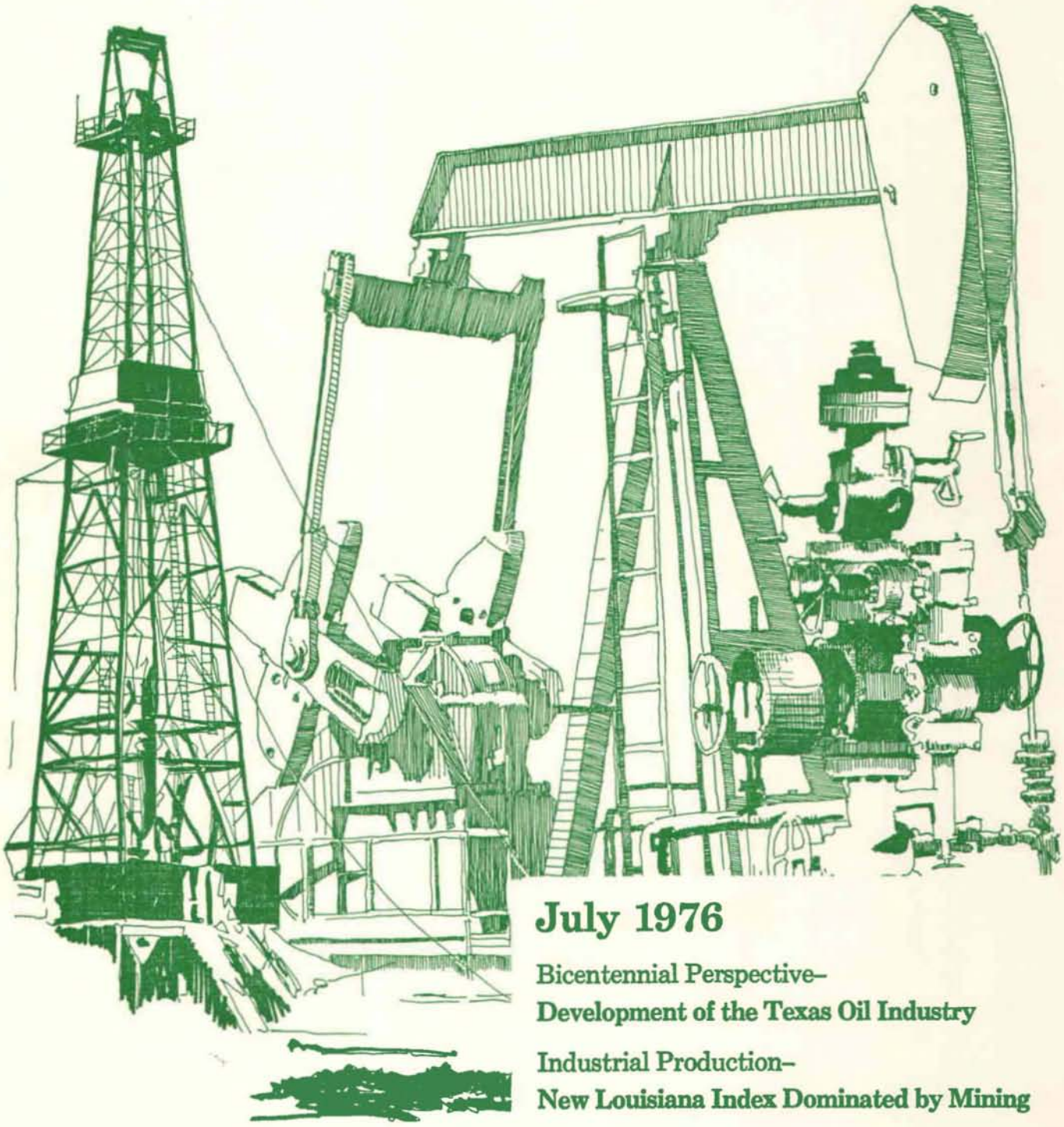
Federal Reserve Bank of Dallas

Business Review



July 1976

Bicentennial Perspective–
Development of the Texas Oil Industry

Industrial Production–
New Louisiana Index Dominated by Mining

Bicentennial Perspective–

Development of the Texas Oil Industry

The nation's bicentennial year coincides with the centennial for the Texas oil industry. Over the past hundred years, growth of Texas oil helped revolutionize the energy industry in the United States and accounted for much of the industrial growth of Texas itself. Very large oil discoveries prompted the development of Texas pipelines, refining, petrochemicals, and oil field equipment–industries that, even today, are of prime significance to the state's economy.

Growth of Texas oil production, processing, and related industries was spurred by fundamental innovations. Refining techniques were developed to maximize the yield of gasoline from a barrel of crude, and the quality of gasoline was significantly improved. The petrochemical industry developed a whole new series of rubber, plastic, and other products to meet the needs of consumers and industry. And given the high risks in exploration and development, Texas bankers had to come up with major innovations to meet oilmen's needs and yet protect bank depositors and owners.

Early in its history, the Texas oil industry had to rely on know-how, equipment, and financing from outside the state. But as the industry matured, the state's role gradually reversed. Today, Texas is a world supplier in these areas.

Beginnings of Texas oil

Small amounts of naturally occurring Texas oil found commercial use as medicine and waterproofing even before Texas achieved statehood. But true exploration and commercial production began in 1866, when Lyne Barret struck oil with a 106-foot well that produced 10 barrels of crude a day. This well was brought in barely seven years after Edwin Drake drilled in the first American discovery in Pennsylvania.

Barret attracted skilled labor and technology from Pennsylvania to find more oil. But in the end, his search was abandoned because of inadequate financial backing. Financing–particularly for exploration–has continued to present a challenge to the industry. Banks and other financial institutions have generally not been able to bear the risk of loans for exploration. From the beginning, the independent operator has borne the brunt of exploratory drilling–sharing the risks with individual backers.

Even in the early years when primitive–sometimes even home-made–equipment was used, drilling was expensive. The first large flowing well in Texas was drilled in 1886 in the Nacogdoches area by a company having capital of $100,000, which was very strong financial backing for that day. While this well brought in 250 to 300 barrels a day at first, it was not profitable for long. By 1890, activity in the Nacogdoches area had faded, and the next few years saw only small chance discoveries.

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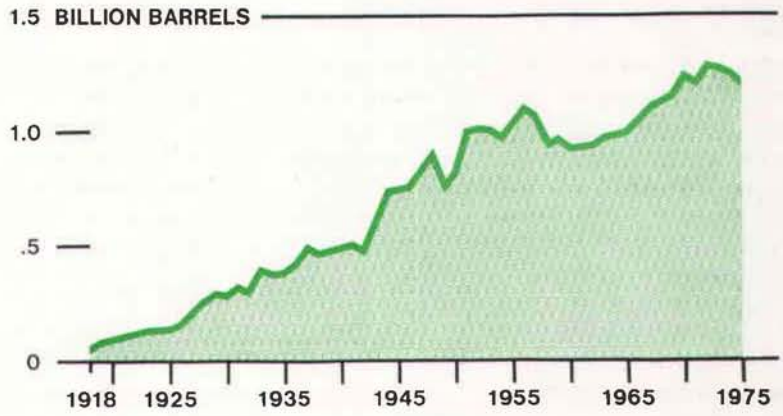
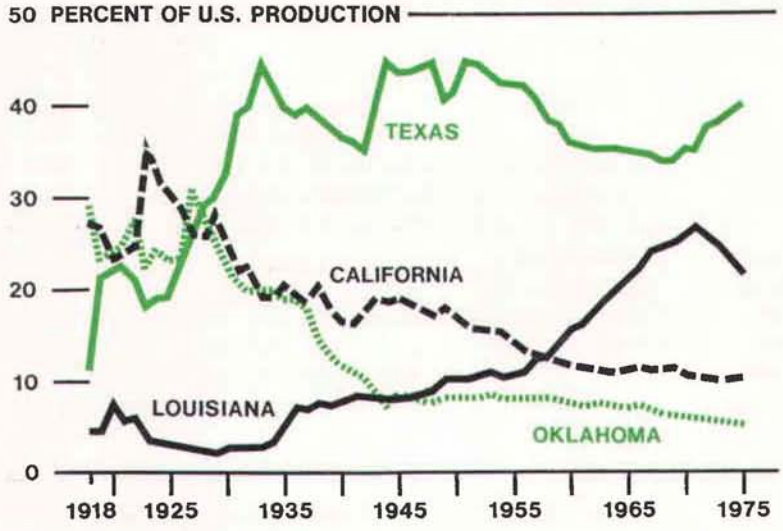
In 1894, however, drilling in Corsicana and Beaumont caused another boom; and by 1896, most of the 1,450 barrels of oil produced in the state that year came from Corsicana. Production was great enough to warrant a 1,000-barrel refinery, financed by eastern capital, that produced illuminating oil and gasoline. This was the first Texas refinery capable of large, sustained operation.

Production of Texas crude grew steadily until the midfifties but then slowed because of proration and declining reserves



SOURCE: U.S. Bureau of Mines

Since surpassing California and Oklahoma in the 1920's, Texas has been the leading producer of crude



SOURCE: U.S. Bureau of Mines

Poor production practices of financially pressed operators brought enactment of conservation regulation, which required the casing of producing wells and the plugging of abandoned ones. Progress was also made in the development of equipment, with the rotary drill becoming increasingly common. And some of this equipment was developed and produced in Texas; most had been imported from Pennsylvania.

Giant fields

The Spindletop discovery in Beaumont just after the turn of the century opened a new era for the American petroleum industry. For a brief period, this one field could outproduce the rest of the world, and Spindletop production turned the coastal area near Beaumont into a refining center. Port Arthur handled tanker shipments to the East Coast and abroad, and oil came to be used for not only lubrication and illumination but also fuel oil and gasoline. American markets could not absorb all domestic production, and about a third of it was shipped abroad.

Following Spindletop, oilmen brought in additional large discoveries, including those in the Electra, Ranger, Burkburnett, and Yates fields. These giant fields opened up new opportunities for industry in a predominantly agricultural region. But they also brought to the fore a number of problems that required decades to solve.

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Production from the same reservoir by many different operators raised the legal problem of how much oil was owned by each one. Nobody was able to estimate the total potential production from a field and, hence, the amount of oil to which each owner was entitled. So, in 1889, the courts held that the rule of capture applied. An owner was entitled to as much oil as he could bring to the surface.

As they strove to capture as large a share of production as possible, producers needlessly spent money drilling extra wells. And production at the fastest rates possible wasted the natural drive pressure of the fields. Because of this pressure loss, the great gushers struck in the Spindletop field and elsewhere were exhausted rather quickly. Modern estimates are that half of the potentially recoverable oil and most of the associated natural gas were lost in many instances.

Erratic production caused by haphazard discoveries and then rapid exhaustion resulted in severe price fluctuations. Rapid production from large discoveries often glutted the market, depressing prices. But then, as production fell off between large discoveries, prices would soar. The large discoveries and their rapid exhaustion also brought boomtowns similar to those that sprang up in the gold rush and–with them–luxury, crime, and squalor.

The short-lived oil booms caused a number of bank failures in the early twenties. Leasing of properties to drill put large amounts of money in local hands, and the influx of population brought booming business and inflated prices. But in many cases, as soon as local merchants geared up to handle the higher volume of business, the drilling stopped and the oil people left nearly as abruptly as they had come. With deposits declining sharply, many banks failed.

Bank failures in oil towns were important in contributing to the demise of the state's Guaranty Fund, which had been established in 1910 to protect depositors against bank failures. Because of

bank failures brought on by the collapse of oil booms in Stephens and Eastland counties, as well as the recession of 1920-21, special assessments were made on insured banks. But the increased costs generated demands by insured banks to end the system, and the law establishing the Guaranty Fund was repealed in 1927.

Proration and conservation

As the age of illumination gave way to the age of gasoline and fuel oil, greater demands were placed on refining. Between 1918 and 1938, Texas refining capacity increased nearly fourfold and grew from 16 percent to 20 percent of the national total.

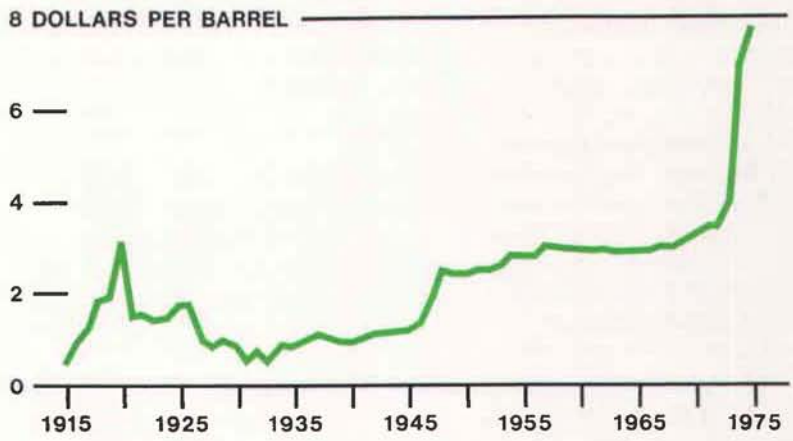
Innovations increased the yield of desired products from crude oil. For example, the thermal cracking process used heat to break up large hydrocarbon molecules and thereby increased the amount of gasoline obtained from a barrel of crude. The United States became the world leader in refining technology. Its preeminence in refining made this country an exporter of oil products–particularly gasoline–even though it had become an importer of crude.

By the end of the 1920's, however, refining capacity had significantly outpaced the demand for refined products, placing the industry in difficulty even before the stock market crash and the onset of the Great Depression. And a combination of high imports and large discoveries caused an oversupply of crude oil also. The new Yates field had many wells with open-flow potentials of 100,000 barrels a day. In view of the already glutted market, the operators of the field agreed to prorate production, placing enforcement in the hands of the Texas Railroad Commission.

Supplies were increased further in 1930, when Dad Joiner drilled into the East Texas field. The largest field ever found in the contiguous 48 states, it is estimated to have contained 6 billion barrels of oil. A swarm of producers dumped a flood of oil on an already depressed market. Over 100 million barrels were produced the first year. Oil prices in the field fell from over $1 a barrel to 10 cents or less.

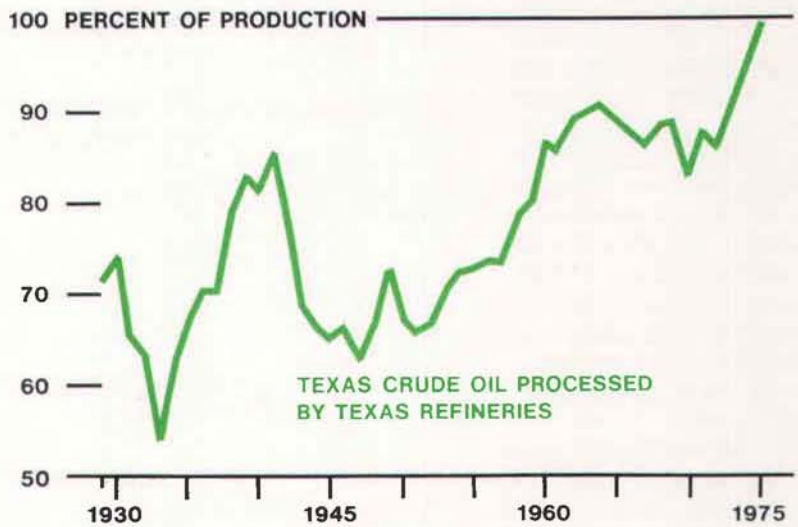
When conventional storage facilities filled up, producers ran their

Average price of Texas crude, stabilized by proration for many years, surged during the energy crisis



SOURCE: Texas Mid-Continent Oil & Gas Association

With growth in refining, Texas now processes nearly as much oil as it produces



SOURCE: U.S. Bureau of Mines

oil into open ponds, where the more volatile components evaporated, causing it to deteriorate. And when earthen reservoirs broke, streams were polluted, land was ruined, and whole towns were threatened with fire. In response to wasteful practices and depressed prices, the Railroad Commission invoked a 1929 conservation law and ordered production restricted in the East Texas field.

In 1932, under the Market Demand Act, the legislature empowered the Railroad Commission to prorate production statewide, restricting it to amounts the market could absorb. But the commission had difficulty in enforcing proration, partly because of the "hot" oil produced above proration allowances and shipped out of state for sale. However, in 1935, passage of the Connally Hot Oil Act strengthened Texas conservation efforts by bringing federal enforcement to bear on oil shipments out of state.

World War II

The state's proration laws helped create a large oil reserve that was of great value during World War II. In spite of a falloff in wells drilled from 1940 to 1943 because of a shortage of equipment and pipe, Texas accommodated nearly 80 percent of the wartime increase in oil demand.

To move supplies more easily and safely to the East Coast, the Big Inch (a 24-inch pipeline) was completed in 1943. This line transported 300,000 barrels of crude a day. Later, the Little Inch (a 20-inch line) was built from Beaumont, Texas, to Linden, New Jersey, mostly to handle refined products.

Advances in refining technology made during the 1930's had helped spur construction of refineries in the state. Catalytic cracking and reforming increased the amount of gasoline obtained from crude, while alkylation and isomerization improved its quality. Gasoline became the specialty of Texas refineries, while imports supplied the less profitable heavy fuel oil used for heating.

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World War II placed huge demands on the young petrochemical industry. For example, natural rubber–supplies of which had been cut off by the Japanese–was replaced by synthetic rubber. Much of the raw material for making synthetic rubber came from refinery byproducts. With its strong and growing refining base, Texas attracted much of the new plant development. Additional growth in the areas of explosives, fibers, and plastics helped boost the output of U.S. petrochemical producers a hundredfold by the end of the war.

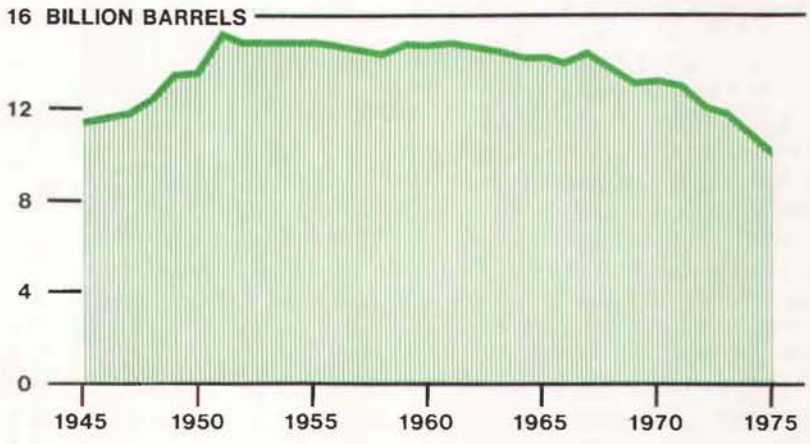
Oil banking

From the beginning, banks have been reluctant to lend money for oil exploration. But in the late twenties, some banks began making production loans. Proration made such loans more manageable and, at the same time, increased the need for them.

After 1935, revenues from production were used as collateral for loans on a greater scale. Large banks initiated specialized oil departments staffed with technical engineers to evaluate reserves in the ground, and advances in geology and petroleum engineering allowed estimates to be made that were reliable enough even for conservative bankers.

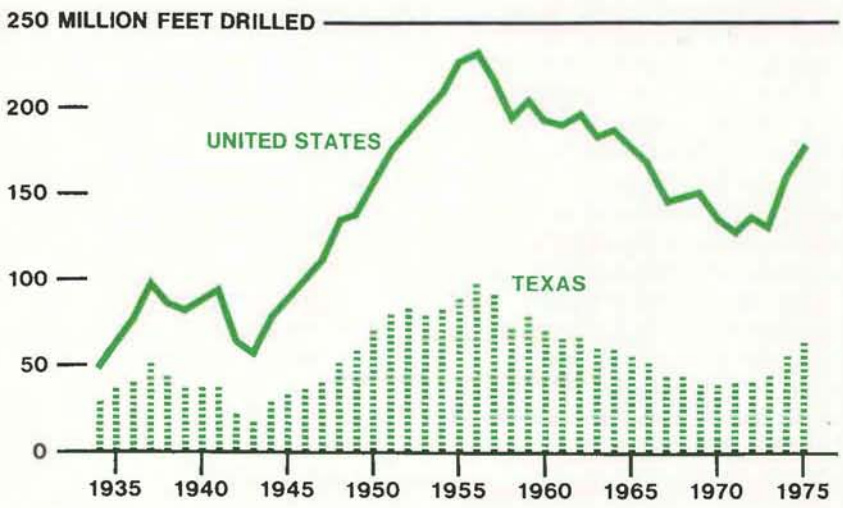
More common than production loans were loans for purchasing oil equipment. Loans secured by mortgaging oil equipment were similar to traditional bank loans and, consequently, were easier to evaluate and make. Also important

After peaking in the 1950's, crude reserves in Texas have continued to decline



SOURCE: American Petroleum Institute

Partly because of higher costs, drilling activity trended downward after the midfifties



SOURCES: U.S. Bureau of Mines
World Oil

during World War II and after were production payment transactions–associated with the transfer of oil properties from one party to another.

With taxes taking half their profits and producing companies highly dependent on cash flow for their operation, some of the small and medium-size companies sold all or part of their properties. At the same time, larger companies were usually more interested in buying into production from existing properties to build their reserve position. Modern engineering techniques made it possible for banks to estimate future payouts from fields and lend the money needed to finance the purchase of properties. The ABC deal that became important after the war facilitated transfers of these oil properties and allowed producers to benefit from the tax break given to capital gains.[1]

Following World War II, oil loans grew rapidly. At some large Texas banks with oil departments, such loans more than doubled by the end of the 1940's. The growth continued and, by the 1950's, oil loans accounted for 40 percent of total loans at large Texas banks with aggressive oil departments.

After 1969, when Congress took away the special tax advantages of ABC deals, sales of properties under these arrangements–and the associated oil loans–largely ceased. Nevertheless, with higher oil prices in the past few years, loans related to oil production have boomed. Many large oil companies have raised money through off-balance-sheet financing using these loans. Since oil reserves are not included on the balance sheet, loans against reserves generally do not reduce a company's ability to make other loans on the strength of its balance sheet.

Postwar growth

After World War II, conversion from coal to oil and gas for industrial and residential uses proceeded rapidly. Trains were converted to diesel power, draft animals were replaced by machines, and automobile production increased. By 1950, energy produced from petroleum exceeded energy produced from coal. And natural gas, which had been relatively valueless before the war for lack of long-distance pipelines, found an outlet to markets in the Northeast through the Big and Little Inch lines that had been converted to handle it.

By 1950, energy produced from petroleum exceeded energy produced from coal.

The demand for oil and oil products began to exceed supply, and in 1948, the nation became a net importer. The imports brought cuts in production allowables, which, however, were temporarily increased to help meet the surge of energy requirements during the Korean War. Texas became the top producer of petrochemicals, with the Houston area accounting for a large part of the activity. More than half of the nation's synthetic rubber, plastic materials, and resins originated on the Gulf Coast.

1. A simple example of an ABC deal would be where A sells his rights in a field to B but keeps the rights to revenues–production payments–dischargeable from 75 percent of the reserves. A then sells this 75 percent to C, which is usually a small nonprofit organization. This sale is financed with a bank loan that is paid off out of production payments. The result is A sells his property and enjoys a capital gains tax break–far milder than the income tax he would otherwise have to pay. B, the buyer, must operate the property, but the depletion allowance and operating expenses minimize his taxes on the 25 percent of production he has bought. And C, the nonprofit organization, gets income with little risk. C's income is the difference between the value of the production payments and the interest on the bank loan.

Exploration revived. Fifteen new giant fields were discovered by the midfifties, and the development of offshore drilling also opened new frontiers.

But vast new discoveries had been made in the Middle East and North Africa, with production costing only 10 to 20 cents a barrel. This oil held down the price for U.S. producers and squeezed drillers' profits.

Until the early 1970's, the average price of U.S. oil rose less than the general price level. The cost of drilling, however, rose faster than prices over the same period. Domestic drilling peaked in 1956 and declined most of the rest of the decade and in the 1960's. Drillers completed 21,500 wells in 1956 but only 9,200 in 1969.

After a voluntary program limiting U.S. oil imports had proved ineffective, mandatory import controls were imposed by the Eisenhower Administration in 1959. Under import controls, U.S. refineries specialized even more intensely in production of gasoline and fuel oils–the more profitable products–while the East Coast imported heavy heating fuels at bargain world prices. The Little Inch was converted from natural gas back to refined products. And the 1,600-mile, 36-inch Colonial Pipeline was built to help move gasoline and other products from Texas to the Northeast.

Proration continued to create substantial reserve capacity in Texas fields, and the spare capacity helped the nation weather Middle East crises in 1956 and 1967. At these times, easing of proration restrictions let Texas producers meet the nation's needs and help relieve short supplies in Europe as well. Eventually, though, reserve capacity was drawn down. Fields aged and, with drilling off, reserves were not replaced. In 1972, the Texas Railroad Commission lifted the maximum efficient rate of production to 100 percent, signaling the end of surplus reserve capacity.

The energy crisis

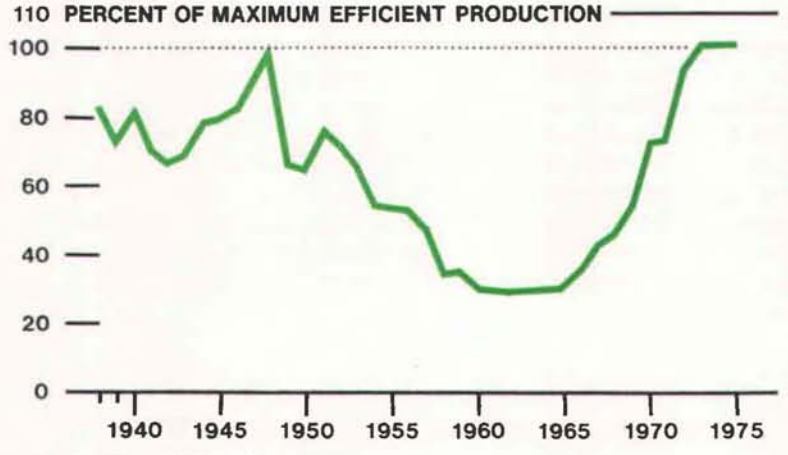
Texas oil production peaked in 1972. Some Gulf Coast refineries became dependent on foreign crude, and the flow of a pipeline from Corpus Christi to Big Spring was reversed to bring foreign crude to an inland Texas refinery. And with growing demand and declining domestic production, the nation's import requirements climbed to 35 percent of consumption by 1973, leaving it vulnerable to a cutoff of foreign supplies.

The October 1973 Middle East War brought an effective oil embargo with sizable foreign production cutbacks. Between September and November, Arab nations slashed their production 23 percent–resulting in a reduction of 8 percent in world oil production. Because of the volume of supplies in transit, the full impact of the embargo did not hit the United States until 1974. But the shortage of oil and the associated sharp price increases then exacerbated the difficulties of a coincidence of inflation and recession already troubling the economy.

The energy crisis hurt some segments of the Texas economy but gave others a lift. Spurred by higher oil prices, drilling boomed and has been limited, at times, only by the number of rigs available. The number of rotary rigs operating in Texas is now the highest in over ten years, and drilling is being carried on over a wide area. In 1974, wells were sunk in 212 of the 254 Texas counties. Manufacturers of oil field equipment have enjoyed a surge in both local and worldwide demand. And oil-related loans at banks nearly doubled from 1970 to the beginning of 1976.

Although Texas oil production has been declining since 1972, the resulting loss of revenue to the state and its citizens has been more than offset by advances in oil prices. Prices spiraled from an average of $4 a barrel in 1973 to $7 a barrel in 1974. But even with the decline in output, the value

Texas production allowable was cut back in the 1950's as inexpensive foreign oil entered U.S. markets



SOURCE: Texas Railroad Commission

of production climbed from about $4.5 billion in 1973 to $8.8 billion in 1974. And taxes on the petroleum industry, which account for some 20 percent of the state's revenue, rose proportionately.

The energy crisis hurt some segments of the Texas economy but gave others a lift.

Of course, much of Texas industry has not benefited from higher crude and gas prices. Texas has tended to attract industries that use large amounts of energy–such as refining, petrochemicals, metals, and metal fabricators. With only about 5 percent of the nation's population, Texas uses some 10 percent of the nation's energy. The embargo and higher energy prices have hurt these energy-intensive industries.

Future prospects

Texas oil production is now declining, although drilling activity has been boosted to record levels by higher prices. But even if the trend in production is not turned around by current exploration, many of the industries once spurred by Texas oil production will continue to expand.

The refining and petrochemical industries, for example, should continue to be a mainstay of the state's economy even if they become increasingly dependent on imported oil. Petrochemicals comprise the state's largest industry in terms of value added, while refining is largest in terms of total sales. And Government policies that favor imports of crude rather than refined products are likely to continue.

The manufacture of oil field equipment, which now accounts for most of the nonelectrical equipment produced in the state, should also continue to grow. As equipment makers in other states once supplied Texas needs, Texas now supplies much of the needs of the world. At least 40 percent of the oil field equipment produced in the state is now exported.

Texas oil banking also has a bright future. Several large oil companies have recently moved their headquarters to Texas–expanding opportunities for Texas bankers. Moreover, Texas banks, with their recognized expertise and long experience in oil finance and their large competent staffs, are in a favored position for making international oil loans. For example, Texas banks have already shared in the financing of oil field equipment needed for exploration in the North Sea. Texas is becoming a world center for energy technology and know-how, and with this goes an excellent potential for continued growth in oil banking.

–Stephen L. Gardner

New Louisiana Index Dominated by Mining

To help carry out its function of monitoring economic activity in the Southwest, the Federal Reserve Bank of Dallas has constructed an industrial production index for Louisiana. Modeled after the Texas industrial production index, the new index is designed to show changes in output each month for Louisiana's factories, mines, and utilities.

The index measures broad changes in Louisiana's industrial performance. And because the index is calculated by using data that are independent of variations in prices, the changes are unaffected by inflation.

As a coincident indicator of the business cycle, the index moves with fluctuations in general business conditions in Louisiana.

As a coincident indicator of the business cycle, the index moves with fluctuations in general business conditions in Louisiana. Moreover, since the same industries are covered in the Texas industrial production index prepared by this Bank and in the U.S. index prepared by the Board of Governors of the Federal Reserve System, the Louisiana index facilitates comparisons of economic activity between the two states and with the nation as a whole.[1]

Index performance

As depicted by the index, industrial production in Louisiana has followed a significantly different path from that in Texas and in the nation. The major reason for the difference is the contribution to total output by the three major components–manufacturing, mining, and public utilities.

Industrial production in Louisiana is dominated by mining. In fact, mining accounts for more than half of the total, compared with only 29 percent for Texas and 6 percent for the nation.

Crude oil production accounts for two-thirds of total mining in Louisiana, while natural gas makes up 20 percent. Another important mining activity in the index is drilling, which accounts for 11 percent of the total.

Output in the mining sector fell steadily between October 1970 and January 1976, with the index moving from a high of 129.0 percent of its 1967 base to a low of 88.6. Unlike Texas, where discoveries of giant oil fields added substantially to proved reserves, Louisiana has not had significant increases in reserves from which to draw production.

The decline in mining kept the total index from growing through the onset of recession in late 1973. And as manufacturing output has shown little growth over the past three years, the continued steep decline in mining accounts for most of the large drop in the total index since then.

Manufacturing output in Louisiana tends to follow a cyclical pattern that is relatively resistant to declines. During the 1969-70 recession, for example, such output only leveled off–instead of declining, as in Texas and the nation. And while output in Louisiana decreased somewhat in the 1973-75 recession, sharper declines were experienced in Texas and the nation.

The resistance to cyclical setbacks is largely due to the relatively small weight of durable goods in the Louisiana manufacturing index. At 30 percent, the weight for these cyclically sensitive manufactures is well below the 44 percent for Texas and almost 60 percent for the nation.

Less sensitive nondurable goods production is more than twice as important as durable goods production in the Louisiana manufacturing index. The major reason is the size of the refining and chemical industries that developed with the state's mining industry.

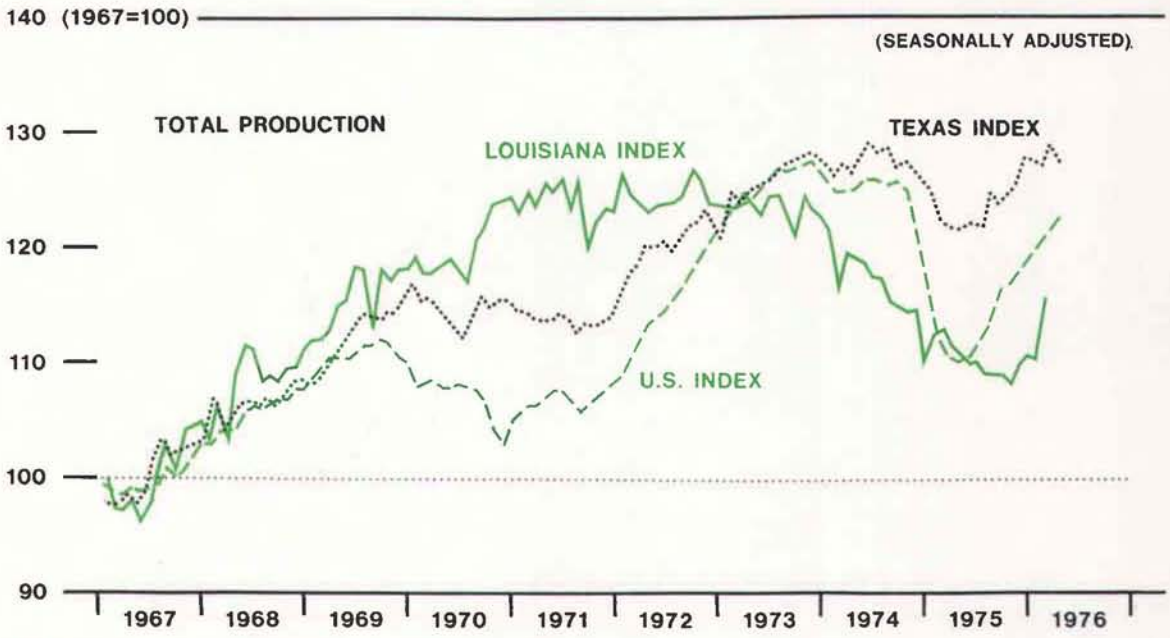
The chemical industry is the biggest manufacturing industry in the state, accounting for better than 13 percent of total industrial

Methodology of index

A technical discussion of the methodology used to construct the Louisiana industrial production index, as well as historical data beginning with January 1967, is available free on request to the Research Department, Federal Reserve Bank of Dallas, Station K, Dallas, Texas 75222.

1. The methodologies of the Louisiana index and the U.S. index differ, but comparisons of broad movements by the two indexes can be made without a significant loss in reliability.

Industrial production in Louisiana does not follow the national business cycle . . .



SOURCES: Board of Governors, Federal Reserve System
Federal Reserve Bank of Dallas

output. The refining industry that feeds it ranks third in importance.

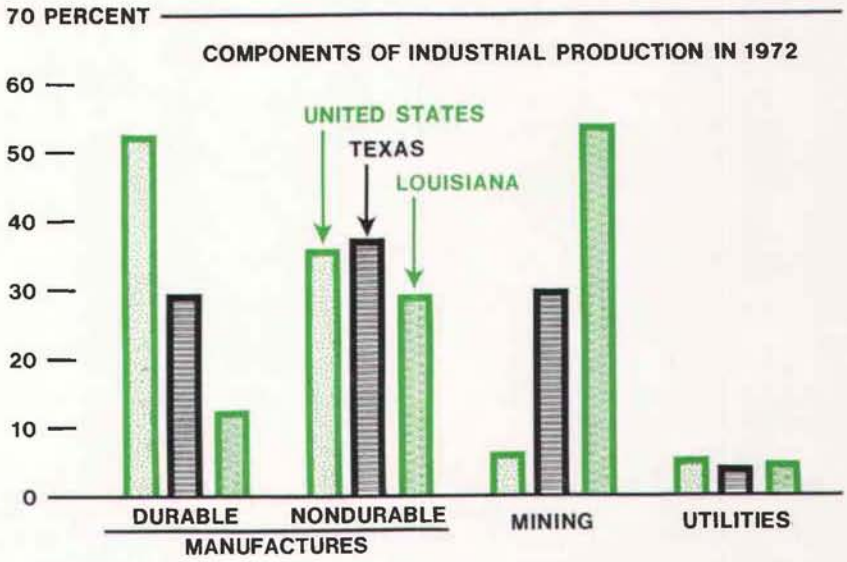
The second-ranking nondurable goods industry is food and kindred products. The food processing industry accounts for nearly 6 percent of total output and is the state's largest source of manufacturing employment.

Another important nondurable goods industry is paper, which is dependent on the lumber industry for most of its input. Together, the paper and lumber industries contribute more to total output than does the food processing industry.

Methodology and data

The methodology used to construct the Louisiana industrial production index is the same as that for the Texas industrial production index. The dimension the index seeks to estimate is value added, which is uniquely related, by means of a production func-

. . . because mining dominates in the state . . .



SOURCES: Board of Governors, Federal Reserve System
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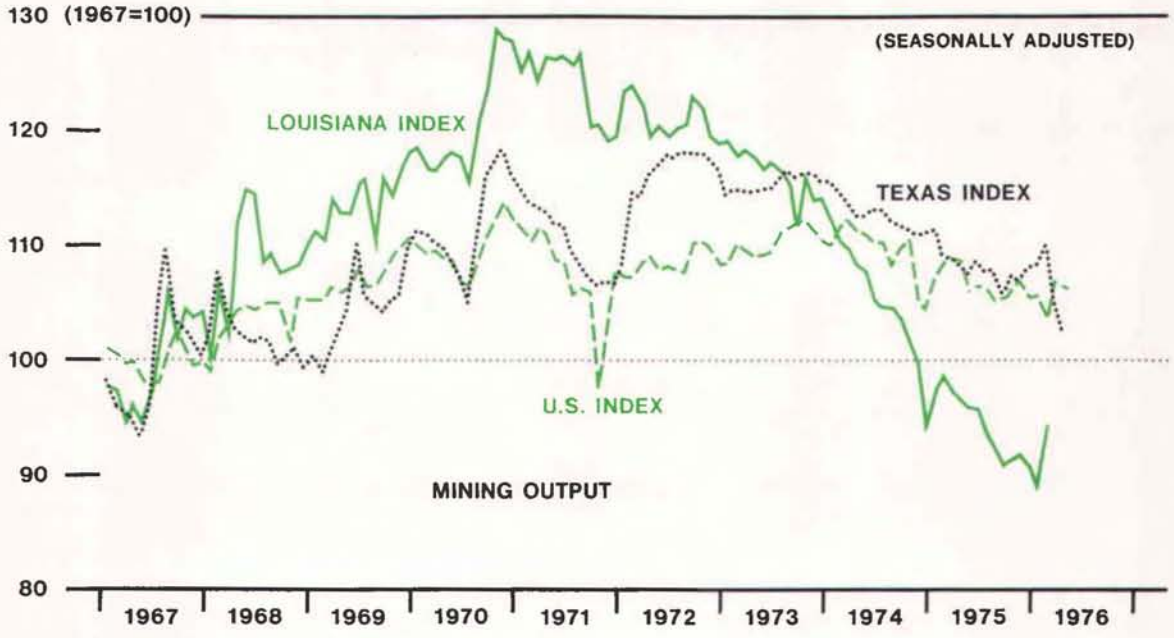

SOURCES: Board of Governors, Federal Reserve System
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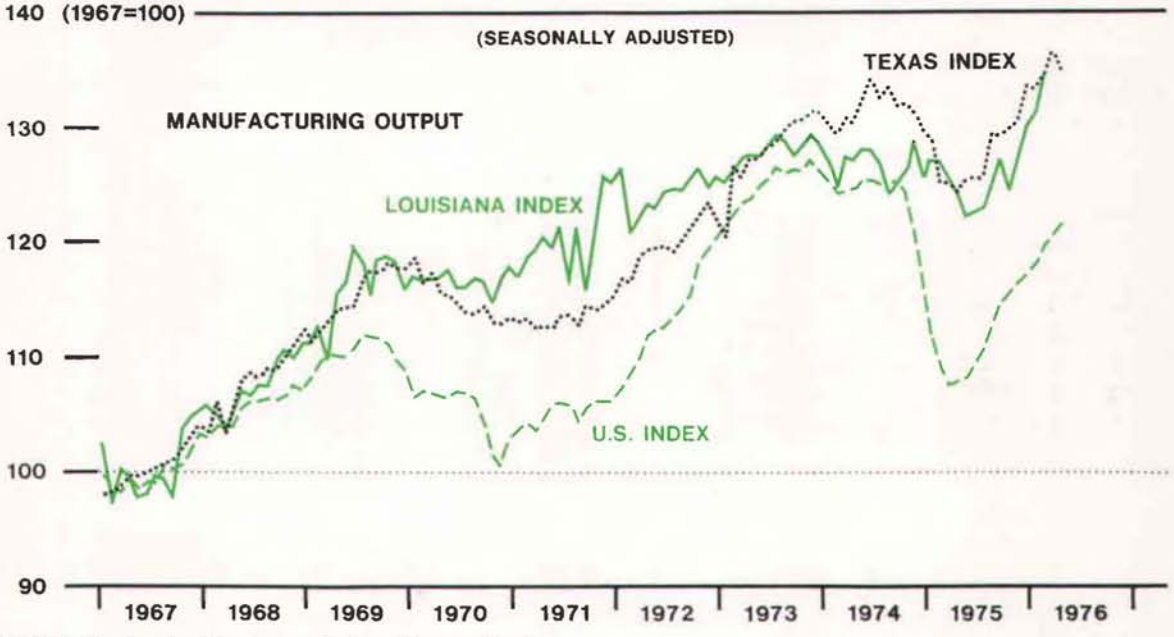
. . . and because manufacturing in Louisiana is relatively resistant to cyclical declines



SOURCES: Board of Governors, Federal Reserve System
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tion, to the amount of capital and labor employed. Therefore, when direct output data are not available, value added can be estimated from the amount of capital and labor inputs.

The dimension the index seeks to estimate is value added, which is uniquely related, by means of a production function, to the amount of capital and labor employed.

Some of the required data, such as output for mining and petroleum refining, are available directly. These data, which constitute almost two-thirds of the total index, are reported by the U.S. Bureau of Mines and the American Petroleum Institute.

For most industries, however, output data are estimated. Industrial use of electric power, measured in kilowatt-hours, is used as a proxy for capital inputs. Multiplying total employment by average weekly hours worked generates labor inputs. The electric power series is produced by the Federal Reserve System, while the employment data are provided by the Louisiana Department of Employment Security.

Where direct output data are not available, total value added is estimated by using a production function of the Cobb-Douglas form. This function allows for variability in the ratio of capital to labor and is more accurate than functions that do not have this flexibility.

Once output is obtained for each industry, weights are assigned according to the contributions of the industries to total value added in the state. The 1972 Census of Manufactures and the 1972 Census of Mineral Industries provided the benchmark data for weighting each industry.

–Brian P. Sullivan
Edward L. McClelland

New member bank

First City Bank-Northeast, National Association, Houston, Texas, a newly organized institution located in the territory served by the Houston Branch of the Federal Reserve Bank of Dallas, opened for business June 9, 1976, as a member of the Federal Reserve System. The new member bank opened with capital of $500,000, surplus of $500,000, and undivided profits of $250,000. The officers are: Cayce W. Moore, Jr., President and Chief Executive Officer, and Don Roberts, Cashier.

New par bank

Union Bank & Trust of Dallas, Dallas, Texas, a newly organized insured nonmember bank located in the territory served by the Head Office of the Federal Reserve Bank of Dallas, opened for business June 15, 1976, remitting at par. The officers are: David M. Bernardin, President; Jerry C. Lackey, Senior Vice President; and Jimmie C. James, Cashier.

Federal Reserve Bank of Dallas
July 1976

Eleventh District Business Highlights

BUSINESS LOANS

Loans to businesses at weekly reporting banks in the Eleventh District rebounded in May. With the exception of a large increase last December, the May advance was the largest month-to-month gain in more than a year. Business loan demand has been sluggish during much of the economic recovery, as rising profits and depreciation reserves have provided a flow of funds from internal sources and a hesitancy to build inventories has kept business needs for credit at a fairly low level.

Money market interest rates rose sharply in May. And a narrowing in the spread between the rate on prime business loans and the rate on prime commercial paper led some businesses to return to banks for their financing needs.

Loans to producers of nondurable goods increased rapidly, while loans to other types of businesses grew moderately. Demand from producers of nondurables was heaviest from manufacturers of food, liquor, and tobacco. These concerns, after making larger than usual net repayments since January, increased their bank borrowing more than 10 percent in May. And the May increase is even more striking when compared with an average repayment rate of 4 percent in May of the previous six years.

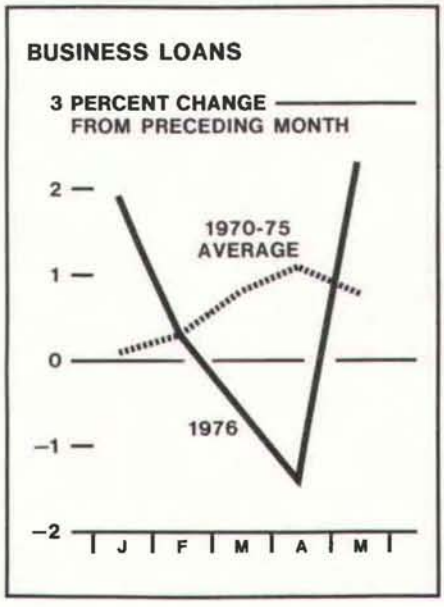
Other major nondurable goods producers also increased their borrowing in May. And again, in each major category, net borrowing was higher than the average for the six previous Mays.

Loans to manufacturers of chemicals and rubber rose for the second consecutive month as production by these firms continued at a rate nearly 17 percent higher than the recession low last year. Loans to producers of textiles, apparel, and leather also rose moderately, as did loans to petroleum refiners.

Though loans to manufacturers of transportation equipment rose moderately, loans to most other durable goods producers remained steady. Moderation in loan demand from most durable goods manufacturers is typical at this time of year, however.

Loans to the construction industry rose fractionally in May—the first month of increase in 1976. Loans outstanding to construction industries in April had been at the lowest level since May 1972, indicating general slackness in construction activity. Construction of single-family residential units appears to be gaining momentum in the District, but most other types of residential and nonresidential construction remain sluggish.

Largely because of demands from retailers, loans to the wholesale and retail sector rose slightly in May, following small declines in March and April. Precise inventory data are not available, but District department store sales moderated in April and May and retail trade firms may have sought bank funds to finance growing inventories.



YATES UNITIZATION

After extensive hearings and an extended campaign by Marathon Oil Company to enlist as many royalty and drilling interests as possible, the Texas Railroad Commission authorized unit operation of the Yates field in West Texas on the first of July.

Previously, the many owners had operated independently. But under unitization, a single operator will design pressure maintenance and secondary recovery operations for the entire field, thereby boosting remaining ultimate recovery.

The Yates field is the largest field in the contiguous 48 states in terms of recoverable reserves. And unitization will add some 200 million barrels to the field's output. This will enable the Railroad Commission to double authorized production to 100,000 barrels a day without damaging the field.

For optimum efficiency in recovery, unit operation is a must—particularly for large fields, such as Yates, where careful engineering can significantly boost ultimate recovery. Most states have mandatory unitization laws, but in Texas, unitization is voluntary. While some owners may choose to stay out of the unit, it is to the advantage of the operator to sign as many interests as possible.

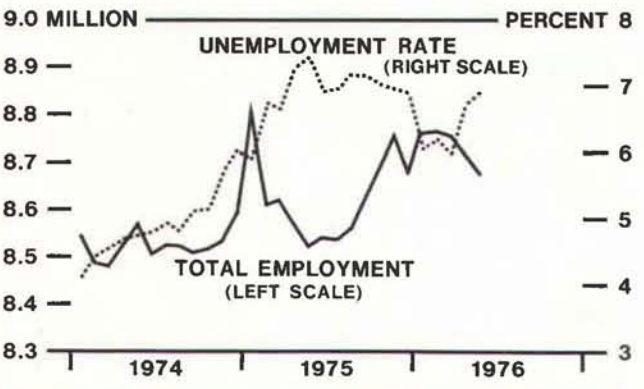
More than 98 percent of the drilling interests in Yates have joined

(Continued on back page)

INDUSTRIAL PRODUCTION
(SEASONALLY ADJUSTED)

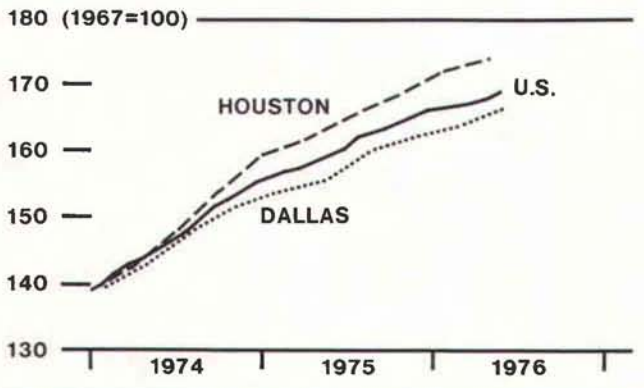
SOURCES: Board of Governors, Federal Reserve System
Federal Reserve Bank of Dallas

EMPLOYMENT AND UNEMPLOYMENT
FIVE SOUTHWESTERN STATES[1]
(SEASONALLY ADJUSTED, BY FRB)



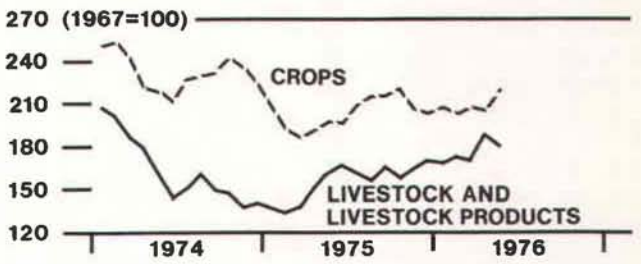
1. Arizona, Louisiana, New Mexico, Oklahoma, and Texas
SOURCE: State employment agencies

CONSUMER PRICES



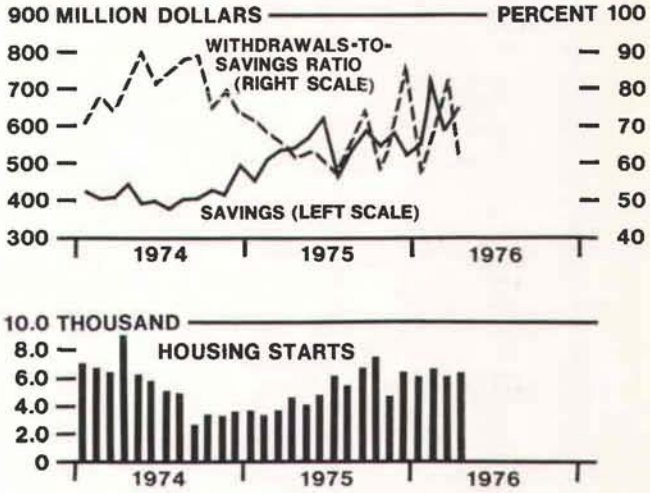
SOURCE: U.S. Bureau of Labor Statistics

PRICES RECEIVED BY TEXAS FARMERS



SOURCE: U.S. Department of Agiculture

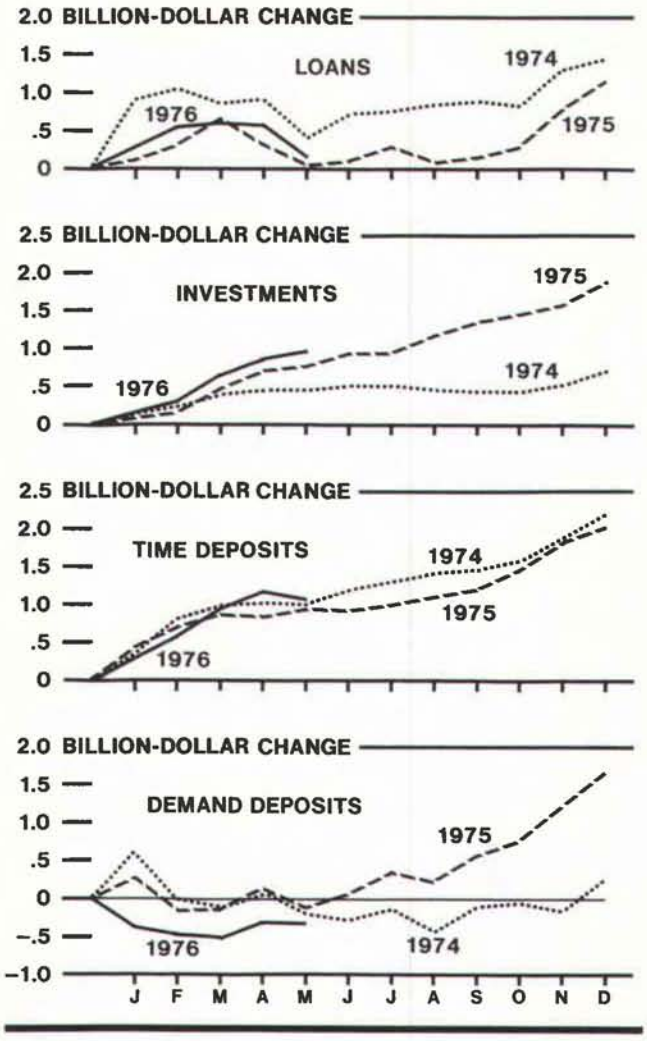
SAVINGS AND LOAN ASSOCIATION ACTIVITY AND HOME BUILDING IN TEXAS
(SEASONALLY ADJUSTED, BY FRB)



SOURCES: Bureau of Business Research, University of Texas
Federal Home Loan Bank of Little Rock

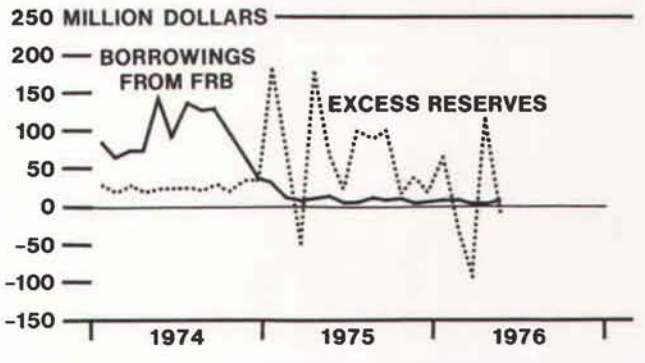
CONDITION STATISTICS OF ALL MEMBER BANKS

ELEVENTH FEDERAL RESERVE DISTRICT
(CUMULATIVE CHANGES)



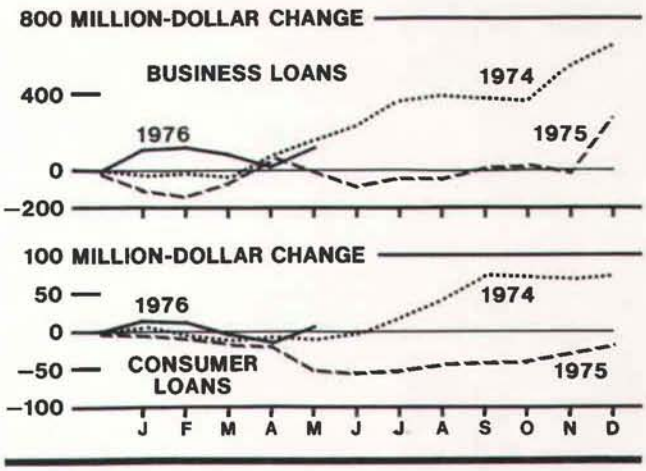
RESERVE POSITION OF MEMBER BANKS

ELEVENTH FEDERAL RESERVE DISTRICT
(MONTHLY AVERAGES OF WEEKLY DATA)



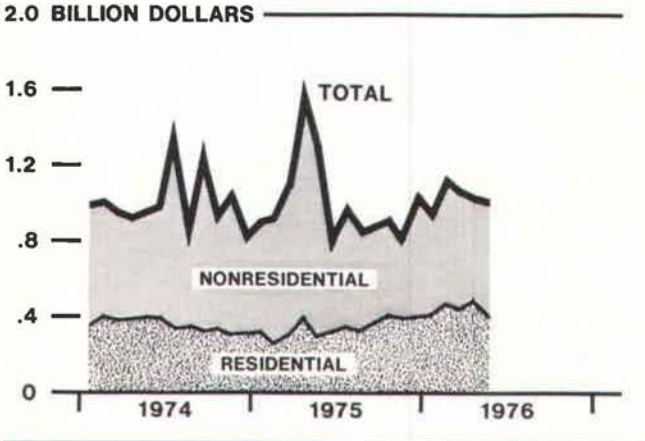
LOANS AT WEEKLY REPORTING BANKS

ELEVENTH FEDERAL RESERVE DISTRICT
(CUMULATIVE CHANGES)



CONSTRUCTION CONTRACTS

FIVE SOUTHWESTERN STATES[1]
(SEASONALLY ADJUSTED, BY FRB)



1. Arizona, Louisiana, New Mexico, Oklahoma, and Texas
SOURCE: F. W. Dodge, McGraw-Hill, Inc.

FOREIGN TRADE

HOUSTON CUSTOMS REGION
(SEASONALLY ADJUSTED, BY FRB)

SOURCE: U.S. Department of Commerce

the unit operation. But because unitization has taken several years to arrange, increased production from the Yates will not be as profitable as it might have been.

EMPLOYMENT

Labor markets in the states of the Eleventh District are weakening. Total employment, seasonally adjusted, dropped for the third consecutive month in May. The rate of growth in the civilian labor force leveled off, and the unemployment rate rose to 6.9 percent.

Some of the weakness in the May statistics reflects a slower rate of growth in employment than is normal for that month. But evidence also suggests the labor markets may have begun a broad downturn as early as February. Over the four-month period, total nonagricultural employment declined by more than 42,000.

Half of the loss in jobs was in construction. The industry, hard hit by recession, had been making fairly steady recovery until building activity, as measured by the total value of construction contracts, peaked in February.

Another quarter of the decline in employment was in trade, while smaller losses were registered in such other nonmanufacturing industries as services, finance, and transportation and public utilities. The only gains in nonmanufacturing employment were in government and mining.

Manufacturing employment dropped sharply in the durable goods industries. The total number of workers in nondurable goods industries, however, was slightly above the February level.

OTHER HIGHLIGHTS:

• Preliminary estimates show the Texas industrial production index rose at a 7.2-percent annual rate in May. A sharp increase in mining output more than offset the second consecutive decline in manufacturing output to account for the overall gain.

The decline in durable goods manufacturing was centered in primary metals, lumber and wood products, and furniture and fixtures. Gains, however, were posted in transportation equipment, nonelectrical machinery, and fabricated metal products. The biggest declines in nondurable goods industries were in refining and printing and publishing.

During the first five months of the year, industrial production fluctuated within a narrow range. Manufacturing output was 1 index point ahead of the December level, while both mining and utilities were down 2 index points.

• Weekly reporting banks in the Eleventh District reduced their record holdings of Government securities slightly in May, snapping a skein of 18 month-to-month increases. Since October 1974, holdings of Government securities had risen 140 percent, and the ratio of these holdings to total credit had more than doubled.

The reduction in holdings of Government securities in May reflected a slightly lower volume of new offerings of these securities and a move by the Treasury to lengthen the maturity of its debt. A relatively strong cash position enabled the Treasury to limit its offerings to less than $4 billion in May.

In recent months, the Treasury has shifted the emphasis in its operations, lengthening the maturity structure of the public debt by repaying a portion of the maturing Treasury bills while raising new capital through longer-term notes and bonds. As a result, the total outstanding volume of 3-month and 6-month Treasury bills fell about $2 billion in April and May while new offerings of notes and bonds rose. In May, the Treasury issued its first 10-year note under new legislation that doubled the maximum maturity for notes from 5 years to 10 years.

Portfolios of large banks reflect the change in maturity structure. Holdings of U.S. Treasury notes and bonds at those banks continued to rise in May, but holdings of Treasury bills fell more than 13 percent.

• Cash receipts from farm and ranch marketings have been boosted by increased sales of livestock and livestock products. In the first four months of the year, receipts from animal products were well above 1975 levels. Crop sales, however, were lower.

In the states of the Eleventh District, total receipts from marketings through April increased 9 percent over the same period last year. Sales from livestock products were up over a third, but crop receipts were down about a fifth. Total farm and ranch receipts for the United States increased a tenth in the first four months of this year.

• The pig crop in Texas during the six months from December 1975 to May 1976 was up a fifth over a year earlier. For the nation as a whole, the pig crop increased 14 percent. A larger breeding herd, together with bigger litters, boosted the number of pigs raised.

Pork production is expected to continue increasing into 1977. Because of favorable feeding margins, hog producers intend to increase the size of breeding herds during June through November, and gains in the number of hogs will be evident in a pickup in slaughter by late summer. Texas producers expect to expand the number of sows about 20 percent, slightly above the 17-percent rise for other producers.