted downward pressure on oil prices. At their November meeting, OPEC decided to increase production quotas, which had been unchanged since 1993, from 25 million to 27.5 million barrels per

Chart 2 Growth Was Broad-Based in 1997

Difference Between 1997 Employment Growth and Trend

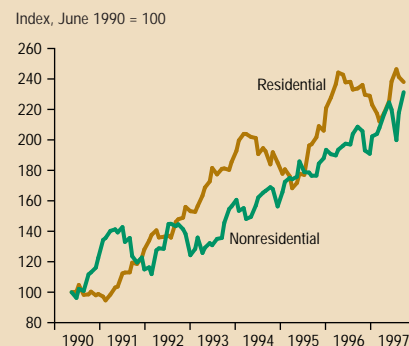


* Transportation, communications and public utilities.
** Finance, insurance and real estate.

day. However, it is doubtful the quota increase will greatly affect oil prices because OPEC members had been over-producing quotas, with OPEC production near 28 million barrels per day in August 1997. In December, the Iraqi government and the United Nations reached an agreement about Iraqi oil sales. Additions of Iraqi oil to the market will put further downward pressure on prices. Another factor that weakened prices was the relatively warm December weather, due to El Niño, which may continue for the whole heating season. All in all, a price of \$18-\$19 per barrel would be a safe bet for West Texas Intermediate crude in 1998. The futures market is currently saying much the same, predicting prices under \$19 per barrel for the next several years.

Chart 3 The Construction Sector Continued Its Strong Rate of Growth in 1997

Construction Contract Values

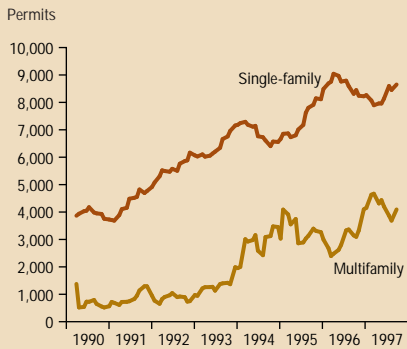


Construction Followed Suit

The construction sector was another bright spot in 1997. Since the banner year of 1994, analysts have been surprised year after year by better-than-expected levels of construction sector activity. 1997 was no exception.

The industrial and office markets continued to be strong, as *Chart 3* illustrates. High levels of absorption in the industrial market quelled analysts' mid-year fears of overbuilding. Office markets across the state showed improvement. The office market was especially robust in the Dallas/Fort Worth metroplex, with higher rents and lower vacancy rates. In

Chart 4
The Residential Sector Continued to Grow



Houston, the office market improved so much that plans were announced for the first new office tower downtown since 1986. Austin and San Antonio office markets also saw increasing occupancy rates in 1997.

The housing market was healthy as well. In 1997, residential contract values neared their 1996 peak. Single-family permits, although still very high, came down from their 1996 highs (*Chart 4*). Annual housing-price movements through the third quarter of 1997 were mixed. Median new home prices fell because of increased sales of lower-priced starter homes. Median existing home prices rose between 6 percent and 9 percent in Austin, Dallas and Houston. For the state as a whole, the House Price Index, an index of same-home repeat sales, shows that Texas existing home prices grew 3.2 percent. Contacts reported hectic demand in the existing home market in the last part of 1997 and expect strong growth in the single-family sector at least until the end of 1999.

Total Exports Surged Despite Slower Growth in Mexican Exports

Mexico is Texas' biggest trading partner, receiving roughly 40 percent of Texas exports. Chart 5 shows that Texas export growth to Mexico slowed to a 6 percent annual rate in the first half of 1997, quite a bit below the 14 percent average growth seen since 1987. Nonetheless, South Texas saw strong growth in the trade and service sectors as a

result of Mexico's continued recovery (see page 6, "Strong Economic Activity in Austin and San Antonio" and "Steadier Growth Ahead for El Paso"). Vigorous growth in exports to other nations, such as Canada and Singapore, caused total Texas export growth to pick up speed in '97, with an annualized 12 percent increase in the first half of the year, compared with 7 percent growth in '96.

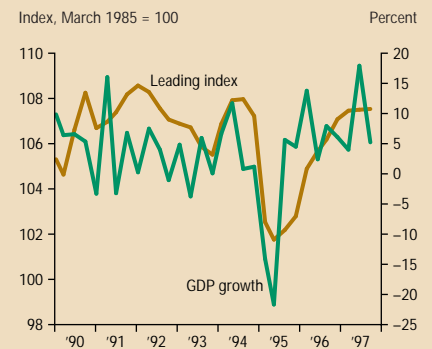
Real Mexican GDP grew 7 percent through the third quarter of 1997. The Dallas Fed's leading index for Mexico suggests continued growth but no fireworks (*Chart 6*). Most economists expect a deceleration of the Mexican economy to about 5 percent growth in 1998.

Distribution Sector Expanded

The distribution sector reflected the strength of the Texas and NAFTA economies in 1997. Transportation sector employment grew at a 5.3 percent annual rate last year, with trucking and warehousing growing by 6.1 percent (see page 6, "D/FW Metroplex Leads the State").

The extraordinary levels of business activity in the state also contributed to Union Pacific rail bottlenecks. Rail shipping delays caused headaches for manufacturers of chemicals, steel, autos, lumber, cement and brick. Chemical firms reported production cuts as a result of the slow return of their railcars, which double as storage containers for some products. In addition, shipping

Chart 6
The Mexican Leading Index Suggests Continued Growth



delays caused grain crops to spoil, hurting farmers and agricultural lenders (see page 7, "Slower Growth Outside Major Metropolitan Texas").

Many contacts reported using alternative shipping methods, such as truck and air, but at as much as triple the rail shipment cost. Truck and air cargo shipments going through Laredo jumped by a third, relative to rail shipments, from August to October. However, competition in the product markets prevented companies from passing the higher shipping costs through to selling prices.

Although the distribution sector may see its expansion tempered by slower growth in the U.S. economy, it should continue to be a plus for the Texas economy.

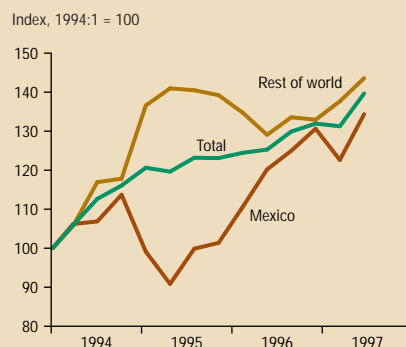
High-Tech Manufacturing Growth Didn't Keep Pace

Chart 7 shows that overall high-tech manufacturing growth slowed in 1997. Nevertheless, the services side of high-tech saw very strong employment growth. Software companies and computer-related services are all part of the business services sector, which surged an annualized 12.5 percent in 1997.

The Dallas Fed's December Beige Book reported that growth in sales of electronic components, telecommunications equipment and semiconductors slowed because concerns about weak Asian demand caused customers to trim inventories. Contacts also reported concerns that weak Asian currencies will

Chart 5
Export Growth to Mexico Slowed

Real Seasonally Adjusted Texas Exports



put downward pressure on semiconductor and component prices.

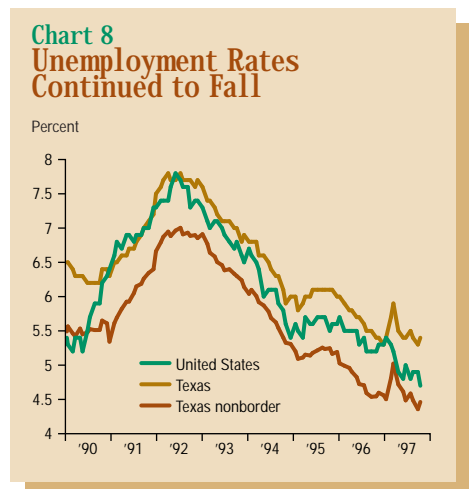
Given the Southeast Asian uncertainty and the weakening in national demand expected in '98, high-tech manufacturing employment growth is expected to be sluggish for another year. High-tech services are less vulnerable to the Southeast Asian problems but may also see slightly slower—though still robust—growth, should national demand slow.

Despite a bout with the "Asian flu," Texas should continue to see fairly robust growth in 1998, albeit somewhat slower than in 1997.

Labor Market Tightness Continued Throughout 1997 and Does Not Show Signs of Easing

The Dallas Fed Beige Book reported labor market tightness throughout 1997, for both low- and high-skilled workers. Despite last year's strong employment growth, it is possible that labor market tightness constrained expansion nonetheless. Chart 8 shows that unemployment rates fell further in 1997, especially in nonborder areas where rates remain below the U.S. average. Furthermore, the state seems to be getting less relief from domestic migration than in the past. Seven percent fewer people migrated to Texas in 1997. Of the 150,000 migrants, two-thirds were international. If the national economy continues to be healthy, no increase in migration is expected.

The labor market was especially tight in the high-tech and energy industries. Many high-tech companies in the region report hundreds of high-tech jobs



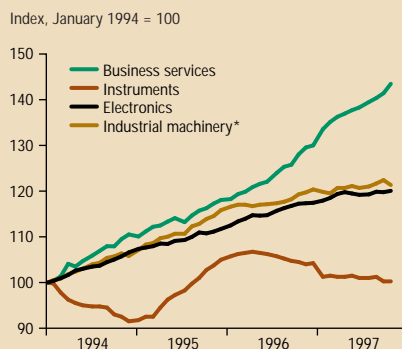
are going vacant for lack of skilled workers. Austin companies recruited nationwide, traveling as far as Boston to recruit software engineers.³ Some companies hired outside the United States, while still others recruited next door, luring away workers from competitors by offering recruiting bonuses to technicians and factory workers. Top software engineer salaries soared by as much as \$20,000 in one year, with the typical increase being \$7,000–\$10,000.⁴ In the energy industry, companies went to England to recruit machinists and to India to hire welders. Geologists and petroleum engineers were in high demand, with reports of \$50,000 three-year retention bonuses.

Labor market tightness did not translate into higher Texas wages. Manufacturing wage growth slowed to 1.7 percent in 1997 from 2.3 percent in 1996. One reason may be that the bonuses and stock options that employees receive are not reflected in the wage data. Personal income data (which would reflect some of these nonwage payments) grew quite a bit faster at 7.6 percent in 1997, while 1996 growth was 6.5 percent.

In response to worker shortages, many companies, besides stepping up recruitment programs, are also taking a more active role in training future workers. To increase the supply of engineers, a number of telecommunications companies such as Motorola, Southwestern Bell Communications Technology Resources Inc., AT&T and Texas Instruments have joined forces with UT Austin, Texas A&M, Texas Tech and UT Dallas to form the Texas Telecommuni-

Chart 7

High-Tech Manufacturing Employment Growth Was Flat



* Less oil and gas.

cations Consortium (TxTEC).⁵ TxTEC will support research and educational programs in leading-edge technology. Such training programs may help alleviate some of the hiring problems, as could slower growth in the national economy. However, with a continued slowdown in migration to the state, the labor market tightness is not expected to unwind much next year.

Southeast Asia Is a Downside Risk

The turmoil in Southeast Asia and the extent to which it will affect Texas is a significant cloud on the horizon. Chart 9 shows the growth of real Texas exports. In the second quarter of 1997, Texas sent only 16 percent of its total exports to the PACNIC countries (Korea, Singapore, Taiwan, China and Hong Kong) and Japan. This is somewhat less than the 23 percent share for the nation (*Chart 10*). These countries together accounted for about 7 percent of the growth in Texas exports last year.

From an export perspective, the Texas industries most vulnerable to a downturn in Southeast Asia are chemicals, electronic machinery, industrial machinery and agriculture. In December, contacts reported expectations that weak Asian currencies would put downward pressure on semiconductor and component prices, and sales and profits would be hurt in the first quarter of '98 as demand from Asian countries declines. Companies that manufacture products in the United States to sell in Southeast Asia might be hurt the most in the short run. If the problems result

Chart 9
Real Texas Exports

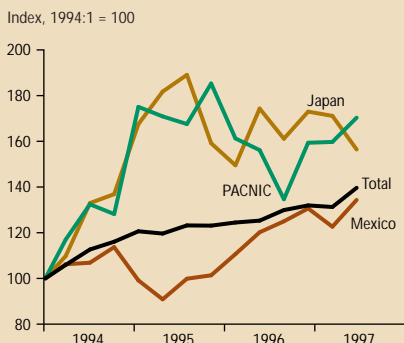
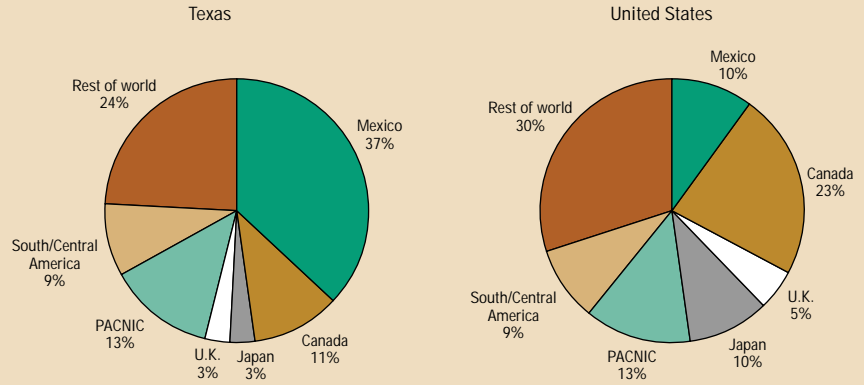


Chart 10
Exports by Country and Region, 1997:2



in a decline in capital expenditures in Asia, capacity growth in that region will slow and U.S. manufacturers may benefit in the long run through increased market share.

Petrochemical producers were also concerned about declining demand in Asian markets and increases in Asian exports to the U.S. market. The austerity measures imposed by the World Bank require the cancellation of several petrochemical projects in Southeast Asia, which has already adversely affected some Texas engineering firms. In the long run though, this could mean greater market share for Texas petrochemical producers.

Texas Economic Growth Should Be Somewhat Slower in 1998

The Texas economy should continue to grow at a relatively strong but somewhat slower rate than in 1997—around 3 percent in 1998. The main factors for slower growth are a slower national economy, a slower Mexican economy, lower oil prices and labor market tightness. The turmoil in Southeast Asia is a downside risk to this forecast.

In contrast to near 4 percent growth in 1997, the U.S. economy is expected to grow 2 percent to 2.5 percent in 1998. This slower growth will give less of a lift to the Texas economy in 1998. Similarly, the Mexican economy is also expected to grow at a slower rate than it did this year. Thus, the growth in Texas'

exports to Mexico should not increase much.

Barring political problems in the Middle East, the risk to oil prices is only on the downside. The growth rate of the oil and gas extraction industry should be somewhat less than 1997's.

Labor market tightness is expected to continue into 1998, especially in the high-tech and energy sectors. If the national economy slows, it will help alleviate some of the labor market problems, but only slightly.

Although it is too early to tell how the Southeast Asian turmoil will play out, the region may be adversely affected in the short run. Despite a bout with the "Asian flu," Texas should continue to see fairly robust growth in 1998, albeit somewhat slower than in 1997.

—Sheila Dolmas
Mine Yücel

Notes

- ¹ Blue Chip consensus forecast at year-end 1996.
- ² All 1997 employment numbers are annualized rates over the first 10 months of the year.
- ³ See Janin Friend, "Guerrilla Recruiting," *Texas Business*, November/December 1997.
- ⁴ For more detailed information on the growth of Texas' high-tech industry, see D'Ann M. Petersen and Michelle Burchfiel, "Silicon Prairie, How High Tech Is Redefining Texas' Economy," Federal Reserve Bank of Dallas *Southwest Economy*, Issue 3, 1997.
- ⁵ For more on this collaboration, see Bridget Metzger, "Technotalent, Higher Education Joins Industry to Collaborate on the Future of the Telecommunications Industry in Texas," *Texas Business*, November/December 1997.

REGIONAL ROUNDUP

Strong Economic Activity in Austin and San Antonio

Austin experienced continued healthy growth in 1997, although job gains were only about half the very robust pace of 1992–95. A rebound in the semiconductor industry was a leading contributor to growth in Austin last year. Overall, manufacturing employment grew 4.2 percent, which was more than twice the state average.

The San Antonio economy grew at a strong pace in 1997 after slowing in 1995 and 1996. The improvement in growth was concentrated in the trade and service sectors. A main factor behind the strength was a rebound in the purchasing power of Mexican nationals as a greater percentage of the population began to feel the recovery in Mexico. Also stimulating growth was strength in the telecommunications and insurance industries.

In 1998, economic activity in Austin and San Antonio should continue to grow briskly, although the rate is likely to slow. San Antonio should continue to benefit from the expanding Mexican economy, but growth in Mexico should moderate from the very fast pace of 1997. Also, increases in the rapidly growing service sector in San Antonio will likely be offset somewhat by job declines at Kelly Air Force Base. And although Asian demand for high-tech products is expected to decline in 1998, most Austin high-tech manufacturers should continue to benefit from strong demand in the United States, Europe and Latin America.

—Keith R. Phillips

D/FW Metroplex Leads the State

After accelerating forcefully in 1996, the Dallas/Fort Worth economic powerhouse coasted into high gear in 1997, cooling slightly but ending the year with very strong job growth. High-tech manufacturing and a growing distribution hub continue to drive the metroplex economy, stimulating construction, business services and wholesale and retail trade. After increasing 5.1 percent in 1996, employment rose an estimated 4.7 percent in the D/FW metroplex in 1997, adding more jobs than any other region of the state.

Texas is the nation's second largest high-tech employer,

and the D/FW metroplex is home for over half of those workers. D/FW manufacturing employment increased strongly in 1997, rising nearly 3 percent. Expansion of high-tech and other manufacturers stimulated demand for retail and business services, such as legal, accounting and temporary workers. Job growth in the service sector was robust in 1997, although slightly slower than in 1996. This growth was constrained perhaps by hiring difficulties, as there were widespread reports that employers were having problems finding workers.

New or expanding companies often cite a favorable business climate, low cost of living and sound higher education system as reasons for locating in Texas. A solid transportation infrastructure is also an important reason firms choose the D/FW area.

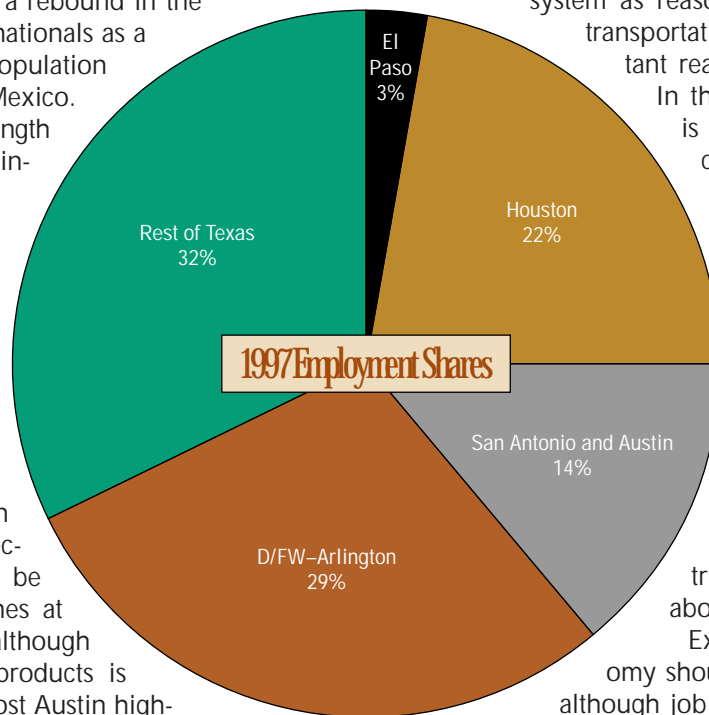
In the center of North America, D/FW is a focal point of road, rail and air connections to the world. From the metroplex, distributors can ship to anywhere in the United States within 48 hours. Continuing expansion of D/FW's distribution and warehousing facilities stimulated job growth and continued to attract new manufacturers in 1997. The Fort Worth area saw particularly brisk expansion in transportation and manufacturing, and the strong employment gains in these industries pushed the area's job growth above the year-earlier rate.

Expansion of the metroplex economy should continue into the next century, although job growth is likely to cool further in 1998. The D/FW economy will likely be affected by weaker demand for goods and services from slower U.S. and Asian markets, as well as by competition from cheaper Asian imports. Still the area's expansion should continue and will be boosted by construction of a \$1.3 billion semiconductor factory that is planned for Fort Worth.

—Fiona Sigalla

Steadier Growth Ahead for El Paso

El Paso should post stable employment growth in 1998, led by gains in construction and both wholesale and retail trade. More widespread growth in Mexico's economy will translate into a steadier inflow of Mexican shoppers to border retail outlets in 1998. The city's manufacturing industry, by contrast, will continue to witness more of the structural change that has



characterized it for much of the past several years. The apparel industry, El Paso's traditional manufacturing niche that employs over 42 percent of the city's workers in this sector, has been on a steady decline. However, supplier industries that cater to the dynamic maquiladora market across the border—plastic-injection molding, metal stamping, and electronic and automotive components—have emerged as new and consistent sources of manufacturing jobs. Nevertheless, unskilled workers displaced by the apparel industry cannot be immediately absorbed by these higher skilled jobs, creating a labor-mismatch dilemma for El Paso and placing the spotlight on the city's insufficient infrastructure of vocational training and retraining programs. Funding for such programs, however, is steadily becoming available to the city through local, state and federal sources. Therefore, the city should be better able to absorb higher skilled manufacturing industries in the future, especially those that will relocate and/or expand in El Paso to supply their growing maquiladora customers across the border.

—Lucinda Vargas

Houston Heats Up

Houston had a banner year in 1997, following a good one in 1996. Once all the data are collected and revised, they will show Houston job growth was near 5 percent between December 1996 and December 1997, the city's best performance since 1990. Strong employment gains and a tight labor market pulled the local unemployment rate to 4.5 percent late in 1997.

It was not just employment that provided good economic news for Houston in 1997. New home sales, housing starts and existing home sales were up at double-digit rates over those of 1996; Harris County automobile sales ran at record levels; and occupancy rose sharply in the Houston office market, with notable gains downtown. The Houston Purchasing Managers Index averaged 61.6 in 1997, indicating vigorous sales, high rates of production and growing lead times in the local manufacturing sector.

The key factors driving local growth in 1997 were an accelerating U.S. economy and expansion in oil exploration, drilling and production. The positive turnaround in drilling and oil services was dramatic, as the Baker Hughes rig count moved over 1,000 for the first time since 1990–91. High levels of drilling activity were driven by two years of oil prices that averaged over \$20 per barrel and natural gas prices that averaged over \$2 per thousand cubic feet. No city is better poised to take advantage of a surge in oil field activity, with 65,000 local jobs tied to oil and oil-related machinery industries. For Houston, it brought two years of strong growth in oil services, durable manufacturing and business services.

Look for another good year in Houston in 1998. Tight labor markets and shortages of oil-related equipment and skills will prevent a repeat of 1997's 5 percent job gain. But fundamentals should remain positive in oil markets unless oil prices slip under \$17 per barrel for an extended period.

—Robert W. Gilmer

Slower Growth Outside Major Metropolitan Texas

Economic activity outside Texas' major metropolitan areas continued to expand in 1997, although nonagricultural employment growth slowed from 3 percent in 1996 to an estimated 1.7 percent in 1997. High energy prices and rebounding retail trade in South Texas stimulated economic activity, but agricultural communities were still feeling the effects of the 1996 drought and changes in farm subsidies. Nearly a third of Texas' nonagricultural employment is outside the major metro areas. Consequently, although the area's employment growth rate slowed in 1997, this portion of the state was still the third-largest source of new jobs in Texas, following Dallas and Houston.

A thriving energy industry provided strong stimulus to Texas in 1997, and the benefits of increased drilling and exploration were felt across the state. High oil prices and new technologies spurred exploration in parts of Texas that have seen little activity since the oil bust of 1982. Employment growth was particularly strong—up 4.2 percent in Midland and Odessa, where economic activity has been solid for a number of years.

A rebounding Mexican economy spurred retail sales and other economic activity along the Texas–Mexico border in 1997. Border towns such as Laredo, Brownsville and McAllen are retail centers serving South Texas and northern Mexico. Retail sales and economic activity had dropped sharply in these cities following the peso devaluation and Mexican recession that began in late 1994. Mexico's economy continued to recover and expand in 1997, and border cities benefited from the increase in purchasing power of Mexican nationals. In 1997, employment increased 8 percent in Laredo, 6 percent in McAllen and 4 percent in Brownsville.

Cities supporting Texas' agricultural economy added fewer nonagricultural jobs in 1997 than in 1996. Texas farm and ranch income is expected to be up in 1997, following drought and low cattle prices in 1996. Higher calf prices and a large supply of feeder calves helped boost the state's cattle feeding industry and provide a large market for Texas grain. Although many crop prices were lower in 1997 than in 1996, favorable weather conditions stimulated production after some planting delays in the spring. Texas cotton farmers harvested a million bales more in 1997, from fewer acres, than in 1996. Record corn and peanut production is expected. Declining government payments and increased planting flexibility, however, continue to push a restructuring of the farm sector that is likely to continue for several years. Some producers—most notably dairy and rice farms—discontinued operations in 1997. Although the Texas agricultural industry remains strong, the restructuring will affect the growth rates of agricultural communities.

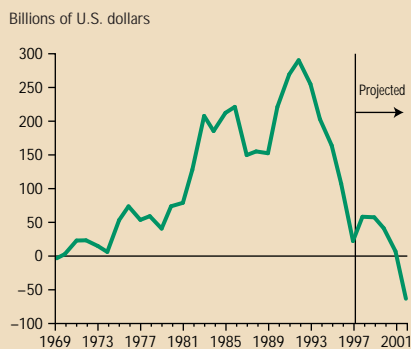
—Fiona Sigalla

COUNTING OUR CHICKENS

LAST YEAR CONGRESS passed, and the president signed, a budget agreement that made substantive changes to the existing tax code. With this agreement, both Congress and the White House have promised to achieve budget balance by the year 2002. To the dismay of many, deficits have been a continuing feature of federal budget policy for several decades (*Chart 1*). History tells a troubling story. In the 30 years following World War II, the deficit averaged just \$6.6 billion annually. This era included two major wars—Korea and Vietnam—events that have historically generated large deficits. But in the post-Vietnam War era, the deficit mushroomed to an average of \$183 billion annually, causing many observers both to ask why and to wonder how and when the nation could again achieve fiscal balance.¹

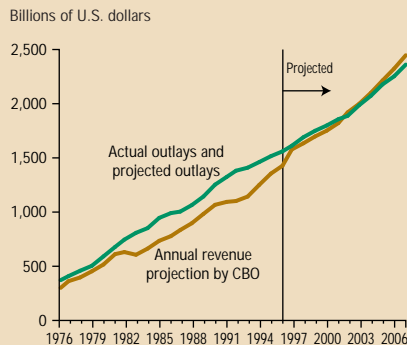
After peaking in 1992, recent deficits have fallen so rapidly that there is talk of budget balance even sooner than the predicted balance in 2002. This is very good news for a nation that is used to so much red ink and the steady buildup of its national debt. Unfortunately, there is already a good deal of talk about spending monies that we do not, as yet, have in the bank.

Chart 1
Federal Budget Deficit,
1969–2002



SOURCE: Office of Management and Budget.

Chart 2
Actual and Projected Federal
Expenditures, 1976–2007



Before we begin “counting our chickens,” it might be instructive to examine the historical fiscal record to see what lessons can be learned from the last 30 years of federal budget policy. Perhaps by studying why the deficit first expanded and why it has so stubbornly persisted, we can identify the flaws in our fiscal psychology that have led to a \$5 trillion run-up in our nation’s debt since 1969.

This article examines the history of federal deficits and investigates the question of whether the 1997 budget agreement should be counted on to achieve its stated purpose.

Thirty Years of Deficits

Several factors have been blamed for the deficits of the past 30 years: unbridled expansion in federal entitlement programs, overly generous tax cuts (passed to reverse a severe recession in 1980–82), excessive defense spending during the Reagan years and a burgeoning national health care bill. These explanations, among others, have been advanced to explain why federal cash flows have repeatedly wound up in the red.

However, the central question that underlies these explanations is really a simple one: Are taxes too low or is

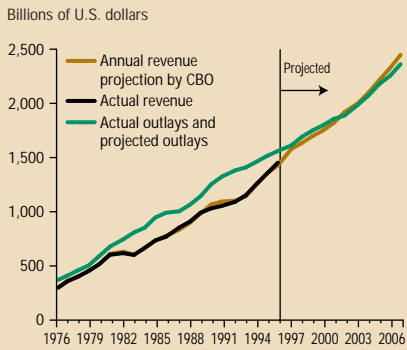
spending too high? Whichever side one chooses, the main message should not be lost in the debate, namely, the *budget process* has failed repeatedly to deliver on its central promise: to constrain the nation to live within its means. In order to see what has happened, it is instructive to review the past three decades of federal budget policy.

As Chart 1 shows, deficits have been an ongoing feature of the federal budget since a small surplus last occurred in 1969. Since 1992, the deficit has fallen so rapidly that many in Washington are now speaking about budget surpluses in the near future and are already discussing what should be done with the extra revenue—either pay down the existing national debt or enlarge and/or add new spending programs.

The historical picture is clear on one point: expenditures have exceeded outlays since 1969 and will continue to exceed them at least through 1998. Additionally, expenditures have also exceeded both the Congress’s own revenue projections and the growth in per capita income of taxpayers.² The very complex federal budget process seems incapable of matching expenditures to its own revenue estimates or, as average taxpayers would express it, living within its means (*Chart 2*).³ Since Congressional Budget Office (CBO) projections have tracked actual tax revenues much more accurately than they have outlays (*Chart 3*), the inevitable result has been continuing deficits. Although the commonly advanced explanations all have some merit, they fail to explain all the evidence. To understand why, one has only to appreciate the vastly differing economic and tax climates that have, nonetheless, all produced exactly the same thing: deficits.

Chart 4 shows that since 1970, federal outlays have been greater than collected tax revenues. Although the 1981–83 period shows a decline in tax revenues collected, during all other years federal tax revenues grew faster

Chart 3
Actual and Projected Revenues and Actual Federal Expenditures, 1976–2007



than the incomes that produced them. Over the past 30 years there have been *far more major tax increases than tax cuts*. Most people are familiar with the largest of such increases—the 1983 Tax Equity and Fiscal Responsibility Act package, the 1986 Tax Reform package and the 1990 budget deal between then-President Bush and Congress. They are also most likely aware of the increases during the past five years, such as the rise in marginal income tax rates in 1993, the reimposition of the federal aviation tax and the new telephone tax designed to connect all schools to the Internet. But there have been other changes accompanied by large tax increases about which the public is less aware—specifically, the payroll tax in-

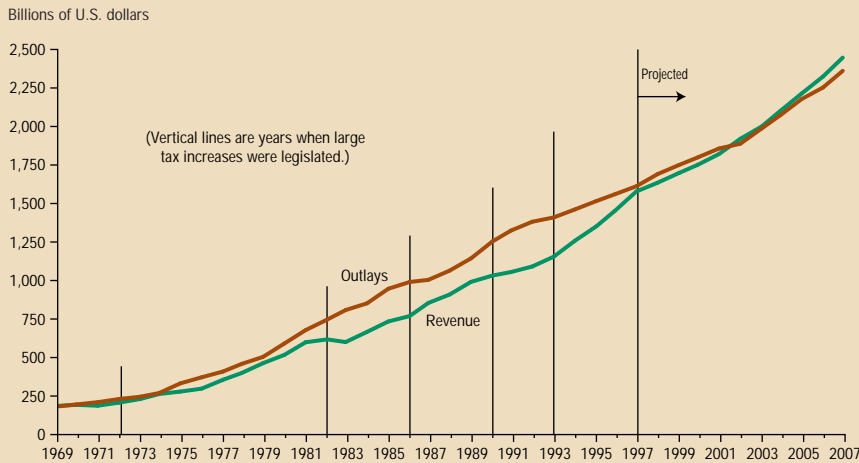
creases that began with rate and base changes in 1973 and were amended in 1986. These changes resulted in one of the largest tax increases in history and have contributed to the record growth of federal tax revenues during this period.

The payroll tax increased 43 percent between 1973 and 1997. The income base to which payroll taxes apply has risen 900 percent for Old Age Survivors Disability Insurance assessments and an incalculable amount for Health Insurance (Medicare/Medicaid) due to the elimination of an income cap for that tax in 1993.⁴ As the unemployment rate falls—and it is the lowest now that it has been in over 40 years—payroll tax base collections grow as well. As a result, over 50 percent of American workers pay more in Social Security/Medicare taxes than they do in federal income taxes. As Federal Reserve Board Chairman Alan Greenspan recently put it in testimony before the House Budget Committee, “The best economic performance in decades has augmented tax revenues far beyond expectations while restraining countercyclically sensitive outlays.”⁵ In fact, workers today are paying four times the payroll taxes they paid in the 1960s.

The combined effect of rising tax rates and a strong economic expansion has been the catalyst by which we have been able to approach budget balance. In fact, 1996’s combined federal and

The combined effect of rising tax rates and a strong economic expansion has been the catalyst by which we have been able to approach budget balance.

Chart 4
Actual Federal Tax Revenue and Government Spending, 1969–2007



SOURCE: Congressional Budget Office.

Low inflation also has lowered the interest rate structure, allowing federal debt to be financed more cheaply.

state/local tax bite as a percentage of GDP stood at 33.2 percent (19.4 percent federal and 13.8 percent state/local) and represented an all-time high for American taxpayers (*Chart 5*). These historically high rates of taxation, combined with strong economic performance, have pushed the federal deficit lower. Several factors other than tax rate changes and a strong economy are also responsible for rising tax collections: the stock market boom, which has pushed equity prices higher and resulted in rising capital gains tax collections; low unemployment, which has lowered spending and raised tax revenues; and low inflation, which has restrained expenditures tied to automatic cost-of-living adjustments. Low inflation also has lowered the interest rate structure, allowing federal debt to be financed more cheaply. Additionally, the end of the Cold War has allowed large real cuts in the defense establishment, and the one-time sale of spectrum rights by the Federal Communications Commission added billions to the Treasury. And as the savings and loan bailout concluded, sales of former thrift assets brought an additional \$15 billion into the federal Treasury.

Although these factors contributed to narrowing the deficit, which has cheered the stock and bond markets, Chairman Greenspan sounded a note of warning in his October 8 testimony:

Given the wider range of possible outcomes that we face for long-term economic growth, the corresponding

range of possible budget outcomes over the next five to ten years has widened appreciably. In addition to the uncertainties associated with economic outcomes, questions may be raised about other assumptions behind projected receipts and outlays.

With regard to the former, it is difficult to believe that our much higher-than-expected income tax receipts of late are unrelated to the huge increase in capital gains [*Chart 6*] which, since 1995, have totaled the equivalent of one-third of national income.

...[On] the outlay side, the recently enacted budget agreement relies importantly on significant, but as-yet-unspecified, restraints on discretionary spending to be made in the years 2001, 2002, and thereafter. *Supporters of each program expect the restraints to fall elsewhere.* (Emphasis added)

In other words, *don't count the chickens just yet.*

What Chairman Greenspan was alluding to was the optimistic nature of the assumptions built into the projected budget balance: that economic growth will continue to be strong—with low inflation and low unemployment rates continuing; that unspecified cuts in spending scheduled for 2000 and beyond will actually be made; that Medicare spending will be reduced \$135 billion over the next five years; and that no unforeseen national emergency will occur, requiring higher spending.

The 1997 Budget Deal

Numerous assumptions about the economy's performance and the government's spending and revenue levels are invariably incorporated into every budget agreement. But the 1997 agreement also amends the existing tax code in many substantial ways. An additional assumption is that these many tax code changes will not negatively affect the projections of revenues actually collected over the next five years. However, considering the number of changes in the 1997 law—there are 285 new sections, and 824 modifications to existing tax law—tax revenue projections

Chart 5
Federal and State/Local Tax Receipts as Percentages of GDP, 1969–2002

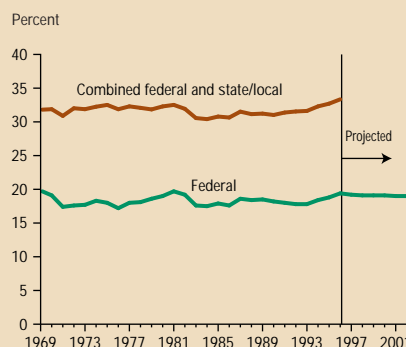
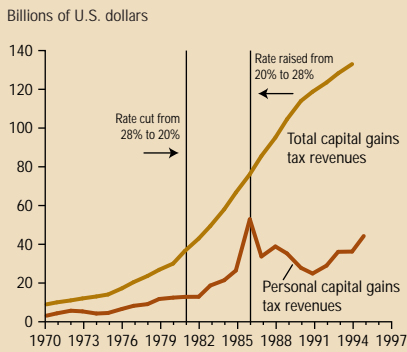


Chart 6
Taxes Paid on Capital Gains
Income, 1970–97



SOURCE: Department of Treasury.

are going to be, at best, educated guesses. Congress’s Joint Tax Committee will soon release its “Blue Book” on just these changes. Nonetheless, the book is 549 pages long. These changes include additional tax credits for children, the raising of estate tax caps, re-definitions of long- and short-term capital gains, the addition of a new form of Individual Retirement Account (Roth IRA) and significant educational tax credits and subsidies.⁶

Given the extreme complexity of these changes, it is unlikely that anyone can predict how all this will play out in terms of future tax collections. Any significant change in overall economic performance that might occur will only further complicate the forecasting picture. It appears that counting our chickens is a good deal harder to do than most of us realize.

Explanations and Evidence

In examining the explanations for the deficit record of the past 30 years, we can see the strengths and weaknesses of the ones most commonly proffered for budget red ink.

Tax Cuts Deprived the Federal Government of Sufficient Revenues. Although the top marginal income tax rate was cut in 1982 from 77 percent to 28 percent and the capital gains rate was cut from 28 percent to 20 percent, this explanation fails to account for the deficits between 1970 and 1983. Also, it neither addresses the fact that federal

revenues have tripled since 1980 nor explains how federal tax collections could have soared in real terms (5.8 percent per year) between 1983 and 1989. This explanation further ignores the significant tax increases of 1972–73, 1982, 1986, 1990 and 1993 (see the vertical lines in Chart 4).

Defense Spending Caused the Deficits. This explanation has a superficial plausibility. During the Cold War, we had deficits. Now that the Cold War has ended, we seem to be on the way toward a balanced budget. However, the Cold War dates to 1946, and the deficit problem only started after 1970. Further, while it is true that defense spending rose in real terms during the early and mid-1980s (about 4.77 percent per year from 1981 to 1988), it is equally true that the increase occurred during a strong economic downturn that automatically pushed the deficit up

in the early years. This buildup was not really very important for the federal government’s fiscal position because defense’s share of total federal spending only rose from 23.2 percent in 1981 to 27.3 percent in 1988. Although defense spending has been falling in real terms ever since, we have yet to reach budget balance because Congress has failed to restrain overall spending levels even despite such legislative efforts as the Gramm–Rudman–Hollings Act. In fact, defense is virtually the only major category of spending that *has been cut*—repeatedly—in real terms.

Entitlement Spending Grew Uncontrollably. There is truth here, as well. Social expenditures have outstripped inflation and grown every year. For example, between 1996 and 1997, while inflation was about 2.3 percent, defense spending increased only 2 percent. But during that time frame,

Predicting Tax Collections After Rate Changes Is Never Easy

The total amount of revenue that any tax will generate (ignoring fraud and the costs of making the collection) can be summarized in a simple formula:

$$\text{Tax revenues collected} = (\text{percentage tax rate}) \times (\text{relevant tax base})$$

Tax revenues collected depends upon not one thing, but *two*. So setting tax rates and then making accurate projections about how changing these rates will affect revenues is very difficult.

In a static world in which the economic base remains unchanged as various rates are applied to it, predicting tax revenue changes would be easy. But in the actual, dynamic world in which people alter their economic behavior in response to a changing percentage in the tax rate, the issue becomes a good deal more complex.

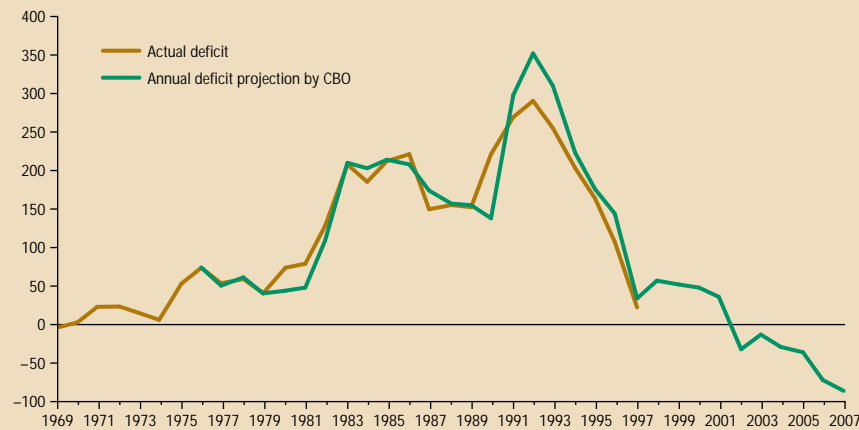
The *disincentive effects* of taxation must be considered. Economists know that when you tax something, you will reduce its size. For example, if you increase the tax rate on the creation of wealth (the *base* in the equation), then wealth creation will be less than it otherwise would have been without the tax rate increase. This disincentive effect can be offset sometimes by overall economic growth, which tends to occur in capitalist economies even when they are saddled with increased tax rates. What makes predicting these tax effects so difficult is that both terms on the right-hand side of the equation always move in response to any change on the left-hand side, but they *may not move in the same direction*.

Given the tax equation above, it is obvious that economic downturns, which shrink the economic base, will result in lower overall tax collections even at static (or possibly even rising) tax rates, while steady economic growth (and inflation) can fill government coffers without any tax rate increase at all. Since growth is normal for our economy, we expect (and we typically observe) government tax collections to rise even at static rates of application. But we do not necessarily observe an increase in revenues collected when tax rates are legislatively raised.

The simple assumption that many people make is that a tax rate increase will always produce a rise in revenues, while a tax rate cut will always produce a decline in revenues. Evidence suggests that this view is simplistic and sometimes erroneous as illustrated in Chart 6, which shows capital gains rate changes in 1981 and 1986 and the subsequent revenues collected after those changes. The significant increase in revenues collected after the rate cut in 1981 is matched by the equally stark decline in revenues collected after the rate increase in 1986. In the former case, the base expanded fast enough to generate rising collections after the cut; in the latter, it shrank so that the tax hike produced less collected revenue even after a decade had passed. Although forecast errors sometimes make news, it is easy to see why they so often occur.

Chart 7 Actual vs. Projected Federal Deficit, 1969–2007

Billions of U.S. dollars



spending on Social Security rose 4.4 percent and Medicare 5.8 percent. Between 1969 and 1996, Medicare expenditures increased by 3,000 percent, Medicaid by 4,000 percent and Social Security by 1,300 percent. Overall entitlement spending rose 1,225 percent in the same period. Defense spending rose 222 percent but fell from 8.7 percent of GDP to 3.5 percent. Entitlement spending rose from 6.8 percent of GDP to 11.5 percent during the same period.⁷ It is hardly surprising that, as military threats have seemed to recede, domestic spending would take its place. Yet the domestic spending growth rate is significant, and the projected retirement of the baby boomers could place incredible stress and strain on the Social Security and Health Insurance programs. The budget agreement of 1997 does little to address the impending fiscal shortfalls that are projected for those programs. As Chairman Greenspan recently told a Senate committee:

Unless Social Security savings are increased by higher taxes (with negative consequences for growth) or reduced benefits, domestic savings must be augmented by greater private saving or surpluses in the rest of the government budget to ensure that there are enough overall savings to finance adequate productive capacity down the road and to meet the consumption needs of *both* retirees and workers. (Greenspan's emphasis)⁸

Conclusion

It is possible that the long sequence of federal budget deficits is finally coming to an end, even though the deficit is predicted to rise from last year's \$23 billion to \$58 billion this year. It is far from clear, however, what is primarily responsible for the predicted budget balance after that. Evidence suggests that stronger-than-predicted economic growth, a booming stock market and prior tax rate hikes are primarily responsible for the rapid increase in federal tax receipts that will, in turn, lead to budget balance. Evidence also shows, however, that the act of matching expenditures with predicted revenues—the budget process itself—has been a major problem since 1969 and that overestimation of deficits (*Chart 7*) has been the major constraining factor on congressional spending. If deficits result from that process, then that process needs to be changed. Regardless, three important fiscal issues must be addressed as the nation enters the new millennium: Do we want the current high level of taxation to continue? Can we simplify the federal tax code so that average taxpayers do not run afoul of its labyrinthian structure? And what are we going to do about the projected Social Security deficit problem?⁹ Just as there are historic moments when “opportunistic disinflation” occurs and monetary policy can more easily be

changed from then on, so this may be a moment of “opportunistic fiscal balance” from which we can enter the next century in a fiscal position not seen in three decades. The nation can profit immensely from this development, provided that we accurately count our chickens.

—Robert Formaini

Notes

My thanks to Mike Cox and Jason Saving for useful suggestions and comments, and to Dong Fu for patient and thorough research assistance.

- ¹ The huge annual borrowing required by the past 22 years' budget deficits has pushed the national debt from \$366 billion in 1975 to over \$5.3 trillion today.
- ² These projections are carried out by the CBO, which was created in 1975.
- ³ A nice overview of the complicated—and spending-biased—budget process is in *Insight*, December 29, 1997.
- ⁴ *Social Security Bulletin*, Annual Statistical Supplement, 1996. The increase on the Health Insurance (Medicare/Medicaid) portion cannot be calculated in percentage terms due to the removal of the income cap altogether.
- ⁵ Testimony before the House Budget Committee, October 8, 1997.
- ⁶ A detailed overview of the 1997 changes and how they might affect average taxpayers can be found in Kathy Bergen's “Taxpayers Face Mind-Boggling Search for Choices Among a Maze of Tax Cuts,” *Knight-Ridder/Tribune Business News*, December 1, 1997.
The best performing group of stocks in late 1997 has been tax preparation companies, a sure signal that investors know the tax code changes are complicated and that they will raise the revenues of these firms.
- ⁷ *Monthly Budget Review for 1997*, CBO.
- ⁸ Testimony before the Task Force on Social Security of the Committee on the Budget of the U.S. Senate, November 20, 1997.
- ⁹ One potential solution was offered by Harvey Rosenblum in “Why Social Security Should Be Privatized,” *Southwest Economy*, Issue 3, 1997.

The Asian Meltdown

ALTHOUGH 1997'S ASIAN financial market explosions received much press coverage, a full explanation has not—and with good reason. The economic literature involves long-standing and ongoing debates about what really determines sudden movements in asset prices: fundamentals or unexplainable “animal spirits.”

This article outlines the trajectory of capital market turmoil as it moved from Thailand in July to Indonesia, Malaysia, the Philippines and Hong Kong by October and then to Korea in November. As the contradictory elements of the current literature on asset prices suggest, there is plenty to wonder about. Regardless of what triggered this turmoil, one artifact it uncovered was the insufficiency of Asian financial systems to maintain corporate governance.

Despite their own high savings rates, many Asian countries received large inflows of foreign capital during the present decade. According to some analysts, low rates of return in Japan and, to some extent, Europe motivated capital to seek higher returns elsewhere.

Chart 1 depicts the rapidly rising loan-to-GDP ratios of four Asian countries. The ratios are consistent with a story one often hears about high levels of lending: too much money chasing too few good investments—or too many

bad ones. Large surges in lending do seem to reduce bankers' vigilance over asset quality. In Asia, some of the investment booms began to be followed by asset quality busts.

When suspicions of a banking crisis materialize, who knows if there is really a commitment to resolve the problems quickly, and, if there is, how they will be resolved. Will the government inflate its way out of the difficulties? Will there be fiscal problems? Questions like these can make foreign investors nervous. In late 1996 they started to pull their funds from Thailand, the site of Asia's first 1997 financial crisis.

As foreigners took their money out of Thailand, they exchanged their Thai currency (baht) for dollars or other non-Thai currency, thereby lowering the demand for baht and putting downward pressure on the Thai exchange rate. To hold the exchange rate within the band established for it, the Thai central bank began to spend its foreign currency reserves to purchase baht, which created a demand that no longer existed in the private sector. To encourage foreign capital to stay, the Thais also raised interest rates. In July, seeing the ineffectiveness of their efforts, the Thais let the baht devalue.

Financial difficulties in Thailand may have sensitized investors to other developing Asian markets and to the likelihood of other Asian devaluations. Worries about mounting problem loans, rising excess capacity and slow demand, as well as concerns that these problems would continue may have been what motivated investors to move their money out of Indonesia, Malaysia and the Philippines. However, the issues of problem loans and excess capacity appear not to have been consistent across countries where capital outflows occurred. The Philippines suffered much exchange rate pressure, but with what appeared to be less structural foundation than Indonesia, for example. The results of the outflows,

however, were major devaluations for all three countries from July—when Thailand devalued—through October (Chart 2).

By October the round of financial problems and devaluations across south Asia made some investors worry that Hong Kong, one of the region's important bankers, might be ripe for the same. Hong Kong real estate prices had risen markedly over the past year amidst one more of the various Asian construction euphorias. Meanwhile, market concerns were said to be accumulating that the takeover by the People's Republic of China might ultimately abridge the covenants that had made Hong Kong so financially attractive. Some investors believed that Hong Kong might also suffer because its markets are highly integrated with those of other Southeast Asian countries.

Because Hong Kong's huge foreign currency reserves allowed a strong defense of its dollar, the speculative currency attacks were ultimately ineffective. But perhaps another reason for their ineffectiveness was less evidence of loan quality problems in Hong Kong than in such markets as Thailand and Indonesia. Nevertheless, the quality of Hong Kong's assets proved insufficient to prevent a serious run on Hong Kong's securities market.

In November, the market began to

Chart 1
Loan-to-GDP Ratios

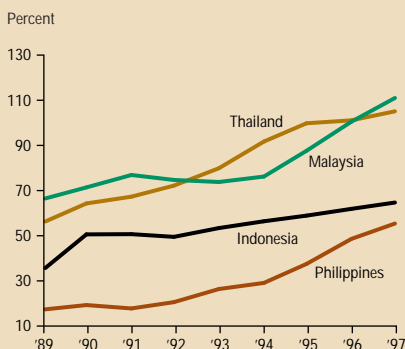


Chart 2
Exchange Rate Indexes



notice Korea. Close and incautious relations between the nation's large corporations, banks and the government had resulted in lending for projects whose principal contribution to Korea was industrial overcapacity. Government-authorized bank liberalizations had greatly eased access to foreign capital but had not beefed up bank supervision to avoid injudicious lending. The ongoing weakness in Japan, softness among the rest of Korea's Asian customers, Korean difficulties in identifying the extent of short-term outstanding debt and a reluctance to resolve banking problems initially contributed to much market uncertainty, runs on currency and the securities markets, and deep devaluation.

What's Behind the Turmoil?

Although it is difficult to know why all of the Asian financial markets went into turmoil exactly when they did, some possible reasons for their respective plunges have emerged.

Financial Inflexibility and State Paternalism. Asian countries tend to follow the Japanese model in which banks, large corporations and governments operate in the same close relationship year after year. The discipline of hostile takeovers, shareholder revolts and bond vigilantes plays a far smaller role in this environment, even though the Asian countries do have securities markets. New ideas and technology can certainly make it through this "old boy" network, but the flexibility that allows the sudden rise and efficiencies of a Dell or a Microsoft, or the equally sudden decline of a Commodore or Wang, is much rarer in a region where government decides what and who will grow.

Trade and Technology Advances. The enormous increase in the importance of trade in most countries has meant much greater competition and, therefore, far more pressure for the technology advances and cost improvements we often get from those same little companies that rise so suddenly. Since the corporate governance im-

posed by active stock and bond markets turns out to be particularly useful in high-tech industries, these competitive pressures may explain why an Asian-style bank-centered financial system that was very serviceable is now less so.

Financial Liberalization and Weak Supervision. In the 1990s, Asian countries began to allow banks and other lenders much greater access to foreign capital and to loosen the restrictions that had made it hard for banks to attract deposits or to lend profitably. These changes occurred in a world in which financial markets were becoming much more globalized anyway. The results were large increases in bank deposits and other liabilities, as well as a rush of lending, but not enough financial supervision and regulation to keep up with it. Similarly, a lack of transparency in the equities markets meant that when those markets got jittery, they got very jittery indeed.

Pegged and Problematic Exchange Rates. Asian countries typically pegged their exchange rates. That is, they intervened in the markets for their currency so as to maintain exchange rates within certain bounds. The result has been that when pressure builds on an exchange rate and a country finally stops defending it, the consequent exchange rate plunge creates much uncertainty about its future trajectory. It is not unusual for an exchange rate, once it becomes shaky, to remain shaky for a while. While this pattern reflects uncertainty, it also contributes to it.

Conclusion

There is in fact much that is known about the Asian financial meltdown, up to a point. Indeed, financial problems in the Asian countries were heavily covered in the financial press well before the turmoil began in July 1997. Nevertheless, much remains to be explained. We don't know fully why Hong Kong suffered such market turmoil. Why did the Philippines, lacking the banking

problems and nontradable asset price bubbles of Indonesia and Thailand, suffer an exchange rate attack at about the same time as those countries? Furthermore, the standard explanations do not shed much light on timing. They tell us little, for example, about why Korea's financial turmoil occurred so much later than Thailand's.

Despite what actually sent Asia's 1997 financial tumult in the peculiar sequence that it followed, it's now clear that an essential problem in these countries was inadequate corporate governance—the discipline financial markets are supposed to impose on the issuers of debt or equity when markets are efficient. In the Asian situation, neither financial supervision and regulation nor covenants established by the private sector were effective in governing what businesses did with what they borrowed or in preventing certain businesses from receiving funding for shaky projects. It is for this reason that increased transparency of financial behavior and of financial instruments is among the conditions of the bailout lending programs for these countries, where the results of nontransparency now seem so clear.

—William C. Gruben



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Regional Update

INDICATORS SUCH AS employment and unemployment are useful measures of regional economic activity, but output figures often give a more complete picture of a region's economy. The Bureau of Economic Analysis (BEA) estimates the output measure, real gross state product (GSP)—the state equivalent of national real gross domestic product (GDP). Unfortunately, because these estimates are yearly and come out with a significant lag (the latest year available is 1994), they are of little use to researchers trying to gauge current economic conditions at the state level.

Frank Berger and Keith Phillips of the Dallas Fed have devised a method to estimate Texas output that is both more frequent and more timely. Using standard statistical techniques, they examined the relationship between the yearly BEA output numbers and other, more frequent indicators that might move in step with GSP. Berger and Phillips found that in most

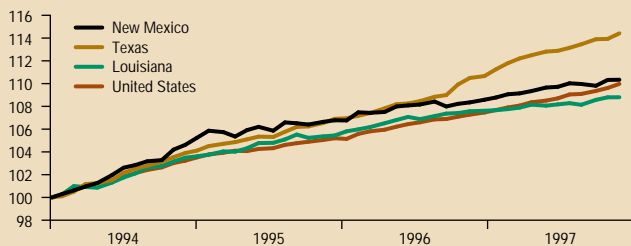
industries, changes in nominal personal income and industry price measures can account for most of the change in the real output figures. Using this relationship, they were able to accurately interpolate quarterly GSP figures within the yearly data and then extrapolate more recent quarters.

According to these estimates, real output growth in Texas accelerated during the first half of 1997, increasing at an annualized 7.6 percent and 6.9 percent rate in the first and second quarters, respectively. This outpaced the United States as a whole, as real GDP rose 4 percent and 3.4 percent over the same time periods. The healthy U.S. economy and the continued recovery in the Mexican economy have helped spur the rapid output growth in Texas. Strong activity in the energy and construction sectors also contributed to the first-half expansion.

—Justin Marion

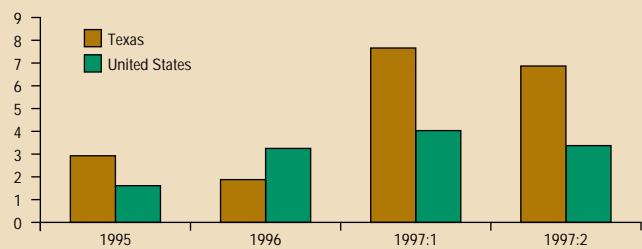
Total Nonfarm Employment

Index, January 1994 = 100



Texas GSP* Growth vs. U.S. GDP Growth

Percent

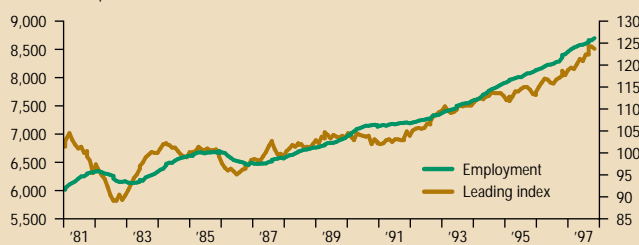


* estimate

Texas Leading Index and Nonfarm Employment

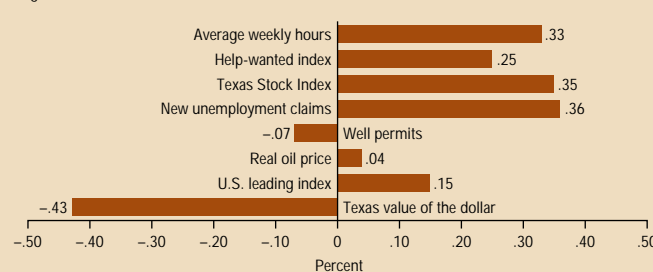
Thousands of persons

Index, 1987 = 100



Net Contributions of Components to Change in Leading Index

August–October 1997



Regional Economic Indicators

	Texas Leading Index	TIPI** total	Texas employment*				Private service-producing	Total nonfarm employment*		
			Mining	Construction	Manufacturing	Government		Texas	Louisiana	New Mexico
11/97	123.7	127.9	166.2	469.3	1,088.0	1,472.7	5,503.0	8,699.2	1,839.5	709.8
10/97	124.2	127.7	166.2	466.8	1,084.4	1,469.9	5,474.8	8,662.1	1,839.4	709.7
9/97	124.3	127.6	165.8	467.3	1,083.8	1,483.5	5,459.5	8,659.9	1,835.6	706.4
8/97	122.4	127.2	165.4	465.9	1,082.4	1,473.7	5,438.7	8,626.1	1,828.3	707.4
7/97	122.4	127.6	165.7	463.9	1,078.7	1,468.2	5,426.2	8,602.7	1,830.7	707.8
6/97	120.9	127.0	164.7	464.9	1,078.2	1,467.8	5,407.0	8,582.6	1,828.9	705.8
5/97	121.4	125.5	163.8	463.2	1,077.6	1,471.6	5,401.2	8,577.4	1,827.0	705.4
4/97	120.2	124.7	163.6	458.1	1,076.4	1,470.0	5,384.8	8,552.9	1,828.5	703.4
3/97	119.1	124.6	163.0	455.1	1,073.5	1,468.8	5,371.4	8,531.8	1,824.1	702.1
2/97	119.4	124.1	162.6	455.8	1,070.1	1,467.2	5,344.6	8,500.3	1,821.9	701.6
1/97	118.9	124.3	161.5	446.9	1,067.4	1,466.7	5,317.5	8,460.0	1,820.3	699.8
12/96	117.7	124.0	159.3	444.2	1,066.1	1,464.8	5,279.5	8,413.9	1,819.4	698.5

* in thousands

** Texas Industrial Production Index

Further Information on the Data

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).

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The author explores NAFTA's effects on North America's trading patterns since its implementation in 1994.

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