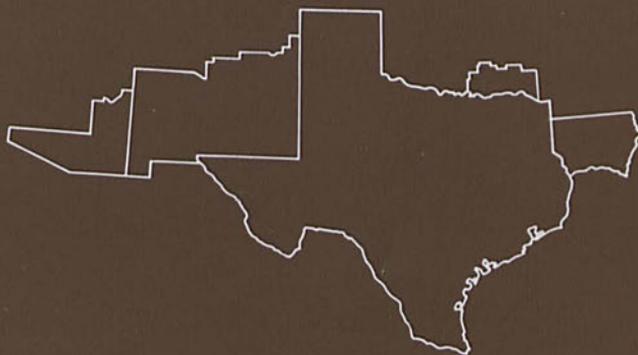


business review



october 1969

**FEDERAL RESERVE
BANK OF DALLAS**

contents

*water usage and supply
in the southwest* 3

district highlights 9

water usage and supply in the southwest

Patterns of water usage and supply in the Southwest present a problem of major importance for the future economic development of this generally arid region. Four states of the Eleventh Federal Reserve District — Arizona, New Mexico, Oklahoma, and Texas — receive less than the national average in precipitation and runoff. They also use more water on a per capita basis than the rest of the country, principally because of the large amount of water devoted to irrigated agriculture.

With population growing faster in the Southwest than in the Nation as a whole and the demand for water already pressing on the limited supply, there are grounds for concern over how the region can either provide enough water to meet its requirements or adjust its economic structure to the shortage. The importance of water to the economy of the southwestern states has been recognized increasingly. In fact, most groups — including those in agriculture, industry, business, and government — agree that water is not only a vital resource for the future development and prosperity of the region but also a potentially limiting one.

Given the “water income” of the Southwest, the region is not confronted with an overall shortage in the absolute sense. Instead, the problem is one of scarcity relative to demand; that is, the region has reached the point of a growing shortage of “inexpensive” water. This is especially true for irrigated agriculture, which accounts for the heaviest usage of the vital resource. As water becomes more costly, the region will be required to economize in its use and possibly to adjust to higher production costs for industries using substantial amounts of water.

Although the development of new sources of supply might be feasible, both within and outside the region, most agree that higher costs for water would be involved in such developments. Thus, it appears that efforts to alleviate the region's water problem must focus not only on ways of augmenting the total supply but also on a rational and balanced choice among the alternative uses of water competing for the available supply. Under conditions of scarcity, better management of water usage might well become imperative.

This article examines recent patterns of water usage and the sources of supply that met these demands. The basic data are for 1965, the most recent year for which comparable information is available for all four states.¹ Some of the possible implications of water supply-demand relations in the Southwest are discussed, with consideration given to both current and longer-run aspects of the problem.

Continuing rise in demand...

Two concepts of demand for water are used in this article. Water *withdrawal* refers to the volume of water diverted from storage or flow for purposes of performing some economic function — for example, water withdrawn for industrial use. Water *consumption* refers to water withdrawn from storage or flow but not discharged or available for further use. As compared with water withdrawal, consumption represents a more serious demand on the water resources of a region since it includes

¹ C. Richard Murray, *Estimated Use of Water in the United States, 1965*, Geological Survey Circular 556 (Washington, D.C.: U.S. Geological Survey, Department of the Interior, 1968).

**WATER WITHDRAWAL AND CONSUMPTION,
TOTAL AND PER CAPITA, IN 1965**

Area	TOTAL (In billions of gallons per day)		PER CAPITA (In gallons per day)	
	With- drawal	Con- sumption ²	With- drawal	Con- sumption ²
Arizona	6.3	4.3	4,000	2,730
New Mexico	3.0	2.1	3,000	2,071
Oklahoma	1.3	.5	480	188
Texas	124.0	15.0	12,300	1,416
Total	34.6	21.9	2,214	1,399
United States	311.0	98.0	1,600	499

¹ Includes saline water.

² Includes irrigation conveyance losses.

NOTE. — Details may not add to totals because of rounding.
SOURCE: *Estimated Use of Water in the United States, 1965.*

**WATER WITHDRAWAL IN 1965,
BY TYPE OF USE**

(In millions of gallons per day)

Area	Rural uses	Public supplies	Irriga- tion	Self- supplied industrial water	All uses
Arizona	20	220	5,900	140	6,300
New Mexico	70	110	2,700	100	3,000
Oklahoma	70	230	370	620	1,300
Texas	170	1,200	14,000	19,000	124,000
Total	330	1,760	22,970	19,860	134,600
United States	4,000	23,600	120,000	170,000	311,000

¹ Includes 4.6 billion gallons of saline water. Other figures in table, except those for the United States as a whole, refer to freshwater.

“losses” due to evaporation, transpiration, human and animal intake, and incorporation into products.

The economic structure and geographical characteristics of a region weigh heavily, of course, in determining the prevailing patterns of water withdrawal and consumption. In some regions, especially where concentrations of industrial plants have been developed along major rivers, heavy water withdrawals can be accompanied by low rates of actual water consumption. As water is withdrawn, used, and then returned to the streamflow, it becomes available for use by others. Although there may be a deterioration in the *quality* of the water as it flows downstream (as often happens), the total amount of the flow may be diminished very little.

Rates of water withdrawal are higher for the Southwest than for the Nation. Moreover, users in the four southwestern states actually consume almost two-thirds of the total volume of water withdrawn, a pattern that contrasts sharply with the consumption ratio of slightly

less than a third for the country as a whole. In 1965, daily withdrawal of water in the four southwestern states averaged 2,214 gallons per capita, as compared with the national average of 1,600 gallons.² Daily consumption in the Southwest averaged 1,399 gallons per capita, whereas in the Nation the rate of consumption was less than 500 gallons.

In recent years, water usage has expanded faster in the Southwest than in the Nation, reflecting not only the increasing requirements of a growing population but also a rising rate of per capita use. For example, in the Southwest, where population increased 10 percent between 1960 and 1965, average daily withdrawal increased 29 percent. Nationwide, withdrawals rose 15 percent, while population rose about 8 percent. This rapid expansion in the region's

² The measure of water withdrawal per capita, as used in this article, contrasts sharply with personal use of water. Actually, per capita requirements for personal use in the southwestern states, as in the Nation as a whole, average less than 150 gallons of water per day.

**WATER CONSUMPTION IN 1965,
BY TYPE OF USE**

Four Southwestern States

Type of use	Millions of gallons consumed per day	Percent of total consumption
Rural uses	300	1.4
Public supplies	800	3.6
Self-supplied industrial water	800	3.6
Irrigation ¹	20,000	91.3
All uses	21,900	100.0

¹ Includes conveyance losses.

WATER SUPPLY SOURCES IN 1965

(In billions of gallons per day)

Area	Ground-water	Surface water	Total withdrawal
Arizona	4.2	2.1	6.3
New Mexico	1.4	1.6	3.0
Oklahoma4	.9	1.3
Texas	13.0	111.0	124.0
Total	19.0	15.6	34.6
United States	61.0	250.0	311.0

¹ Includes 4.6 billion gallons of saline water.

demand for water continues a trend that has been apparent since comparative data on state and regional usage have been reported.

The overwhelming preponderance of water demand in the four southwestern states is for either irrigation or industrial purposes. Of the 34.6 billion gallons withdrawn daily in 1965, 66 percent went for irrigation and 28 percent for industrial uses. The industrial group consists of nonagricultural users that have their own water systems and, therefore, are not dependent on public systems. Of industry in the Southwest, chemical and petroleum processing plants and electric generating plants have the largest intake requirements.

While water to meet public and rural needs is crucial to the users, these two categories are of relatively minor importance. Only 5 percent of the water withdrawn in 1965 passed through the public supply systems furnishing water to households, businesses, governments, and industries without their own water systems. Rural users, apart from users in the extremely important irrigation category, accounted for only

1 percent of the withdrawal. As urbanization continues and public supplies extend into new areas, this proportion will become even smaller.

Nearly all the water withdrawn in these states was freshwater, except in Texas, where industry used 4.6 billion gallons of seawater a day in 1965. In terms of freshwater alone, agriculture used 76 percent of the 30 billion gallons withdrawn in the Southwest every day, industry 17 percent, public systems 6 percent, and rural users 1 percent.

Although the overall withdrawal rate was more than a third higher for the region than for the Nation, the four southwestern states withdrew water for purposes other than irrigated agriculture at rates below the national average. Without irrigation, the Southwest had an average per capita daily withdrawal of 744 gallons per day — 23 percent less than the national average of 972 gallons per day.

Agriculture accounted for more than 90 percent of the water consumed in the Southwest in 1965. The rest of the 21.9 billion gallons con-

sumed daily was divided among users that discharged much of their water intake back into the supply. In contrast to these other users, agriculture actually consumed 87 percent of the water it used — either through evaporation (which includes conveyance losses) or by transpiration into plants and soil. The result was a ratio of consumption to withdrawal in 1965 that was nearly twice as high in the Southwest as in the Nation overall.

...and further pressure on supplies

Only 45 percent of the water withdrawn in the Southwest in 1965 was surface water. Almost all the rest came from underground sources. This is in sharp contrast to the Nation as a whole, which took 80 percent of its water from surface sources. The difference is due, of course, to the fundamentally different rainfall and streamflow conditions in the Southwest.

All essentially arid, the four southwestern states lie in three of the Nation's main water-using regions — the Western Gulf Region and the Colorado and Upper Arkansas River Basins. Together, these regions account for nearly a fourth of the land mass of the continental United States. But they receive only 6.5 percent of the average annual runoff of surface water (the portion of precipitation that finally reaches streams).

With its supply of surface water smaller than average and its demand for water greater than in most other parts of the country, the Southwest has turned increasingly to underground sources. Whereas surface water represents a supply that will be renewed in time — even though the rate of renewal often fluctuates widely about normal annual or seasonal patterns — groundwater represents an accumulated stock. The stock can be replenished, at least in part, either by rainwater seeping down through the ground surface or by water flowing from higher elevations through permeable formations serving as subterranean aqueducts. The

amount of underground recharge depends on local conditions. In some areas, the recharge is only a very small part of the total stock. If it is pumped out faster than the stock is recharged, the water is considered "mined." Prolonged mining invariably lowers the water table (the upper limit of saturated ground), and wells have to be drilled deeper to reach a steady supply.³

Much of the Southwest has been heavily mined. In the High Plains of Texas, for example, where wells have been pumped many years for irrigation, the water table at most wells has been declining steadily. An average decline of 3.5 feet a year is common, and some declines have been more than 8 feet a year. (Some wells need be sunk only about 65 feet. Others go down as much as 325 feet.)

Declines for short periods are not serious. But after 5 or 10 years, a steady decline in the water table means old wells are no longer productive and that new, deeper wells must be sunk. Continued mining eventually depletes the available stock, either technically or economically: technically, if the stock is completely exhausted; economically, if the water table falls so low that the cost of water retrieval is too high to be profitable.

Higher costs to farmers...

A myriad of practices rooted in law and history keep the price system from directly affecting most water users. Users are affected, nevertheless, because prices are rising throughout the Southwest, if only implicitly. As water tables fall, the cost of deeper wells and larger pumps pushes up the price of groundwater. Moreover,

³ Water-well drilling is a national industry with an annual production value of between half and three-quarters of a billion dollars. The value of water-well drilling in the four southwestern states is probably close to \$50 million a year, according to Gerald Meyer and G. G. Wyrick, *Regional Trends in Water-Well Drilling in the United States*, Geological Survey Circular 533 (Washington, D.C.: U.S. Geological Survey, Department of the Interior, 1966).

with the better locations for surface storage already taken, additional efforts in that direction involve higher unit costs of water.

As demand for water continues to put pressure on the available supply, the heaviest impact is on irrigated agriculture. Slightly more than three-fourths of the irrigation water in the four states came from underground sources in 1965 — 17.5 billion gallons a day. With such a comparatively high use rate, irrigated agriculture contributes heavily to the decline in water tables and bears much of the brunt of rising prices.

Irrigated agriculture always implies a fundamental conflict. Where rainfall is plentiful, there is little or no need for irrigation. Where rainfall is sparse, extensive agricultural development depends on irrigation — which usually means water from ground sources. Recourse to groundwater offers no more than a temporary solution to the problem, however, since extensive use of groundwater in areas of scarce rainfall and only limited recharge causes water tables to drop. In the long run, the same groundwater supplies that allowed irrigated agriculture to prosper in an arid environment also cause new difficulties. As water tables drop, costs of water inputs rise, profit margins narrow, and low-return crops are produced increasingly by dryland methods, if at all.

The Southwest has a mixed system of agriculture. Assuming no massive future transfer of water, such as has been proposed in the Texas Water Plan, irrigation is bound to play a smaller part in southwestern agriculture.⁴ The

⁴ The Texas Water Plan includes proposals for water transfers within the State, as well as for water importation into Texas and New Mexico. A bond issue to implement the plan was defeated in August. Arizona has long considered a water transfer plan, the Central Arizona Project, to divert Colorado River water to arid portions of the State, particularly to farmland. The Arizona proposal was finally authorized by Congress in September 1968, but no funds were appropriated.

acreage still irrigated would be dependent on surface water plus groundwater pumped at rates consistent with a fairly stable water table. The increased cost of water that caused a reduction in irrigated acreage would also dictate that only high-return crops be grown under irrigation.

Large-scale irrigation is a fairly recent development in the Southwest, dating largely from the 1940's. In Texas, for example, only about 1 million acres were under irrigation at the end of World War II. By the late 1950's, the number of irrigated acres had increased to more than 6 million. Although expansion has slowed in the 1960's, irrigated acreage had swelled to 8 million by 1964, the last year of an extensive inventory of Texas irrigation.⁵ Irrigated acreage has also increased elsewhere in the Southwest, although recent studies indicate irrigated acreage will decline in Arizona and Texas in the future, given existing water supplies.⁶

It has been estimated that, even with new water supplies, irrigated acreage in Texas would probably increase less than 20 percent over the 1965 level — to total about 9.4 million acres. Diminishing groundwater supplies are relied on so heavily that even successful implementation of water transfer plans over the next 50 years might do little more than provide a substitute source of supply.

⁵ Paul T. Gillett and I. G. Janca, *Inventory of Texas Irrigation, 1958 and 1964*, Texas Water Commission Bulletin 6515 (Austin, Texas: Texas Water Commission, June 1965).

⁶ Fred A. Schmer, Warren L. Trock, and Glen L. Wistrand, *The Impact of Different Levels of Water Development on Texas Agriculture*, Texas Agricultural Experiment Station Report MP-911 (College Station, Texas: Texas A&M University, March 1969); Harold M. Stults, "Predicting Farmer Response to a Falling Water Table: An Arizona Case Study" (Ph. D. dissertation, The University of Arizona, 1967); and William E. Martin, Thomas G. Burdak, and Robert A. Young, "Projecting Hydrologic and Economic Interrelationships in Groundwater Basin Management" (Paper presented at the International Conference on Arid Lands in a Changing World, Tucson, Arizona, June 3, 1969).

...and to others

The supply problem seems far less serious for nonagricultural users in the Southwest, and for several reasons. Probably the most important is the fact that the per capita withdrawal rate of these users is lower than the national withdrawal rate. But nonagricultural users are also better situated than agricultural users to absorb higher prices of water. An increase in the price of water would raise the cost of living for families and the cost of production for businesses, but water is only one budget item for these users and, for most of them, a relatively small one. The ability of these users to pay higher prices (if necessary) also means that sources of water currently neglected because of their high costs could become economical.

Nonagricultural users have the further advantage of actually consuming very little of the water they take in. This means that, because the return flow from these users is fairly large, their water intake can increase faster than new supplies of water. Such a development depends, of course, not only on the accessibility of the discharged water to successive users but also on its being of an acceptable quality.

Reprocessed sewage offers some promise as a source of water for irrigation and industrial purposes. The amount recovered is still a negligible part of the total, but as water supplies become more scarce relative to demand, there will probably be a sharp upsurge in the reuse of water. Although no American city now recycles waste water for drinking purposes, some treatment systems, such as the one in Tahoe, California, already are producing water of potable quality.

It might be possible for some users to reduce their intake requirements through the use of recirculation systems that use the same water several times. Prospects are particularly promising in connection with the recirculation of water used as a coolant.

Nonagricultural users are also favored by being less dependent on groundwater. Surface water has the advantage not only of being renewable but also of being increased by construction of additional reservoirs. Texas and Oklahoma still have many possible sites for developing surface water. The supply can, of course, be burdened by evaporation from the surfaces of reservoirs, but experiments are being conducted to determine whether this loss can be reduced.

Surface water includes an almost limitless supply of salt water along the Gulf Coast. Since saline water cannot be used for irrigation or most other purposes, there is a tendency to ignore possibilities for using it. But with the development of noncorrosive alloys, the potential for using salt water as an industrial coolant is greatly increased. When saline water can be used without prior treatment, it is a plentiful and inexpensive substitute for freshwater.

Water usage in the Southwest has changed since 1965 — at least in magnitude — but basic patterns of usage have not. Population and industry have continued to grow in all four states, further increasing demands for water. Irrigated agriculture has also continued to grow, but not as rapidly as before. Irrigation has increased in Texas and Oklahoma, but there are indications that irrigated acreage has remained fairly stable in Arizona and New Mexico.

While there are probably several means of easing water shortages for nonagricultural users, irrigated agriculture must, by definition, have a dependable source of water to exist. Without major new water supplies in the Southwest, there are apt to be reductions in irrigated acreage. This does not necessarily mean a reduction in the region's agriculture, however. A decline in irrigated farming might be accompanied, at least to some extent, by an increase in dryland farming and better management of the acres that are irrigated.

Projections developed by researchers at Texas A&M University, for example, indicate that, by 1980, production of nearly all the crops in Texas will expand beyond recent levels, even without further development of water supplies. Some losses in production are expected for cotton and oil crops, but they are not large. Similar patterns are found in projections to the year 2000. Output of all crops expands but under growing conditions featuring a shift from irrigated farming.⁷

⁷ Schmer, Trock, and Wistrand, *The Impact of Different Levels of Water Development on Texas Agriculture*, pp. 26-33.

These projections indicate the response farmers are most apt to make to limitations imposed by water supplies. With no additional supplies of water, agricultural output will probably still increase at modest rates and internal adjustments are apt to cause more acres to be farmed overall but fewer to be irrigated. According to this pattern, agriculture would not begin an absolute decline without new water supplies. Rather, it would decline relative to other activities — most of which would probably be increasing rapidly while agriculture remained fairly constant.

LEONARD G. BOWER

district highlights

The Texas industrial production index continues to indicate strength in the State's economy. The preliminary seasonally adjusted index for August was 178.3 percent of the 1957-59 base — up 0.8 percent from the upward adjusted figure for July. Manufacturing and mining were up in August. Utilities were unchanged. Within the manufacturing sector, production of nondurable goods was virtually unchanged, while durable goods production rose 1.1 percent. The greatest single advance in durable goods was in transportation equipment. Chemical and allied products made the strongest showing among nondurable goods. After allowance for seasonal influences, production of crude oil rose 2 percent in August, providing the major strength to the mining sector.

Compared with August 1968, the Texas industrial production index was up 7.2 percent. Utilities advanced 16 percent over a year earlier, mainly on the strength of increased output of electricity. Total manufacturing rose 8.3 percent, with durable goods stronger than nondurable goods. Except for primary metals and textiles, every category of manufacturing increased its output over the same month a year earlier. Mining was up 2.4 percent, with natural gas the leading component. Production of crude petroleum was up 1.7 percent.

Total nonagricultural wage and salary employment in the five southwestern states edged upward in August — in contrast to the normal

seasonal decline. Manufacturing employment accounted for most of the increase, although nonmanufacturing employment also rose. Except for government and mining, all categories of employment showed increases over their July levels. Government employment edged downward, following its usual seasonal pattern. Mining employment also declined.

Nonagricultural employment in these five states was up 4.1 percent from August of last year. Manufacturing increased its employment 4.0 percent, and nonmanufacturing employment increased 4.1 percent, both about in line with the total. The strongest components were finance and services, both of which were up 5.8 percent from August 1968. The smallest year-to-year percentage increases were in mining and construction.

Registrations of new passenger automobiles in Dallas, Fort Worth, Houston, and San Antonio were 16 percent lower in August than in July. New car registrations were also significantly lower than in August 1968. Through August, cumulative registrations in these four centers were 5 percent lower than in the first 8 months of last year; only Dallas showed an increase over last year.

Department store sales in the Eleventh District were 4 percent higher for the 4 weeks ended September 27, 1969, than for the comparable period last year. As of that date, cumulative sales were 8 percent higher than for the corresponding period last year.

Daily average crude oil production in the four producing states of the Eleventh District declined slightly in August. The decline — a drop of 0.6 percent — followed a 3.0-percent decline in July. The largest decrease was in Texas, where production slipped 1.1 percent. Although production fell in all four states during August, output was 1.3 percent higher than

a year before. Louisiana, New Mexico, and Texas all showed increases over August 1968; Oklahoma showed a decrease. Nationally, crude production also showed a slight month-to-month decline in August and a modest year-to-year increase. But both changes were less than 1 percent.

The August oil allowable in Texas was 53.1 percent of the Maximum Efficient Rate of production — in sharp contrast to the June high of 63.5 percent. The Texas allowable was further lowered to 52.1 percent for September but, because of increased demand, was raised to 53.7 percent for October. The allowable in Louisiana has been maintained at 44 percent since July. Before Hurricane Camille, the allowable for Louisiana had been lowered to 43 percent for September, but after the hurricane and the assessment of damages to production and refining facilities, it was restored to 44 percent. The allowable for northwestern New Mexico was unchanged for October. For southeastern New Mexico, however, it was raised from the level for August and September.

The Economic Development Administration invested \$28.7 million in the five states of the Eleventh District in the fiscal year ended June 30. These Federal funds were used on 131 development projects designed to help stimulate job opportunities in areas with persistently high unemployment and low family incomes. Of this amount, \$3,706,000 was spent on 12 projects in Arizona, \$388,000 on 12 projects in Louisiana, \$5,205,000 on 24 projects in New Mexico, \$7,169,000 on 34 projects in Oklahoma, and \$12,235,000 on 49 projects in Texas. All the projects were originated in the communities receiving the funds.

The program provides loans and grants to help communities attract industry. Business loans are also made to help expand a community's industrial and commercial base. This

help, which includes technical assistance and aid in planning projects, will be provided again this year. Proposals for development projects are processed through the Administration's area office in Austin.

A dry, hot summer has cut cotton prospects in the Eleventh District. Production in the five southwestern states is expected to total nearly 5.1 million bales. This estimate, based on conditions as of September 1, is 3 percent less than actual production last year but 27 percent higher than in 1967. In Texas, the cotton crop is estimated to total about 3.4 million bales. Although 24 percent greater than the 1967 crop, the estimated Texas output is 3 percent less than the 1968 crop. Yields are expected to average 341 pounds of lint per acre this year, compared with 410 pounds last year.

Production of grain sorghum in District states is expected to total about 394 million bushels, 2 percent less than last year. Rice output is estimated to be 19 percent lower than in 1968. Adverse weather conditions in the spring and late summer are major factors contributing to lower rice prospects.

Range conditions have improved in most areas of the Southwest with recent rains. On September 1, there were more than 1.3 million head of cattle and calves on feed in Texas for the slaughter market. That was 54 percent more than a year earlier. August placements in Texas totaled 275,000 head. There were 33 percent more cattle and calves on feed in Arizona than a year earlier. By contrast, the increase for the six largest cattle feeding states was 14 percent.

Texas farmers and ranchers received fractionally lower prices for their products in August than in July but 1 percent higher prices than in August 1968. In the first 8 months of this year, Texas farmers and ranchers received prices averaging 7 percent higher than for the same months a year before. This increase was

due largely to rising prices of livestock and livestock products. These prices increased 17 percent. On the other hand, average prices of crops declined 4 percent.

Through July, cash receipts from farm marketings in District states were 11 percent more than for the first 7 months of last year. Livestock receipts increased 14 percent, and crop income increased 5 percent.

All major balance sheet items at weekly reporting banks in the Eleventh District declined in the 4 weeks ended September 10. Primarily, the declines reflected seasonal factors, a reduced availability of funds, and a further run-off in time deposits.

Loans adjusted decreased \$66 million, compared with a decline of \$154 million in the previous reporting period but an increase of \$55 million in the same period a year earlier. Business loans were \$26 million lower than in the previous period, and loans to nonbank financial institutions were \$44 million lower. Loans sold under repurchase agreements showed a sizable decline. Agricultural and real estate loans declined slightly. Only consumer loans showed an increase, and it was small.

Total investments continued to decline, dropping \$13 million. A reduction of \$42 million in holdings of U.S. Government securities with maturities of 5 years or more and a reduction of \$48 million in holdings of obligations of states and political subdivisions were only partially offset by increased holdings of short-term Governments and other bonds, stocks, and securities. Total investments were down \$4 million in the corresponding period of 1968.

On the liability side of the balance sheet, total demand deposits decreased \$17 million — in sharp contrast to a \$112 million increase a year earlier. Gains in interbank and foreign deposits were more than offset by declines in de-

mand deposits of individuals, partnerships, and corporations, of states and political subdivisions, and of the U.S. Government.

Total time and savings deposits declined \$64 million, continuing the downward trend of recent months. In the corresponding period a year ago, total time and savings deposits were down \$21 million. Within this category, de-

posits of individuals, partnerships, and corporations decreased \$44 million during the 4 weeks ended September 10 and deposits of states and political subdivisions decreased \$20 million. Negotiable certificates of deposit in denominations of \$100,000 or more continued to decline, registering a \$56 million decrease in the 4-week period. There was a decline of \$4 million in the corresponding period a year ago.

***new
par
banks***

The Lone Oak State Bank, Lone Oak, Texas, a nonmember bank located in the territory served by the Head Office of the Federal Reserve Bank of Dallas, was added to the Par List on its opening date, August 28, 1969. The officers are: F. C. Montgomery, Chairman of the Board (Inactive); J. J. Lee, President; F. W. Abbott, Vice President (Inactive); and Gaye Hooten, Cashier.

The Reagan State Bank, Big Lake, Texas, an insured nonmember bank located in the territory served by the Head Office of the Federal Reserve Bank of Dallas, was added to the Par List on its opening date, September 2, 1969. The officers are: Frank Junell, Chairman of the Board; Ernest O'Hearn, Jr., President; Robbie E. Ferguson, Vice President and Cashier; Mrs. Iva Jean Davis, Assistant Cashier; and Mrs. Virginia Green, Assistant Cashier.

The First State Bank, Aransas Pass, Texas, an insured nonmember bank located in the territory served by the San Antonio Branch of the Federal Reserve Bank of Dallas, was added to the Par List on its opening date, September 8, 1969. The officers are: James T. Denton, Jr., President; J. E. Powell, Executive Vice President; Mrs. Mary K. Fortner, Vice President and Cashier; Henry Patton, Vice President; Conway O. McKenzie, Vice President; Mrs. Mary Beth Coleman, Assistant Cashier; and Mrs. Jewell Chism, Assistant Cashier.

STATISTICAL SUPPLEMENT

to the

BUSINESS REVIEW

October 1969



FEDERAL RESERVE BANK
OF DALLAS

**CONDITION STATISTICS OF WEEKLY REPORTING
COMMERCIAL BANKS**

Eleventh Federal Reserve District

(In thousands of dollars)

Item	Sept. 24, 1969	Aug. 27, 1969	Sept. 25, 1968 ¹
ASSETS			
ederal funds sold and securities purchased under agreements to resell.....	439,160	428,425	6,172,649
her loans and discounts, gross.....	6,070,315	6,035,955	
Commercial and industrial loans.....	3,002,569	3,000,179	2,757,522
Agricultural loans, excluding CCC certificates of interest.....	108,033	110,228	89,824
Loans to brokers and dealers for purchasing or carrying:			
U.S. Government securities.....	555	556	186,107
Other securities.....	43,659	44,876	21,478
Other loans for purchasing or carrying:			
U.S. Government securities.....	157	70	573
Other securities.....	367,040	376,088	351,963
Loans to nonbank financial institutions:			
Sales finance, personal finance, factors, and other business credit companies.....	134,057	138,076	142,152
Other.....	380,289	378,347	340,211
Real estate loans.....	637,044	623,723	581,487
Loans to domestic commercial banks.....	11,061	9,014	473,224
Loans to foreign banks.....	8,880	8,635	5,917
Consumer instalment loans.....	709,814	700,213	606,941
Loans to foreign governments, official institutions, central banks, international institutions.....	0	0	0
Other loans.....	667,157	645,950	615,250
Real estate investments.....	2,450,706	2,507,948	2,533,273
Total U.S. Government securities.....	921,727	966,171	1,110,631
Treasury bills.....	25,608	60,992	30,490
Treasury certificates of indebtedness.....	0	0	0
Treasury notes and U.S. Government bonds maturing:			
Within 1 year.....	126,054	131,394	203,547
1 year to 5 years.....	625,644	617,470	597,761
After 5 years.....	144,421	156,315	278,833
Obligations of states and political subdivisions:			
Tax warrants and short-term notes and bills.....	32,976	24,256	29,762
All other.....	1,357,454	1,422,645	1,200,339
Other bonds, corporate stocks, and securities:			
Certificates representing participations in:			
Federal agency loans.....	68,101	22,803	127,221
All other (including corporate stocks).....	70,448	72,073	65,320
Cash items in process of collection.....	1,132,467	1,050,302	968,782
Reserves with Federal Reserve Bank.....	744,238	647,188	787,908
Currency and coin.....	88,729	88,211	85,384
Balances with banks in the United States.....	498,854	464,371	502,282
Balances with banks in foreign countries.....	7,105	5,912	4,845
Other assets (including investments in subsidiaries not consolidated).....	430,814	413,783	358,484
TOTAL ASSETS.....	11,862,388	11,642,095	11,413,607
LIABILITIES			
al deposits.....	9,354,180	9,186,402	9,489,707
Total demand deposits.....	5,944,635	5,720,724	5,710,935
Individuals, partnerships, and corporations.....	4,114,780	4,000,539	3,899,020
States and political subdivisions.....	281,566	326,094	240,859
U.S. Government.....	263,246	127,987	267,740
Banks in the United States.....	1,179,310	1,148,018	1,200,053
Foreign:			
Governments, official institutions, central banks, international institutions.....	3,212	3,866	9,374
Commercial banks.....	27,000	23,426	21,431
Certified and officers' checks, etc.....	75,521	90,794	72,458
Total time and savings deposits.....	3,409,545	3,465,678	3,778,772
Individuals, partnerships, and corporations:			
Savings deposits.....	957,277	957,323	1,045,983
Other time deposits.....	1,822,216	1,848,144	2,057,084
States and political subdivisions.....	594,937	623,063	635,631
U.S. Government (including postal savings).....	8,540	8,735	12,835
Banks in the United States.....	19,685	22,023	22,539
Foreign:			
Governments, official institutions, central banks, international institutions.....	5,500	6,000	4,500
Commercial banks.....	1,390	390	200
ederal funds purchased and securities sold under agreements to repurchase.....	905,503	798,045	651,949
her liabilities for borrowed money.....	183,392	246,719	
ther liabilities.....	327,124	322,031	240,394
eserves on loans.....	118,003	117,778	105,521
eserves on securities.....	11,606	11,560	n.a.
otal capital accounts.....	962,580	959,560	926,036
TOTAL LIABILITIES, RESERVES, AND CAPITAL ACCOUNTS.....	11,862,388	11,642,095	11,413,607

RESERVE POSITIONS OF MEMBER BANKS

Eleventh Federal Reserve District

(Averages of daily figures. In thousands of dollars)

Item	4 weeks ended Sept. 3, 1969	5 weeks ended Aug. 6, 1969	4 weeks ended Sept. 4, 1969
RESERVE CITY BANKS			
Total reserves held.....	728,693	732,494	720,918
With Federal Reserve Bank.....	677,185	682,173	670,071
Currency and coin.....	51,508	50,321	50,847
Required reserves.....	731,203	731,907	715,179
Excess reserves.....	-2,510	587	5,739
Borrowings.....	22,180	54,175	10,286
Free reserves.....	-24,690	-53,588	-4,547
COUNTRY BANKS			
Total reserves held.....	773,512	773,337	708,047
With Federal Reserve Bank.....	593,228	596,174	535,110
Currency and coin.....	180,284	177,163	172,937
Required reserves.....	744,742	748,391	674,339
Excess reserves.....	28,770	24,946	33,708
Borrowings.....	32,130	24,531	17,339
Free reserves.....	-3,360	415	16,369
ALL MEMBER BANKS			
Total reserves held.....	1,502,205	1,505,831	1,428,965
With Federal Reserve Bank.....	1,270,413	1,278,347	1,205,181
Currency and coin.....	231,792	227,484	223,784
Required reserves.....	1,475,945	1,480,298	1,389,518
Excess reserves.....	26,260	25,533	39,447
Borrowings.....	54,310	78,706	27,625
Free reserves.....	-28,050	-53,173	11,822

CONDITION OF THE FEDERAL RESERVE BANK OF DALLAS

(In thousands of dollars)

Item	Sept. 24, 1969	Aug. 27, 1969	Sept. 25, 1968
Total gold certificate reserves.....	470,428	316,994	386,715
Discounts for member banks.....	23,575	53,325	29,010
Other discounts and advances.....	0	0	0
U.S. Government securities.....	2,295,623	2,322,962	2,198,030
Total earning assets.....	2,319,198	2,376,287	2,227,040
Member bank reserve deposits.....	1,283,292	1,175,528	1,228,837
Federal Reserve notes in actual circulation.....	1,665,728	1,652,265	1,502,818

CONDITION STATISTICS OF ALL MEMBER BANKS

Eleventh Federal Reserve District

(In millions of dollars)

Item	Aug. 27, 1969	July 30, 1969	Aug. 28, 1968
ASSETS			
Loans and discounts, gross ¹	11,431	11,388	10,191
U.S. Government obligations.....	2,152	2,164	2,380
Other securities.....	3,135	3,136	2,814
Reserves with Federal Reserve Bank.....	1,176	1,123	1,165
Cash in vault.....	265	259	252
Balances with banks in the United States.....	1,178	1,154	1,129
Balances with banks in foreign countries ²	8	9	7
Cash items in process of collection.....	1,198	1,170	1,002
Other assets ³	775	753	463
TOTAL ASSETS⁴.....	21,318	21,156	19,403
LIABILITIES AND CAPITAL ACCOUNTS			
Demand deposits of banks.....	1,468	1,441	1,419
Other demand deposits.....	8,843	8,707	8,282
Time deposits.....	7,323	7,388	7,233
Total deposits.....	17,634	17,536	16,934
Borrowings.....	1,090	1,122	527
Other liabilities ⁵	892	800	329
Total capital accounts ⁶	1,702	1,698	1,613
TOTAL LIABILITIES AND CAPITAL ACCOUNTS⁶.....	21,318	21,156	19,403

¹ Because of format revisions as of July 2, 1969, earlier data are not fully comparable. n.a. — Not available.

¹ Before July 2, 1969, this item was published on a net basis. ² — Estimated.

BANK DEBITS, END-OF-MONTH DEPOSITS, AND DEPOSIT TURNOVER

(Dollar amounts in thousands, seasonally adjusted)

Standard metropolitan or statistical area	DEBITS TO DEMAND DEPOSIT ACCOUNTS ¹					DEMAND DEPOSITS ¹		
	August 1969 (Annual-rate basis)	Percent change			August 31, 1969	Annual rate of turnover		
		August 1969 from		8 months, 1969 from 1968		August 1969	July 1969	August 1968
		July 1969	August 1968					
ARIZONA: Tucson.....	\$ 5,342,784	-6	21	18	\$ 217,477	24.8	26.3	23.5
LOUISIANA: Monroe.....	2,511,432	-4	15	14	91,615	28.0	30.7	26.3
Shreveport.....	7,967,172	-11	27	24	245,506	32.8	35.1	27.1
NEW MEXICO: Roswell ²	874,620	-9	20	22	36,114	24.1	25.9	21.5
TEXAS: Abilene.....	1,990,032	2	6	10	99,077	20.2	19.9	20.0
Amarillo.....	5,429,508	-2	4	6	162,847	34.1	36.1	35.2
Austin.....	8,393,796	-16	23	30	274,806	30.5	37.0	27.1
Beaumont-Port Arthur-Orange.....	5,795,652	-11	1	7	242,859	23.8	26.5	24.3
Brownsville-Harlingen-San Benito.....	1,131,372	-32	4	8	65,938	16.8	23.8	16.5
Corpus Christi.....	4,364,880	-15	2	7	204,170	21.1	24.7	22.2
Corsicana ²	359,496	-17	-3	3	30,564	12.2	14.8	13.6
Dallas.....	104,508,468	-8	18	27	2,262,471	47.3	51.7	45.3
El Paso.....	6,491,268	-9	10	16	240,119	28.5	31.8	28.1
Fort Worth.....	20,557,488	-2	7	13	617,880	33.3	33.3	33.5
Galveston-Texas City.....	2,570,688	-2	9	6	104,962	24.8	24.6	22.0
Houston.....	92,260,092	-3	16	16	2,498,957	37.2	38.4	34.5
Laredo.....	818,280	-7	7	14	37,746	21.1	22.3	20.4
Lubbock.....	4,650,240	-4	13	16	159,891	30.0	31.6	27.5
McAllen-Pharr-Edinburg.....	1,277,784	-17	-1	11	89,293	14.1	17.1	15.9
Midland.....	1,842,024	-7	6	13	135,755	13.5	14.7	13.0
Odessa.....	1,617,360	8	17	16	76,396	21.3	19.8	20.1
San Angelo.....	1,105,848	1	3	11	67,407	17.0	16.3	16.9
San Antonio.....	15,627,840	-5	9	10	592,138	26.2	26.9	24.1
Sherman-Denison.....	1,023,492	-1	9	9	60,426	16.9	17.5	17.1
Texarkana (Texas-Arkansas).....	1,457,880	-9	1	11	68,556	20.6	21.8	21.9
Tyler.....	2,145,060	-2	18	19	93,491	23.2	23.0	20.6
Waco.....	2,791,920	-4	17	12	116,367	24.2	24.9	20.3
Wichita Falls.....	2,225,328	-5	-2	7	117,993	19.1	20.5	19.6
Total—28 centers.....	\$307,131,804	-6	14	19	\$9,010,821	34.5	36.6	32.4

¹ Deposits of individuals, partnerships, and corporations and of states and political subdivisions.

² County basis.

GROSS DEMAND AND TIME DEPOSITS OF MEMBER BANKS

Eleventh Federal Reserve District

(Averages of daily figures. In millions of dollars)

BUILDING PERMITS								
Area	VALUATION (Dollar amounts in thousands)							
	NUMBER		Percent change					
	Aug. 1969	8 mos. 1969	Aug. 1969	8 mos. 1969	August 1969 from		8 months, 1969 from 1968	
					July 1969	Aug. 1968		
ARIZONA								
Tucson.....	649	5,123	\$ 4,294	\$ 46,795	-59	127	94	
LOUISIANA								
Monroe-West								
Monroe.....	58	513	437	9,056	-64	-83	-41	
Shreveport.....	419	3,368	2,190	25,215	-18	-37	42	
TEXAS								
Abilene.....	38	318	285	7,832	0	32	36	
Amarillo.....	3,751	8,740	3,998	25,449	-33	278	78	
Austin.....	384	3,334	6,448	104,556	-41	-49	24	
Beaumont.....	250	1,206	926	7,966	-27	24	-31	
Brownsville.....	72	501	706	6,872	-10	374	83	
Corpus Christi.....	291	2,638	1,030	17,053	-37	-81	-45	
Dallas.....	1,613	15,799	29,520	246,029	-15	2	34	
Denison.....	11	212	54	2,350	-74	-92	-20	
El Paso.....	456	3,530	4,666	63,627	8	11	42	
Fort Worth.....	458	3,942	4,174	55,953	-14	-51	-7	
Galveston.....	69	689	378	13,782	6	29	65	
Houston.....	2,060	24,208	34,449	289,062	-25	-3	10	
Laredo.....	28	271	143	2,314	-4	-48	33	
Lubbock.....	108	870	1,703	20,765	-14	-11	-11	
Midland.....	25	380	606	4,172	106	30	-56	
Odessa.....	61	499	740	6,531	104	-59	42	
Port Arthur.....	85	682	220	7,540	-57	-87	84	
San Angelo.....	50	448	860	4,451	167	122	-36	
San Antonio.....	1,045	8,432	5,492	54,807	-18	-28	-37	
Sherman.....	62	644	1,109	16,432	-79	260	418	
Texarkana.....	49	275	336	4,561	-22	1	-63	
Waco.....	237	1,946	1,441	14,408	-54	0	20	
Wichita Falls.....	67	561	619	10,380	-39	-37	20	
Total—26 cities..	12,396	89,129	\$106,824	\$1,067,958	-27	-13	13	

GROSS DEMAND DEPOSITS							TIME DEPOSITS		
Date	Total	Reserve city banks		Country banks		Total	Reserve city banks		
		Total	Country banks	Total	Country banks				
1967: August....	9,178	4,268	4,910	6,394	2,742	3,652			
1968: August....	9,732	4,523	5,209	7,208	3,049	4,159			
1969: March.....	10,268	4,781	5,487	7,722	3,042	4,680			
April.....	10,497	4,893	5,604	7,704	2,988	4,716			
May.....	10,231	4,777	5,454	7,676	2,962	4,714			
June.....	10,209	4,758	5,451	7,634	2,925	4,709			
July.....	10,316	4,783	5,533	7,474	2,806	4,668			
August.....	10,250	4,746	5,504	7,353	2,741	4,612			

VALUE OF CONSTRUCTION CONTRACTS					
(In millions of dollars)					
Area and type	August 1969	July 1969	June 1969	January—August	
				1969	1968
FIVE SOUTHWESTERN STATES¹.....					
Residential building.....	598	628	678	4,757	4,444
Nonresidential building....	267	255	254	1,951	1,849
Nonbuilding construction...	193	210	236	1,547	1,283
UNITED STATES.....	6,523	6,168	6,255	46,027	41,347
Residential building.....	2,394	2,225	2,462	17,602	16,660
Nonresidential building....	2,460	2,370	2,322	17,557	14,631
Nonbuilding construction...	1,669	1,574	1,471	10,868	10,056

¹ Arizona, Louisiana, New Mexico, Oklahoma, and Texas.

NOTE.—Details may not add to totals because of rounding.

SOURCE: F. W. Dodge, McGraw-Hill, Inc.

DAILY AVERAGE PRODUCTION OF CRUDE OIL

(In thousands of barrels)

Area	August 1969	July 1969	August 1968	Percent change from	
				July 1969	August 1968
FOUR SOUTHWESTERN STATES					
Louisiana	6,492.6	6,534.1	6,406.6	-0.6	1.3
New Mexico	2,350.9	2,351.8	2,275.8	.0	3.3
Oklahoma	351.2	353.4	348.6	-6	7
Texas	606.2	608.8	625.2	-4	-3.0
TEXAS					
Gulf Coast	3,184.3	3,220.1	3,157.0	-1.1	.9
West Texas	645.0	647.5	644.1	-4	.1
East Texas (proper)	1,497.6	1,515.9	1,442.6	-1.2	3.8
Panhandle	159.5	157.7	145.8	1.1	9.4
Rest of State	85.4	87.6	92.2	-2.5	-7.4
Rest of State	796.8	811.4	832.3	-1.8	-4.3
UNITED STATES	9,287.5	9,310.1	9,218.1	-3	.8

SOURCES: American Petroleum Institute.
U.S. Bureau of Mines.
Federal Reserve Bank of Dallas.

CROP PRODUCTION

(In thousands of bushels)

Crop	TEXAS		FIVE SOUTHWESTERN STATES ¹			
	1969, estimated Sept. 1	1968	1967	1969, estimated Sept. 1	1968	1967
Cotton ²	3,425	3,525	2,767	5,080	5,244	4,000
Corn	33,072	26,052	18,658	42,716	36,871	27,595
Winter wheat	69,768	84,150	53,216	199,938	218,974	150,903
Oats	24,768	19,822	6,615	32,248	25,450	11,533
Barley	2,772	3,348	1,350	30,648	26,856	18,007
Rye	648	528	350	1,688	1,208	909
Rice ³	23,058	27,462	25,400	43,526	53,943	47,435
Sorghum grain	328,640	340,780	343,485	393,881	402,171	409,267
Flaxseed	1,296	742	150	1,296	742	150
Hay ⁴	3,755	4,587	3,774	9,388	10,418	9,565
Peanuts ⁵	403,200	426,300	333,450	649,060	671,476	558,470
Irish potatoes ⁶	4,532	4,382	4,329	8,353	7,654	7,892
Sweet potatoes ⁶	750	960	810	5,400	5,206	5,008
Pecans ⁶	33,000	69,000	34,000	87,000	97,000	111,400

¹ Arizona, Louisiana, New Mexico, Oklahoma, and Texas.

² In thousands of bales.

³ In thousands of bags containing 100 pounds each.

⁴ In thousands of tons.

⁵ In thousands of pounds.

⁶ In thousands of hundredweight.

SOURCE: U.S. Department of Agriculture.

COTTON PRODUCTION

Texas Crop Reporting Districts

(In thousands of bales — 500 pounds gross weight)

Area	1969, indicated Sept. 1	1968	1967	1969 as percent of 1968
1-N — Northern High Plains	300	211	258	142
1-S — Southern High Plains	1,440	1,384	937	104
2-N — Red Bed Plains	280	312	218	90
2-S — Red Bed Plains	300	372	234	81
3 — Western Cross Timbers	20	20	12	100
4 — Black and Grand Prairies	280	409	264	68
5-N — East Texas Timbered Plains	15	19	19	79
5-S — East Texas Timbered Plains	40	41	39	98
6 — Trans-Pecos	150	189	158	79
7 — Edwards Plateau	55	72	23	76
8-N — Southern Texas Prairies	40	57	54	70
8-S — Southern Texas Prairies	105	93	98	113
9 — Coastal Prairies	80	79	117	101
10-N — South Texas Plains	20	25	20	80
10-S — Lower Rio Grande Valley	300	242	316	124
State	3,425	3,525	2,767	97

SOURCE: U.S. Department of Agriculture.

INDUSTRIAL PRODUCTION

(Seasonally adjusted indexes, 1957-59 = 100)

Area and type of index	August 1969p	July 1969	June 1969	August 1968
TEXAS				
Total industrial production	178.3	176.9	175.1r	166.2r
Manufacturing	201.8	200.5	196.6r	186.4r
Durable	224.5	222.0	216.7r	203.4r
Nondurable	186.7	186.1	183.2r	175.0r
Mining	129.1	127.3	131.6r	126.2
Utilities	261.0	261.0	242.0r	225.0r
UNITED STATES				
Total industrial production	174.3	174.6	173.8r	164.6r
Manufacturing	175.5	175.5	174.9r	165.7r
Durable	178.6	179.0	178.4r	167.8r
Nondurable	171.5	171.2	170.6	163.0r
Mining	132.4	132.8	132.2r	129.4r
Utilities	220.5	221.8	218.7r	202.1

p — Preliminary.

r — Revised.

SOURCES: Board of Governors of the Federal Reserve System.
Federal Reserve Bank of Dallas.

NONAGRICULTURAL EMPLOYMENT

Five Southwestern States¹

Type of employment	Number of persons			Percent change Aug. 1969 from	
	August 1969p	July 1969	August 1968r	July 1969	Aug. 1968
Total nonagricultural					
wage and salary workers	6,218,800	6,210,200	5,976,400	0.1	4.1
Manufacturing	1,169,900	1,164,900	1,124,800	.4	4.0
Nonmanufacturing	5,048,900	5,045,300	4,851,600	.1	4.1
Mining	237,700	238,100	235,700	-.2	.8
Construction	412,600	410,600	406,800	.5	1.4
Transportation and public utilities	467,400	466,500	446,400	.2	4.7
Trade	1,416,400	1,412,300	1,361,100	.3	4.1
Finance	311,000	310,100	294,000	.3	5.8
Service	978,600	973,800	924,800	.5	5.8
Government	1,225,200	1,233,900	1,182,800	-.7	3.6

¹ Arizona, Louisiana, New Mexico, Oklahoma, and Texas.

p — Preliminary.

r — Revised.

SOURCE: State employment agencies.

