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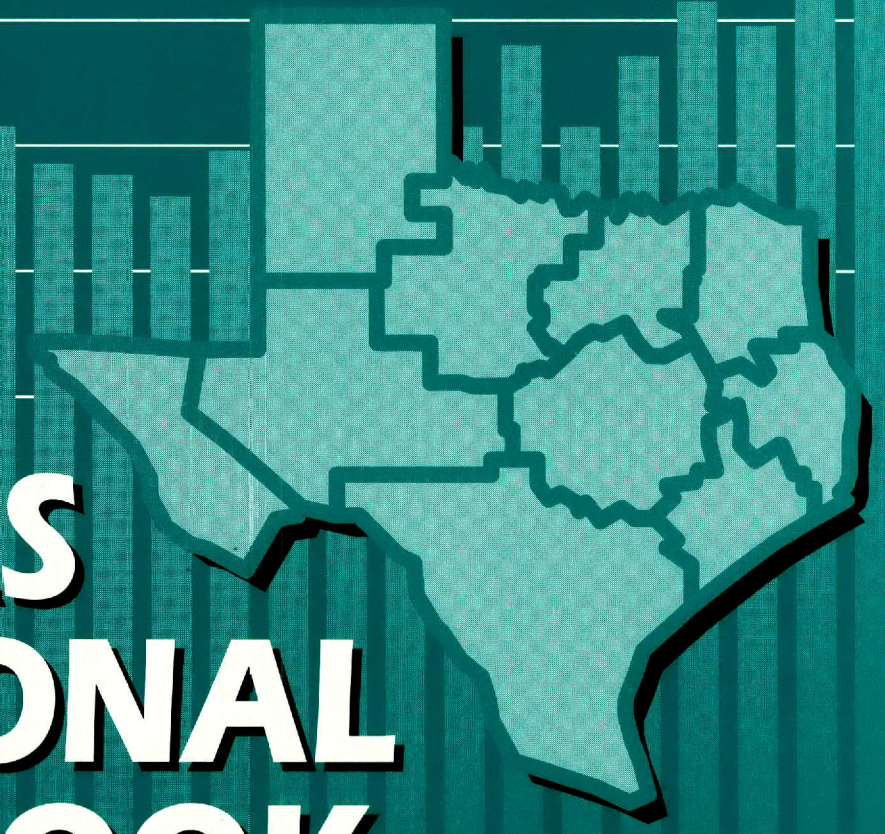

TEXAS REGIONAL OUTLOOK

West Texas

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JOHN SHARP
Comptroller of Public Accounts

A Report of the Comptroller's

FORCES OF CHANGE
PROJECT

TxD C2600 R263w

COMPTROLLER OF PUBLIC ACCOUNTS
STATE OF TEXAS
AUSTIN, 78774

JOHN SHARP
Comptroller

Dear Fellow Texan:

This is the second year we have done *Regional Outlook* reports. This year, we've added an analysis of the historical forces that have shaped each region, as well as insights into the area's current and future population. We've also examined the region's present and future economic health, and identified which occupations and businesses are doing well now and which are poised for future growth.

Much of this new analysis comes from a major project we are working on at the Comptroller's Office entitled *The Forces of Change*. In February, Governor Ann Richards signed Executive Order 92-1 calling upon the Comptroller to undertake a sweeping study of the major issues likely to face the citizens of Texas over the next 35 years. It has been an eye-opener for us to look at these forces of change–those inevitable undercurrents of demographics, economics and social norms that already are beginning to shape the very nature of Texas.

Our 17 million residents and 7 million workers are engaged in a highly diversified economy with an output of more than $250 billion a year. It's important we know how Texas got where it is today, and where it is going tomorrow. How are these forces playing out in our state? What can we do to position ourselves to gain the greatest advantage in the times ahead?

One of the great strengths of this state has been its diversity: in land, in resources, in people. We have the wide open spaces, cattle and oil wells that outsiders think of when they think of Texas. But we also have three of the nation's 10 most populous cities, and more metropolitan areas than any other state. To learn about Texas, you have to find out about the incredible range of economic, social and cultural activity across the state. To know the whole, you have to figure out the pieces.

I hope you find this report informative, useful and thought-provoking.

Sincerely,

John Sharp

JOHN SHARP
Comptroller of Public Accounts

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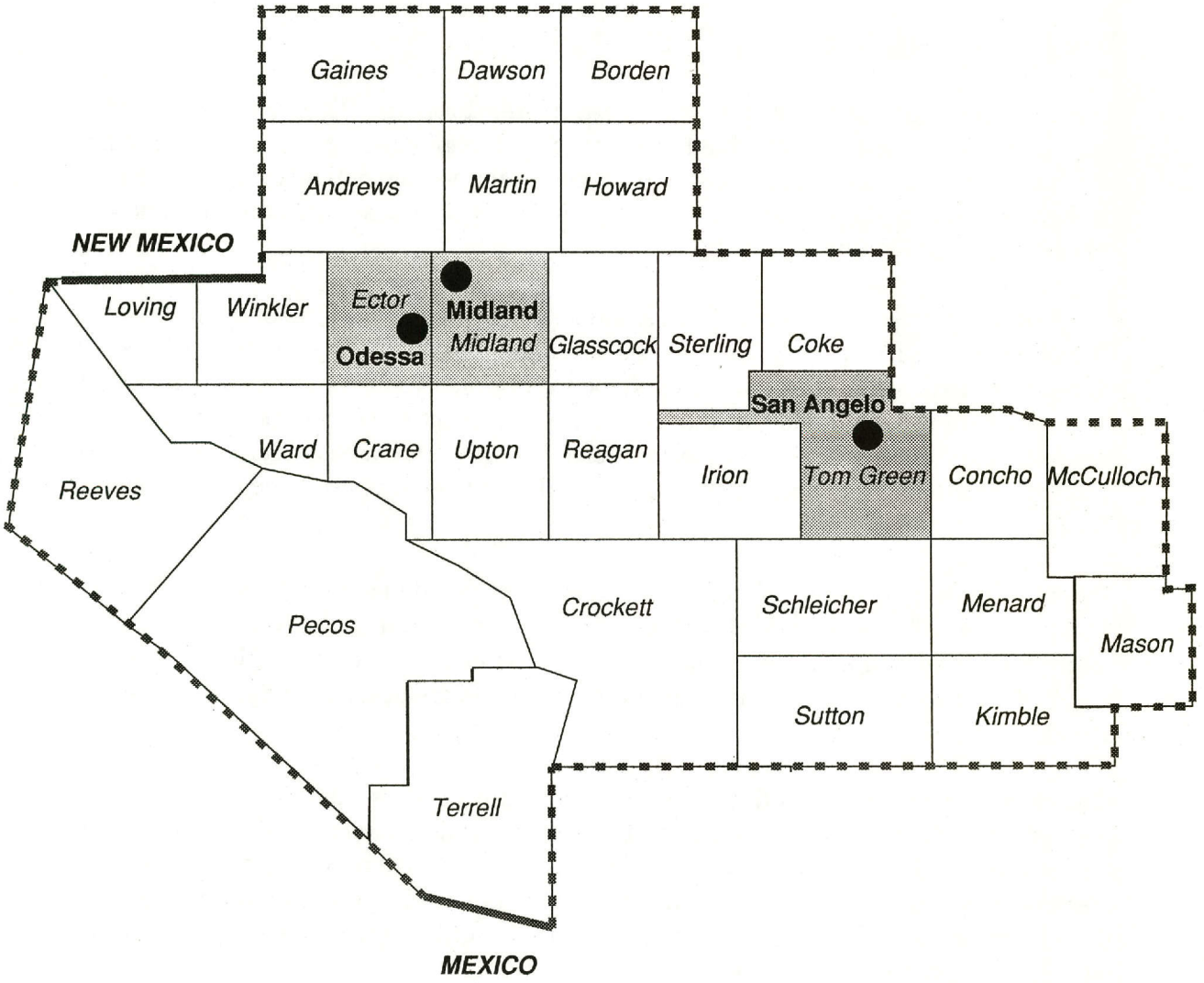
West Texas
Counties and Metropolitan Areas



Shaded areas indicate a Metropolitan Statistical Area (MSA).

REGIONAL OUTLOOK: WEST TEXAS

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Introduction

We are living in a time of change. More than ever before, the basic structures of our social and economic world—the market place, the family, the government—are undergoing transformations that will fundamentally alter the way we work and the way we live.

The world order that provided the political framework for more than a generation—two military superpowers with conflicting ideologies—has vanished virtually overnight. Now, economic powerhouses in Asia, Europe and America are waging war over market share, trade and jobs. Small businesses, as they contend with more and more regulations, have to worry about competitors around the world, not just around the corner.

Our cities seem under siege as we battle poverty, drugs and unemployment. Every day we hear more of teen pregnancy, adult illiteracy, job layoffs. The last generation's traditional family of a breadwinner, a housewife and two or three kids, has become a statistical oddity, the victim of financial pressures, stagnant wages and salaries, divorce and changing attitudes about the proper roles of men and women.

Future demographics meets the changing economy at the crossroads of the work force. Winners and losers in the new world economy will be less and less determined by who has what resources and more and more by who has what skills, technology and knowledge. All of this will be played out on a stage in which the environment will demand and receive much greater consideration.

Against this backdrop, state government will face increasing pressures to meet growing and changing needs. Federal, state and local governments are caught between insistent calls for better schools, human services and highways, and irate taxpayers tired of turning over a bigger and bigger chunk of hard-earned money to a growing bureaucracy. Government must be held accountable for efficiency and effectiveness.

Texas cannot sit back and watch as the world changes. We will change, too, like it or not. The question is, will we allow ourselves to be carried along willy-nilly, hoping for the best but fearing the worst? Or do we begin now to understand the forces shaping our future?

It is with this perspective that the Comptroller's Office has undertaken a sweeping study, *The Forces of Change.* Our state's 17 million residents and 7 million workers are engaged in a highly diversified economy with an output of more than $250 billion a year. We want to know how Texas got where it is today, and where it's going tomorrow. How are the forces of change playing out in our state? What can we do to position ourselves to gain the greatest advantage in the times ahead?

This report is one part of that project. Recognizing the diversity of Texas demands that we place the forces of change in a regional perspective. All of the forces of change will affect the entire state, but some will play out more prominently in different regions of Texas.

To address this diversity, this report will review the trends of change in the West Texas region of the state. Reviewing the economic history and geography of West Texas is a necessary precursor to understanding the current structure of, and ongoing changes in, the region's economy. Crucial in the economic future of the region will be the changing demographics and its subsequent effects on the labor force. The interplay of known economic trends and changing demographics yields a baseline forecast for the economic health of the region to the turn of the century.

Most importantly, against this forecast we can assess the likely impacts of key forces of change on the future of West Texas. Of critical importance in this region will be improving work force skills to compete in a new world economy based less on natural resource endowments and more on the abilities of the labor force. At the same time, environmental concerns must be reconciled with economic pressures.

We can, with intelligence and foresight, come up with a plan to make the most of the new world now being created. Who "wins" and who "loses" in the 21st century has not yet been decided, but it is being decided today. The stakes are high, and the competition will be fierce. We will feel the results of this competition on our own standard of living, and how we fare will do much to determine what kind of world we will leave to our children. ✪

Economic History and Geography

The key to understanding the development of Texas is the relationship of man to the land. The West Texas region of the state, made up of 30 counties, is home to historic forts, extensive ranching, and the Permian Basin oil fields. Traditionally ranching and farming have been important to the economic development of West Texas. Most of the towns here serve as ranch supply centers, county seats and railroad or highway service centers. The discovery of oil in the early 1920s allowed some towns to evolve into trade centers for the oil industry and the postwar boom that increased the demand for crude helped Texas become one of the most prosperous states in the Union.

Economic History

In the 1800s, the Native American inhabitants of the West Texas region were the Comanche tribes, who had begun migrating from the Great Plains into Texas in the 1700s. The tribes' diverse diet consisted of wild game and wild plants including bear, deer, longhorn cattle, grapes, currants, pecans and acorns. However, the most important element of their diet and their economic well-being was the buffalo. The products made from the buffalo provided the tribes with almost every essential including clothing, housing, tools, fuel for fire, food and food containers, and ceremonial accessories.

As the Western frontier approached the buffalo's range land that extended deep into Texas, the Plains tribes aggressively deterred Anglos from settling in the western half of the state. Because these tribes were nomadic, following the buffalo herds, they were more resistant to the European diseases that contributed to the decimation of many of the sedentary tribes in Texas. The legendary horsemanship skills of the Plains tribes, especially the Comanches, allowed them to dominate the South Plains for more than a century.

After Texas' annexation in 1845, the stable environment combined with Texas' liberal land policies contributed to a dramatic increase in the state's population. The edge of the Western frontier was the Balcones Escarpment and the Comanches and other native tribes continued to prohibit permanent settlement on the Edwards Plateau.

Many of the new emigrants to Texas were Europeans, primarily from Germany. In 1850, Germans outnumbered Mexicans in Texas. Immigration from Germany throughout the century left a band of German communities from the Gulf Coast to the Hill Country. The Hill Country area remains a distinctive part of eastern West Texas because of the achievements of the early German settlers and their descendants in prospering on the marginally productive land.

In 1848, two major events dramatically changed the face of the West Texas region—the discovery of gold at Sutter's Mill in California and the end of the Mexican War. The gold rush placed Texas in the middle of a massive east-west migration across the United States, and the Treaty of Guadalupe Hidalgo required that the U.S. protect the border against Indian raids. Both events acted as a catalyst for U.S. military surveys of the unsettled lands of West Texas. This led to the establishment of frontier forts around which communities evolved, especially near surface water.

The U.S. War Department had already considered making various military surveys across the continent with the intent of building a transcontinental highway from the Mississippi Valley to the Pacific. U.S. cavalry troops escorted many of the Forty-Niners along the trails across the Western frontier.

Texas merchants, keenly aware of the

- **Historically dependent on its agricultural products and oil and gas, West Texas must adapt in order to meet the challenges of the future.**
- **A declining petroleum resource base will affect the region.**

value of trade routes across the western parts of the state, lobbied for a survey of the area long before the end of the Mexican War. During Spanish and Mexican periods of the region, the trip from San Antonio to the El Paso area was an arduous affair of 1,000 miles or more. Hostile Comanches and Mescalero Apaches blocked shorter, more direct western routes and forced the railroad to lay tracks from San Antonio to El Paso via Durango, Mexico.

In 1848, a group of Texas Rangers tried to establish a direct westward route from San Antonio to El Paso, but they lost their way. In 1849, Robert S. Neighbors and his contingent, financed by Austin merchants, set out in search of a better route on a trail north of the headwaters of the San Saba and Concho rivers to Horsehead Crossing on the Pecos River and then westward to El Paso.

At the same time, Capt. Randolph B. Marcy discovered a new and better trail on a return trip to Fort Smith that years later became part of a permanent route to the west. His route took him through Guadalupe Pass, where the Butterfield Overland Mail Company later established one of its better-known stage stations. On October 2, 1849, his party happened upon "a fine spring of water," now Big Springs. The remainder of his route back to Fort Smith, Arkansas closely parallels today's U.S. Highway 80.

Very few frontier settlers attempted homesteading in West Texas beyond the Balcones Escarpment before the mid-1850s. Though many had traveled across the region in route to the California gold rush during the late-1840s and 1850s and on the cattle trail drives in the 1860s and 1870s, the aggressive Plains tribes continued to delay permanent frontier settlement.

The mass migration from east to west was a harbinger of the eventual transformation of West Texas. Like many Texas towns on the edge of the Western frontier, towns in West Texas in the late 1800s served as junctions for the trip from the eastern United States to the west. Frontiersman and prospectors purchased supplies from area merchants, and often stayed over to rest their animals before beginning the next leg of their arduous trip across the desert and mountains to El Paso.

In an attempt to end disputes between the Native American tribes and Anglos, the U.S. government established a successive line of forts along the rapidly advancing Western frontier. Fort Mason, built in 1851 between the San Saba and Llano rivers near present-day Mason, served primarily to protect German settlers that moved to the area from Fredricksburg. Fort McKavett, established in 1852 as Camp McKavett, typifies a West Texas historic site that would never have existed were it not for water, in this case provided by the San Saba River. Another post, Fort Terrett, went up on the North Llano River between present-day Sonora and Junction.

By 1854, the number of Comanche and Apache depredations were so frequent that more forts became essential to protect the wagon trains, mail and stagecoaches that followed the westward routes. The Butterfield Overland Mail Company operation began in 1858 and increased the mail service to El Paso from monthly to bi-weekly.

Fort Stockton, established in 1859 near large natural springs, was at the crossroads of the Butterfield Overland Mail route, the Old San Antonio Road and the tribes' war path—the Comanche Trail.

Though the military forts barely made a dent in the war path, the soldiers performed the vital service of escorting freight cargoes, stagecoaches, passengers, and the mail across the treacherous stretch of land in West Texas.

With the advent of the Civil War, many of the troops stationed at the frontier forts were called to the front lines of the war and many forts were completely abandoned. During the war years, the Native American tribes met little resistance and successfully drove the frontier line back nearly 100 miles. After the war the troops returned, however, the Western frontier resumed its advance into West Texas.

Fort Concho, established in 1867 to replace Fort Chadbourne (1852) that suffered from a lack of water, was a pivot post on the frontier line. The troops from Chadbourne at the present site of Bronte transferred to Fort Concho. The fort was built at the junction of several western trails and at the convergence of the North and Middle Concho rivers.

Although the Butterfield Overland Mail coaches never resumed operations on the route through Texas, mail and stage service were available from the Pony Express, started by Butterfield's former partners, Wells and Fargo. The line ran from Fort Smith to San Antonio with several stops in West

Texas—Fort Concho, Fort McKavett, Menardville, Rock Springs and Mason. In 1869, the service expanded to El Paso through West Texas.

Many of the first towns in the West Texas region developed around these frontier forts, while others evolved as stagecoach stations; they were an important link in the journey along the southern and northern routes connecting San Antonio and El Paso that intersected the Comanche Trail.

Santa Angelo, along the northern route, evolved from a trading post established across the river from Fort Concho. Many of the early settlers in the area were cattle ranches that supplied beef and dairy products to the fort. The federal government later changed the name of the town to San Angelo when a post office was established. Today, the historic fort is a tourist attraction.

Other towns in West Texas—Big Spring, Midland, Odessa, Monahans and Pecos—were the direct result of the extension of the Texas and Pacific Railroad en route to the West. In the eastern part of the state the railroad lines developed between established towns, but in the western parts of Texas, the state had to entice the railroads with free land. The railroads brought more ranchers, the windmills and soon the farmers to West Texas.

Commercial Agriculture

The impact of the California gold rush on various unsettled regions of Texas resulted in other activities besides mining. The most important of these was ranching.

The early style of ranching in West Texas reflected the Mexican traditions of free-range ranching that migrated west from South Texas and the German traditions of those settlers who ranched on the Edwards Plateau.

The advent of the railroad through the West Texas region in the 1880s aided agricultural growth. The improved transportation provided by the railroads enhanced the development of commercial agriculture, bringing settlers to the region and then exporting the settlers' agricultural products.

At the beginning of the cattle boom that followed the Civil War many of the ranchers were former trail drivers who had driven cattle through West Texas along the Goodnight-Loving Trail. Charles Goodnight and Oliver Loving established the route that took advantage of both Concho rivers and the Pecos River before heading into New Mexico. The ranchers knew there was an abundant supply of free range land and grass making the area prime for the economic boom in the cattle industry that would help support the West Texas region during the 1880s. The Industrial Revolution in the eastern U.S. and rural-to-urban population shifts, combined with technological advances such as cold storage, continued to drive the cattle economy.

The cattle ranchers of the region were extremely prosperous during the post-Civil War years, until a severe blizzard in 1886 and the droughts of 1886-1887 killed thousands of cattle, forced thousands more on the market, and wiped out many of the ranchers. By the close of the 1880s, overexpansion, poor management and severe overgrazing of the range brought the cattle boom to an end. Those ranches that survived profited by selling off land to farmers moving into the region.

An important difference between the ranching in West Texas and that of most other regions of the state is the emphasis on sheep and goats throughout the Edwards Plateau. This developed from the blending of the German and Mexican cultures of the region and efforts to prosper off the arid and brushy land.

The Edwards Plateau is unique in that its variety of foliage—grass for cattle, weeds for sheep and trees and brush for goats—supports these three livestock industries that contribute to the West Texas economy. The Edwards Plateau is one of the leading Angora goat and mohair producing areas in the nation.

Sheep, like cattle, came to Texas during the Spanish era and were first raised on a large scale south of San Antonio. The cattle ranchers began moving into West Texas during the 1860s; by the 1870s, the sheep ranchers began their westward movement. Mexican-Americans were especially important in the raising of sheep and goats. Many of the shepherds and shearers were of Mexican heritage and many owned ranches with herds of over 10,000 head.

The introduction of sheep in 1877 led San Angelo to become a market center for the sheep and wool industry that developed in the region. By 1882, San Angelo became the county seat of Tom Green County. When

the railroad arrived in 1888, San Angelo developed into a major shipping terminus for sheep and wool, and eventually became the nation's largest sheep and wool market and the center for wool and mohair warehouses and processing plants.

The sheep population in Texas increased from 1.2 million head in 1870 to more than 6 million in 1880. The number of sheep declined in the early 1900s and then soared to nearly 11 million during WWII as Texas became the leading sheep producer in the nation. Because of increasing costs the number of sheep has since gradually declined to around 2 million head in 1991. The price per head has steadily declined from $76 in 1988 to $54 per head in 1991. The leading sheep producing counties in the state include Crockett, Schleicher, McCulloch and Pecos.

Turkish Angora goats, known for their quality mohair, came to Texas in 1849. Today nearly half of the world's mohair and 97 percent of the U.S. clip are produced in Texas. Leading producers in the state include the West Texas counties of Sutton, Crockett, Terrell, Kimble and Mason.

The advance of commercial cultivated agriculture into the West Texas region did not occur until the 20th Century due to the lack of adequate water in the region. The ranchers prospered because they developed an economy consistent with the environment and the resources of the region. Farmers came to West Texas soon after the ranchers and began cultivating the land near the Concho and Pecos rivers by the 1900s, but agriculture didn't become a substantial economic industry in the region until dryland farming techniques improved.

The settlers knew there was groundwater in the region but they didn't have the technical know-how to pump the water to the surface efficiently. The settlers used windmills only to pump enough water for domestic needs, to water livestock and to irrigate small gardens.

The combination of an agriculture depression in the 1920s following WWI, the Dust Bowl of the 1930s, and the Great Depression, set the stage for the renaissance of modern Texas agriculture.

Water Conservation in the 20th Century

During the 1930s, the spread of efficient groundwater pumps would add to the changes of the West Texas economy. The development of irrigation techniques in the 1940s further removed the natural restrictions of the land and allowed West Texas to become a commercially productive agricultural region.

The counties in the northern portion of the region tap the Ogallala Aquifer, which makes commercial cotton cultivation possible, but today, continued depletion of the aquifer could limit future growth in cotton production.

As the amount of water used by agriculture, when added to urban demand, outpaced the Ogallala's ability to recharge itself, the water level of the aquifer fell, and the myth of what many had thought was an inexhaustible water supply became obvious by the 1960s. The only bright note is that the level of the aquifer registered a rise in 1987 and 1988, the first in 36 years.

Other areas in the region have access to alluvial deposits—water-bearing strata—and the Edwards Limestone-Trinity Sands Aquifer, but these ground water sources are also declining. More efficient means of irrigation are necessary to insure the future availability of water.

Water-conserving irrigation techniques include furrow dikes, drop tubes and drip irrigation. Furrow dikes are embankments to hold water in the furrows between crop rows, allowing slow water absorption. Drop tubes, part of low-energy precision-application (LEPA) irrigation systems, release water onto the plant furrow from a height of four to eight inches, minimizing evaporation. Drip irrigation puts drops of water from a vinyl tube directly over a plant's root system. This system is particularly good for evenly spaced plants and is part of the reason that vineyards are successful. Continued development of irrigation techniques to conserve water and crops that require less water along with the development of alternate water sources are necessary for future development in West Texas.

Cantaloupes

The extensive irrigation of some fields allowed the West Texas region to produce a variety of cultivated crops, the most famous being the Pecos cantaloupe.

Unlike many counties in the region, irrigation projects started early in Pecos, Reeves and Ward counties thanks to their proximity to the Pecos River. In the 1890s, the Pioneer Irrigation Company established

an irrigation system on the Pecos River that watered 83,000 acres in the three West Texas counties. This earlier irrigation effort contributed to the cultivation of cotton and other crops including the region's renowned cantaloupe.

In the 1880s, settlers in the area grew cantaloupes in their gardens and discovered that the combination of the arid soil and controlled watering yielded a melon with a distinctive flavor. The Pecos cantaloupes were served to diners on the Texas Pacific Railroad beginning in the early 1880s and word spread across the country about the mouth-watering melons.

Over the years different growers came to the area and by the 1930s the Pecos gourmet cantaloupe had earned a national reputation for is sweetness, firmness and small seed cavities. Growers claim that it is not the cantaloupe variety but the mineral-rich alkaline soil in Pecos and Reeves counties that give the melons' juicy orange meat a nine-percent sugar content.

Wine

While Texas is not usually associated with grape cultivation or wine production, the industry has a 300-year history in the state, 100 years more than its California rival. In 1662, Franciscan priests planted cuttings from the classic European grape vine, *Vitis vinifera*, so they could make sacramental and medicinal wine. Today, several counties in West Texas have significant wine grape production.

The Texas vineyards are important to the history of wine making because in the mid-1800s vines from Texas saved the European wine industry. Disease in the 1860s and 1870s had all but destroyed the vineyards of France, Germany and Spain. Fortunately, a Texas agronomist had been experimenting with grapes and developed a disease-resistant rootstock by grafting European vines to those native to Texas. He shipped his rootstock to Europe, receiving the French Legion of Honor for saving the European wine industry.

Growth of the wine industry in Texas continued, and at the dawn of the 20th Century the state had 26 wineries. Then, public sentiment against drinking combined with years of prohibition to nearly wipe out the industry, leaving only one winery until 1975.

American demand for wine began growing in the early 1970s, and at about the same time, researchers and land managers for the University of Texas experimented with alternate uses for the school's two million acres of West Texas land. Although oil was still filling the university's coffers, the school recognized the declining nature of the resource. The other conventional use for West Texas land, grazing sheep, cattle or goats, brought little cash per acre. For example, a cow and calf require 50 acres or more of the sparse grassland. Wine grape production was one of the experimental alternate uses tried by the university, along with kiwi and almond groves.

West Texas turned out to be suitable for grape production with its fertile soil and warm semi-arid climate. Augmenting the sparse rainfall with well water, the university established test acres of grapevines.

The test acres were so successful that the researchers planted a vineyard, and in 1983, the university leased the 1,000 acres of vines to a partnership—two Texas businessmen, Cordier, a large commercial wine producer in France, and Richter Corp., a French vineyard. The partnership built a 15-million-dollar winery and today markets its product under the Ste. Genevieve Vineyards label. By 1985, the vineyard produced over half of all the wine made in Texas.

The region's other winery is St. Lawrence in Glasscock County, which has a small vineyard planted among cotton fields and cattle ranches.

The Importance of Oil and Gas

For decades, the economy of West Texas depended on the ranches of the region. In the early 1920s oil fever changed the complexion of the economy, which since then has been subject to the variability of the oil industry.

The oil-bearing formation in West Texas has its origin in the Permian Period of geology, when limestone reefs rimmed basins, the site of mud flats where silts settled. These reef limestones are today the location of the oil reserves and the area is known as the Permian Basin.

The most famous oil well of the Permian Basin, the Santa Rita No. 1, was named by a group of Catholic women investors after the patron saint of the impossible. Finding riches beneath the sun-baked soil of West Texas must certainly have seemed a hopeless venture, but just a few months after the well was spudded, on May 28, 1923, the

Santa Rita gusher blew in near Big Lake. Soon, there were 17 producing wells in the Big Lake Field, and since the University of Texas owned the land, the oil lease royalties put the university on the road to becoming one of the wealthiest schools in the nation.

Other fields were also discovered: in Crockett County just south of Big Lake, a discovery well was brought in and then in Loving County another discovery was made. McCamey turned into a boom town with the discovery of oil in Upton County. Oil-field workers slept in tent cities and railroad tank cars hauled in drinking water.

By 1926, both the Yates Field in Pecos County and the Hendricks Field in Winkler County were discovered. The Hendricks Field produced more oil than all the other fields in West Texas, and in Winkler County, school enrollment increased from seven students to 1,300 in two years.

Oil was also discovered in Ector County, close to Odessa, in 1926. Production in commercial quantities began in the 1930s, and eventually, the production of the Ector County Field moved into second place behind the production of the East Texas Field. Odessa evolved into an oil-field supply town and home of the largest inland petrochemical complex in the U.S.

Oil dominated the regional economy, which rejoiced in the industry's prosperous years and suffered through its declines. When the East Texas Field, which had a huge reserve of sweet-crude oil, was discovered in 1930, West Texas sour crude—meaning the oil is high in sulfur and therefore more costly to refine—suffered a decline in demand. Part of the decline in demand for West Texas crude was also because the East Texas Field was closer to the coastal refineries of the major oil companies.

Exacerbating the decline in demand for West Texas crude was the overproduction in the East Texas Field along with the onset of the Great Depression. Business all over West Texas began closing, especially in oil field supply towns like Midland and Odessa.

World War II and the increase in the demand for oil brought a measure of prosperity back to West Texas, and after the war, the increasing consumer demand for oil sparked a boom. By the end of 1950, the wells in West Texas were producing at full capacity and the U.S. began importing oil.

Unfortunately, demand for oil had increased so much that cheap foreign oil began competing with domestic crude, reducing the demand for the domestic oil that cost more to produce. This reduction in demand coincided with the drought years of the 1950s to hit West Texas with a double blow that hurt the region's economy, but the oil activity that continued through the 1950s saved the region from complete devastation.

West Texas benefited from price increases in the early 1970s. Oil prices rose as a result of the combination of several factors: increased demand, price deregulation, the oil embargo by Arab countries and the panic buying of oil supplies to maintain inventories for the operation of downstream refineries and petrochemical companies. The price increases of the late 1970s, instigated by the fall of the Shah of Iran, the beginning of the Iran-Iraq war and again exacerbated by panic buying to insure inventories, also benefited the region. The economy of West Texas blossomed with the inflow of cash.

The increases in price for oil both decreased demand and made increased exploration for oil feasible. As the supply of oil increased, an oil glut appeared in the early 1980s that, in turn, cratered the industry in the mid-1980s. The decline of the oil industry caused a recession that included a significant loss of jobs in the region and in the state. Once thought recession-proof, Texas and the region found out the hard way the result of hitching their economic star to one industry.

The "Texas two step"—dramatic price increases followed by a glut and recession—restructured the domestic oil industry. The oil production industry will never regain the prominence it once had in the Texas economy because a significant portion, especially that controlled by the major companies, has moved to foreign shores. But it is hardly out of the picture. The proven reserves of Texas alone are enough for 11 years of oil production at 1990 levels, according to the Texas Railroad Commission.

The oil industry remains important in Texas because the state is the nation's largest consumer of oil, mainly to feed refineries and other downstream operations such as petrochemical plants. Of the top ten manufacturing companies in West Texas, two are petrochemical companies and one

is a petroleum refining company. The region remains one of the heaviest producing areas for oil within the state.

Midland

The Texas and Pacific Railroad established a camp for workers at Midland in 1881, naming the town for its location midway between Fort Worth and El Paso. Settlers from the midwestern states soon followed, most arriving via the railroad, to build homes, ranches and farms. Midland developed into the area's cattle shipping and retail center.

The town remained a rural trade center until the 1920s when oil was discovered in the Permian Basin, which transformed Midland into a center for the oil industry. Midland became the headquarters for oil companies and the location of an oil tool assembly plant. Other industries came to Midland to support the oil industry and soon the town was a wholesale, retail, financial and transportation center. The city's list of companies came to include chemical plants, oil refineries, cottonseed oil mills and cotton gins. Midland Army Air Field opened in 1931, adding to the population and industrial mix, but it closed in 1947.

Midland is diversifying its economy, but even industries like tourism have a touch of the oil industry. The Permian Basin Petroleum Museum has the world's largest marine diorama. The scene is of Texas 230 million years ago when the Permian Sea covered the land. The museum also includes the world's largest collection of antique drilling equipment. The Haley Library and History Center has the bell from the Alamo and the Midland County Historical Museum has a reproduction of the oldest bones found on the North American continent; dubbed "Midland Man," this 22,000-year-old skull was found on the Scharbaurer Ranch near the city.

Odessa

Twenty miles from Midland, the Texas and Pacific Railroad established another town, which the Russian rail workers named Odessa because the area resembled the prairies and steppes of their hometown in the Ukraine. The availability of well water fostered growth and soon Odessa was the shipping point for the surrounding rural farms and ranches. After the discovery of oil, the city evolved into a center for the oil industry by servicing and supplying the nearby fields.

Oil wealth came to typify Odessa because the town had one of the highest per capita incomes in the U.S.; some called it "millionaire's town." Odessa was also the site of the largest inland petrochemical complex of synthetic rubber, plastics, and chemical plants.

Tourist attractions in Odessa include a replica of Shakespeare's Globe Theater on the Odessa College Campus. Another interesting site is the meteor crater, the third largest meteor crater in the U.S., that is near Odessa. The crater covers ten acres and, when formed, was 90 to 95 feet deep. Over time, the crater has been filled to within five to six feet of the surrounding land.

San Angelo

In 1867, the army built Fort Concho at the juncture of the north and main branches of the Concho river. The development of the fort invited setters since it provided protection from the hostile Comanches of the area. Bart DeWitt began a settlement that he named Santa Angela, after his wife's sister, which was anglicized into San Angelo.

The town evolved from supplying the military and buffalo hunters into one supplying owners of free range cattle and trail drivers. In 1877, sheep were introduced.

San Angelo became a shipping center once the Santa Fe Railroad reached it in 1888. In 1909, the Kansas City, Mexico and Orient Railroad also assisted in developing the city's potential as a market center.

While San Angelo is considered economically dependent on agriculture, especially livestock, the city's industrial base has expanded. Clothing manufacturers and medical supply manufacturers have assisted the city's growth.

Another industry having an impact on San Angelo is tourism. Tourists visit the city to see Fort Concho, one of the best preserved of Texas' frontier forts. Hunters also make regular treks to the area for white-tailed deer, wild turkey, javelina and upland game birds, while area lakes and rivers offer excellent fishing.

Geography

West Texas combines two geographic extensions of the U.S., the Great Plains in the north and east and the Intermontane

Plateaus in the west, while the Chihuahuan Desert comes north from Mexico to mingle with the mountains. The physical regions of Texas that these areas encompass include portions of the Edwards Plateau, the Mountains and Basins of Trans Pecos, the Llano Estacado and the Llano Basin.

The northern portion of West Texas is a flat plain, topped by windblown alluvial soil deposits. Called the Llano Estacado or "staked plains", this portion of the region has some of the most level, large acreage tracts in the state. The name "staked plains" could be a reference to the fact that horses had to be tied to wooden stakes because there were no trees, or that Coronado, in his search for the seven cities of gold, marked his route across the area with wooden stakes.

The Llano Estacado, which reaches from the northern part of the West Texas region up to the northwest corner of the Panhandle, is a giant irregularly shaped mesa that is a remnant of the outwash following the uplift of the Rocky Mountains. Elevations in this area can reach over 4,600.

The Edwards Plateau is also an extension of the Great Plains. The area is a stripped plain composed of limestone. The soil is a thin limestone-based soil covered with a medium to thick growth of cedar, small oak and mesquite, prickly pear and grass.

The eastern portion of West Texas is in the Llano Basin area, once known as the central mineral region because of the abundance and diversity of natural resources.

The mountains and basins area consists of drainage basins with scattered fault-block mountain ranges. Included are the Toyah Basin, a remnant of an old sea floor, and the Barrilla and Madera mountains near the western border of the region.

The major rivers crossing the area are the Pecos, Colorado and Concho. The lakes, reservoirs and aquifers are very important water sources, considering the sparse rainfall in the western portion of the region. Lakes in the region include Toyah, O. C. Fisher, Nasworthy, and Shafter. Twin Buttes Reservoir is south while E. V. Spence Reservoir is north of San Angelo. Both the Ogallala and Edwards Limestone-Trinity Sands aquifers supply water, and there are several water-bearing deposits—including the Leona Alluvium of Tom Green County and the Coyonosa in northwest Pecos and northeast Reeves counties.

The mean annual temperature of West Texas ranges from 62 to 68 degrees and the climate is subtropical arid to subtropical subhumid, warm and dry. Annual rainfall ranges from 10 to 25 inches, and the entire region is subject to cyclical drought years. The growing season is between a southern high of 250 days and a northern low of 210 days.

West Texas has upland soils west of the Pecos River that are light reddish brown clay loams, clays and sands with lime or saline. Bottomland soil is a dark silt loam. East of the Pecos on the Edwards Plateau are shallow soils over limestone, the upland soils are dark calcareous clay and bottomland soils are dark calcareous, clayey alluvial soils.

The region's natural vegetation reflects the soil and rainfall of the various areas. On the land west of the Pecos, short, sparse, salt-tolerant grasses and grassland overtaken by brush dominate, while east of the Pecos brushy grasslands mix with small trees to form an excellent sheep and goat grazing area. On the Llano Estacado grass again dominates.

The parks, wildlife refuges and historic sites serve to highlight the uniqueness of West Texas. State parks include Monahans and Big Spring.

A geologic oddity in the West Texas region are the sand dunes at Monahans State Park. Several theories exist as to the origin of the dunes. One is that they were part of the Permian Sea; another is that they came from the Pecos River's grinding the sandstone bed into sand, the wind then blowing the sand to this low-lying area west of the river. The dunes migrate but only to the degree allowed by vegetation. Brush covers some of the outlying dunes, keeping the sand from being blown away.

The dunes were a formidable barrier to settlers until they learned from Native Americans that fresh water could be found in some places just a few feet under the sand. The park also includes part of one of the largest Harvard oak forests in the U.S. These trees can grow in the arid land because they rarely top three feet in height and have roots that can reach 90 feet in depth.

The frontier forts Lancaster and McKavett are state historic sites, and Kimble County, home of Walter Buck Wildlife Management Area, includes 2,123 acres on the South Fork of the Llano River. The area contains white-tailed deer, wild Spanish goats and

Economic Structure and Trends

The distinctiveness of a regional economy can be expressed in ways it differs from other regions, the state and the nation. This section of the report will examine the economic structure and trends of West Texas.

In broad terms, the region shares with the state a large and growing service sector, and significant employment in retail trade. But relatively large mining and government sectors, and manufacturing industries which are unique to the region differentiate West Texas from other parts of the state.

Broad Employment Trends in West Texas

Overall employment in West Texas has been cyclical, reflecting many of the same trends that have impacted the state as a whole (See Figure 1). The region experienced employment declines in 1983 and 1986 following the crash in the state's oil industry. In fact, the entire decade of the 1980s offered a mixed bag of economic trends for West Texas. Sustained growth in services and government and stabilization in the oil and gas industry brought some good news to the region in the late 1980s. At the same time construction and manufacturing employment dipped. So far in the 1990s the region has been adding jobs, although at a rate slower than the state as a whole. Employment in 1991 reached 186,500, a net gain of 3,300 jobs or 1.8 percent over 1988 employment. During the last four years employment grew by 7.0 percent in Texas and by 2.6 percent in the U.S. So, during the period 1988 to 1991, employment in West Texas grew at a pace much slower than the state and somewhat slower than the growth rate for the nation. As job growth in West Texas has not kept pace with the state over the past decade, the region's share of statewide employment has slowly dwindled since 1982.

With some variations, the largest employment sectors in West Texas reflect the largest sectors statewide. Table 1 highlights the fact that the West Texas region has a much larger mining sector and relatively larger government and trade sectors than the state as a whole. The region, however, is much less manufacturing intensive than the state.

The importance of the service sector is evident. In the state, the largest employment gains over the past decade have occurred in the service sector. In West Texas, services added more jobs than any sector besides government. Between 1982 and 1991, Texas' service sector added more than 560,000 jobs, including 3,500 in West Texas.

But services, by their nature, are provided locally, and are not export-oriented. In fact, the growth of services is mostly attributable to several trends driven by demand from inside the region.

Recent growth in services has been tied to the increasing complexity of the business environment. With the rise of the global economy, technology, regulation and other forces affecting the business climate, businesses have come to rely more and more on independent firms for legal, accounting, data processing, consulting and many other services. Not surprisingly, business services is one area in which service growth has been concentrated.

Another area of prominent service growth for the state, and for West Texas in particular, is health care. This trend has been driven by the aging of the population as well as by rising income and the rapid advancement of health care technology.

Finally, the large-scale entry of women

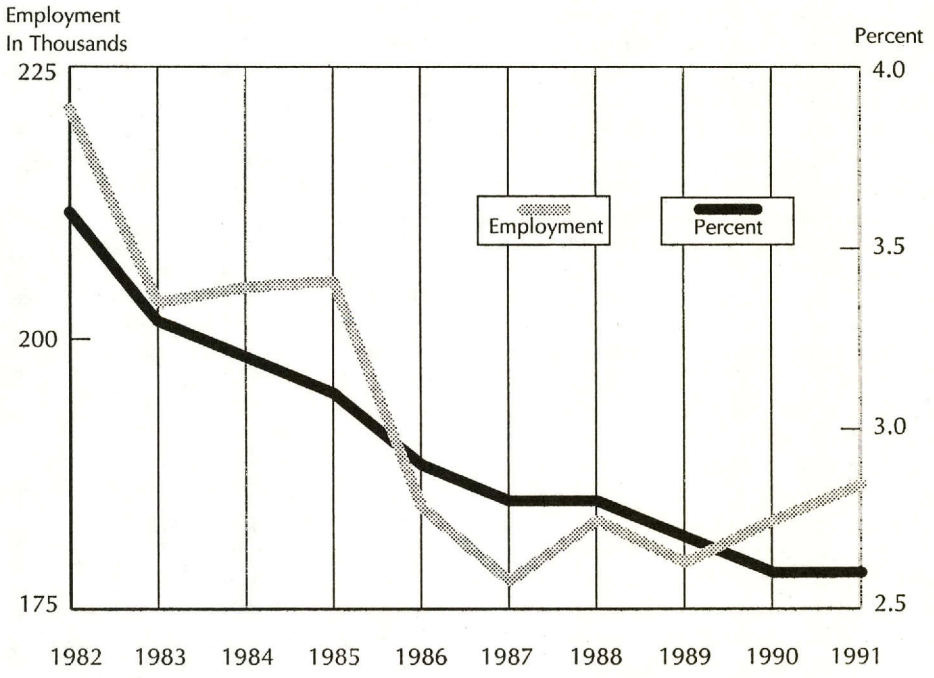
• West Texas has mining, government and retail trade sectors that are proportionally larger than in the state as a whole.

• The region's economy is heavily dependent on oil and gas, with agriculture and several manufacturing industries also important.

• Industries such as health services, special trade contractors, some wholesale and retail trade operations and various manufacturing industries gained in competitive share from 1988 to 1991 and are likely to capture a large share of future job growth.

Figure 1

West Texas Employment
Total and Percent of Statewide Employment



SOURCES: Texas Employment Commission and Texas Comptroller of Public Accounts.

into the work place has driven up household income and stimulated demand for such things as child care and cleaning services.

Areas of Specialization

One key to understanding a region's economy is to define the industries that drive income and employment growth. Typically, these industries sell their particular goods or services outside the region, thereby generating regional "export" income. While these industries may or may not be an area's biggest, they play a much larger role in the regional economy than in the state's or nation's.

One measure of this greater importance is the "location quotient" which expresses how large a local industry is relative to the national economy. Mathematically the location quotient is defined as the percentage of the region's total employment that is accounted for by a particular industry, divided by the same industry's percentage share of total national employment. Thus, a location quotient greater than "1" means that the industry employs proportionally more people in the region than it does in the nation as a whole. Table 2 presents 30 industries in West Texas whose share of total regional employment is more than two times larger than the industry's corresponding share of total national employment.

Oil and Gas Production and Chemicals

West Texas has perhaps the strongest concentration of oil and gas production industries in the state. Midland and Odessa

serve as centers of the Texas oil industry. The impact of oil and gas is felt across industry lines, with specialization spread among extraction, petroleum refining, pipelines, industrial gas production and oil and gas field machinery. Heavy construction is also listed as a specialized industry in West Texas. This also can be traced back to the region's oil and gas and refining, which are construction-intensive industries. Some of the biggest names in the oil and gas industry have operations in West Texas, including Exxon, Texaco, Phillips Petroleum and Chevron.

Manufacturing

West Texas' employment base is relatively less manufacturing intensive in comparison to both the state's and the nation's economy. The region's manufacturing sector accounts for 8.2 percent of its total employment as compared with 14 percent statewide and 17 percent nationally. Still, the region has numerous distinct manufacturing exports in which it specializes. Manufacturing in West Texas is largely concentrated in the region's three metropolitan areas. In 1991, nearly 80 percent of all manufacturing employment in the region was located in the Midland, Odessa and San Angelo metropolitan areas.

Petroleum-related manufacturing industries are dominant on the list of West Texas specialization. Oil and gas field machinery and compressors are industries of strong regional specialization, as are rubber and plastics—both petroleum based products. Chemical preparations and fertilizer are also specialized industries in West Texas. Industrial machinery is another regional area of specialization.

Apparel manufacturing is among the region's areas of specialization. West Texas is well represented in industries such as house slippers, men's and boy's work clothing and other textile goods. Levi Strauss makes jeans and R.G. Barry makes house slippers at major facilities in West Texas.

The presence of Ethicon—which manufactures surgical sutures and needles in San Angelo—boosts the importance of the surgical supplies industry in the region.

Government

Government employment makes up a larger portion of West Texas' employment base than in the state as a whole. The presence of Goodfellow Air Force Base, a major military installation in San Angelo, boosts the region's government employment. The region also boasts large state universities—including the University of Texas of the Permian Basin and Angelo State University. In addition, local government functions—particularly elementary and secondary education—add to the size of the sector. Two government industry classifications are included among the areas of specialization in West Texas. "Administration of Economic Programs" is a broad industry classification that includes government employment in regulation of agricultural commodities.

Location Quotient and Shift Share Analysis

This section of the paper explores the structure of the region's economy and how it has changed over the past several years. More specifically, an analysis known as "location quotient" has been used to identify the unique structural components of West Texas' economy. This technique compares an industry's proportion of employment in a region with its proportion in the nation's economy. This identifies areas of specialization in the West Texas economy that "export" outside the region, thereby bringing in many of the dollars that flow through other sectors of the economy.

Merely examining structural concerns often misses important trends. To identify the dynamic components of the region's economy, a "shift share" analysis helps to point out the economic strengths and weaknesses. The technique decomposes the change in an economy over time into component parts. One part, the national growth component, explains the change in a region's employment growth that can be attributed to growth in the national economy. A second component, the industry mix, adjusts for the industries represented in the region, relative to the national economy. The final and key component is the competitive effect which points to industries for which the region has gained or lost competitive share in employment.

One criticism of the location quotient technique is that it offers only a static—or "snapshot"—view of an economy. The strength of location quotient analysis is that it highlights areas of regional specialization, but it does so only for a particular point in time. The shift share analysis, however, shows a broader picture of change in a regional economy over time. Shift share analysis points to industries that may be waxing or waning in terms of attractiveness and competitive advantage relative to other regions in the United States. Industries that gained in competitive share have been successful in grabbing a disproportionately large amount of the available pool of new employment generated in that industry over the time period in question. This indicates that the region is comparatively more attractive to the industry than other regions in the nation. In this way, the shift share analysis portrays a more dynamic view of change in an economy, and highlights industries that may continue to capture a large share of new growth in the future.

Table 1
Largest Industries
(Based on 1991 Employment)

Texas	% of Total	West Texas	% of Total
Services	23.0%	Government	20.6%
Retail Trade	18.4	Retail Trade	18.8
Government	18.0	Services	17.6
Manufacturing	13.9	Mining	13.3
Wholesale Trade	6.2	Manufacturing	8.2

SOURCE: Texas Employment Commission and Texas Comptroller of Public Accounts.

Texas A&M University maintains an agricultural research center in San Angelo and extension service offices in counties across the region. "Environmental Quality and Housing" refers to government employment related to community development agencies, housing, waste management and environmental protection agencies. In West Texas, employment in this category is mainly located at many Soil Conservation Service offices as well as water and housing authorities.

Agriculture

Agricultural production is a dominant business in West Texas, as livestock (primarily sheep and goats) and crops are raised throughout the region. San Angelo is a center of wool and mohair production. Not surprisingly, agriculture-related businesses are well represented among the region's specialized industries. Agricultural services and the manufacture of fertilizers rank high among West Texas areas of specialization.

Areas of Comparative Advantage

Another key to understanding a region's economy lies in defining its growth industries. Growth is attributable to several different causes. Some growth in a region tends to be driven by national economic trends. Whether the mix of industries in a region reflects relatively faster or slower growing industries is yet another factor affecting regional employment trends. The most telling indicator, however, describes employment growth in a region that is related to the region's relative attractiveness. "Shift share" analysis provides such an indicator. The shift share technique identifies regional growth that is attributable to national growth and industry mix. The residual represents the growth that has been generated by the region's ability to compete with other regions for their share of new jobs in an industry. A region that has gained in competitive share in a particular industry has been relatively more successful than other regions—or has exhibited a comparative advantage—in attracting jobs.

Services and Trade

West Texas has a large and growing service sector. Health and social services top the list among the industries that gained the most in competitive share (see Table 3). Hospitals in the region's metropolitan areas serve a large population in surrounding counties. In addition, the San Angelo State School provides long-term care for the mentally retarded. Other services that gained in competitive share include miscellaneous and automotive repair services, business and personal services. These service industries are driven more by demand from within the region than export potential to areas outside the region.

Tourism and travel-related expenditures are boosting the export potential in the region's trade and services sectors. Tourism, like more traditional exports, brings in dollars from outside the region. Hotels and museums gained in competitive share employment during the period 1988 to 1991.

Table 2
Top 30 Areas of Specialization in the West Texas Economy

Industry	Regional Employment in 1991	Location Quotient*
House Slippers	283	43.2
Oil and Gas Extraction	24,585	36.2
Pipelines	796	24.3
Oil and Gas Field Machinery	1,187	15.3
Administration of Economic Programs	527	12.3
Surgical Appliances and Supplies	1,799	11.2
Environmental Quality and Housing	574	8.7
Men's and Boys' Work Clothing	620	8.5
Synthetic Rubber	206	7.8
Gum and Wood Chemicals	45	5.7
Carburetors, Pistons, Rings, Valves	216	5.6
Transportation Equipment, N.E.C.**	109	4.9
Industrial Gases	201	4.9
Plastics Materials and Resins	568	3.8
Air and Gas Compressors	158	3.7
Manufactured Ice	38	3.4
Textile Goods, N.E.C.	165	3.4
Cement	104	3.3
Fabricated Structural Metal	422	3.3
Heavy Construction	3,642	2.9
Power Transmission Equipment	90	2.8
Roasted Coffee	51	2.6
Petroleum Refining	525	2.5
Plastic Bottles	126	2.4
Pens and Mechanical Pencils	35	2.4
Chemical Preparations	170	2.2
Nitrogenous Fertilizers	40	2.2
Miscellaneous Repair Services	1,244	2.2
Industrial Machinery	869	2.1
Agricultural Services	1,721	2.1

*Figures above 1 indicate an industry in which the region specializes.

**Not Elsewhere Classified

SOURCE: Texas Comptroller of Public Accounts.

Table 3
Top 30 West Texas Industries
Ranked by Gain in Competitive Share
(Based on change in employment from 1988 to 1991)

Industry	Regional Employment in 1991	Gain in Competitive Share*
Special Trade Contractors	4,021	726
Wholesale Trade-Durable Goods	6,435	712
Health Services	16,974	700
Social Services	4,269	446
Miscellaneous Repair Services	1,244	412
Fabricated Structural Metal	422	200
Automotive Dealers	4,479	156
Hotels	1,790	150
Executive, Legislative and General Government	1,885	130
Fabricated Plate Shops	302	129
Industrial Gases	201	121
Transportation by Air	490	118
Industrial Machinery	869	114
Carburetors, Pistons, Rings, Valves	216	108
Food Stores	7,153	102
Eating and Drinking Places	11,682	102
Men's and Boys' Work Clothing	620	101
Auto Repair	1,626	98
Holding and Investment Offices	355	83
Personal Services	1,978	62
Environmental Quality and Housing	574	60
Transportation Equipment, N.E.C.**	109	58
Pumps and Pumping Equipment	65	52
Motion Pictures	499	52
Business Services	5,197	51
Food Preparations, N.E.C.**	157	49
Bottled and Canned Soft Drinks	156	47
Museums, Botanical, Zoological Gardens	96	44
Motors and Generators	54	43
Plating and Polishing	85	42

*Represents employment growth from 1988 to 1991 that is attributable to the region's comparative advantage in the industry over other regions in the United States.
**Not Elsewhere classified.

SOURCE: Texas Comptroller of Public Accounts.

In West Texas, tourism and business travel-related expenditures topped $284.5 million in 1989 (latest data available). Travel-related employment rose to 4,860 in 1989.

Several retail trade industries appear to be gaining in competitive share. The West Texas region generates a good deal of economic activity from retail transactions. Eating and drinking places and food stores both increased their competitive share of employment between 1988 and 1991. Wholesale trade of durable goods, a more export-oriented industry, is also among the strong gainers of competitive share.

Interestingly, using the shift share technique, an industry can gain in competitive share employment while actually showing slight overall job losses for the period in question. Such was the case for a trade industry in the West Texas region. Automotive dealers suffered a mild employment decline between 1988 and 1991. Still it appears on the list of industries that gained in competitive share. This indicates that while regional employment may be declining somewhat, this industry is doing much better within the region than throughout the rest of the nation. This is also the case for special trade contractors, an industry that has suffered nationwide but enjoyed employment growth in West Texas.

Manufacturing

Several of the region's manufacturing industries added significant amounts of competitive share employment. Fabricated structural metal, centered around San Angelo's Hirschfield Steel, grabbed a large share of the new jobs in their industry between 1988 and 1991. The region remained attractive for fabricated platework, an industry that includes manufacturers of tanks for the oil and gas industry.

Various other manufacturing industries gained in competitive share from 1988 to 1991, including several of the region's heavy industries. Manufacturers of industrial machinery, pumps and auto parts, as well as motors and generators, added competitive-share jobs during the period. Transportation equipment, soft drink and food manufacturers all remained competitive.

Summary

What emerges from this analysis of specialization and change is a picture of a region with a dominant oil and gas industry. Oil and gas cuts across industry lines in terms of regional specialization, with production, refining, equipment manufacturing and industries that use petroleum as a primary feedstock in abundance. In addition, strong agriculture and government sectors provide support to other industries. Services, including health care, are a large and growing industry in West Texas. ✪

Demographics

The 30 counties which make up the West Texas region are in a period of transition. Examples of many of the demographic trends that have affected the state in recent years can be found throughout the region. The ethnic make-up of the region, for example, is changing rapidly. Though Hispanics made up only a slight proportion just a few decades ago, by 1995 they will account for one-third of the region's population. The percentage of Anglos in the region, on the other hand, has steadily declined in recent years, falling by almost 6 percent since 1980.

The state's aging population is another example. In the wake of the Baby Boom generation, birth rates in most parts of the state have declined. This, coupled with steadily increasing life-spans, has increased the age of the average Texan, a trend mirrored in West Texas.

The region, however, differs from the state in other respects. Largely as a result of people relocating to other areas of the state and nation, the population of the region has grown at less than half of the state's rate since 1980. These demographic trends will dramatically change the face of West Texas in coming years.

Population

During the decade of the 1980s, West Texas experienced only moderate population increases. According to the 1990 census, the West Texas region has a population of 513,069, representing an increase of 8 percent since the 1980 census. This is significantly less than the state's increase of 19.4 percent during the same period. Population losses have been widespread throughout the region, with more than one-third of the counties experiencing population declines during the decade. Though the area's population increased by 8 percent, relatively strong growth in metropolitan counties masked double-digit population declines in many of the rural counties.

Metropolitan areas traditionally tend to outpace the state average for population growth. The metropolitan areas of West Texas, however, combined for a population growth of only 14.6 percent for the decade of the 1980s. Midland County, which makes up the Midland Metropolitan Statistical Area (MSA), led in population growth and was the only county in the region to grow at a pace that exceeded that of the state. Between 1980 and 1990, the county's population grew by 29 percent, well ahead of the state average.

The region's other MSAs, Odessa and San Angelo, added population during the decade, but could not keep pace with the state. Tom Green County's 13,700 new residents increased the San Angelo MSA population by 16.1 percent. The Odessa MSA, made up of Ector County, also grew, but at a much slower pace of 3.1 percent between 1980 and 1990. Their growth, however, was large by regional standards. If the population growth of these counties was excluded, the rest of the region would have combined to lose over 3,000 residents during the past decade.

- **Population growth in West Texas has been much slower than state averages.**
- **Hispanics are by far the region's fastest growing ethnic group.**
- **The population of the West Texas region is aging.**

Many counties in West Texas suffered population declines between 1980 and 1990. Even small declines translated into big percentage decreases in counties that were sparsely populated. Sutton County, for example, lost just under 1,000 people during the decade but, taking into account that its total population was only 5,100 in 1980, the loss represented almost one-fifth of the county's total population.

Most of the region's population decline can be attributed to people relocating out of the region during the tough economic

Table 4
West Texas Population

County	Total			Hispanic			Anglo			Black			Other		
	1980	1990	Percent Change	1980	1990	Percent Change	1980	1990	Percent Change	1980	1990	Percent Change	1980	1990	Percent Change
Andrews	13,323	14,338	7.6	2,904	4,552	56.7	9,942	9,281	-6.6	276	259	-6.2	201	246	22.4
Borden	859	799	-7.0	127	120	-5.5	725	669	-7.7	3	0	-100.0	4	10	150.0
Coke	3,196	3,424	7.1	397	422	6.3	2,764	2,977	7.7	0	4	0.0	35	21	-40.0
Concho	2,915	3,044	4.4	806	1194	48.1	2,092	1,827	-12.7	0	14	0.0	17	9	-47.1
Crane	4,600	4,652	1.1	1,128	1,577	39.8	3,319	2,920	-12.0	126	128	1.6	27	27	0.0
Crocket	4,608	4,078	-11.5	2,053	2,021	-1.6	2,479	2,016	-18.7	50	31	-38.0	26	10	-61.5
Dawson	16,184	14,349	-11.3	6,098	6,120	0.4	9,400	7,569	-19.5	625	608	-2.7	61	52	-14.8
Ector	115,374	118,934	3.1	24,831	37,315	50.3	84,362	74,822	-11.3	5,027	5,391	7.2	1,154	1,406	21.8
Gaines	13,150	14,123	7.4	4,028	4,608	14.4	8,724	9,096	4.3	334	324	-3.0	64	95	48.4
Glasscock	1,304	1,447	11.0	376	424	12.8	917	1,018	11.0	1	0	-100.0	10	5	-50.0
Howard	33,142	32,343	-2.4	6,977	8,607	23.4	24,519	22,226	-9.4	1,305	1,174	-10.0	341	336	-1.5
Irion	1,386	1,629	17.5	257	385	49.8	1,127	1,240	10.0	0	2	0.0	2	2	0.0
Kimble	4,063	4,122	1.5	707	772	9.2	3,350	3,330	-0.6	2	2	0.0	4	18	350.0
Loving	91	107	17.6	16	14	-12.5	75	93	24.0	0	0	0.0	0	0	0.0
Martin	4,684	4,956	5.8	1,620	1,960	21.0	2,940	2,881	-2.0	115	87	-24.3	9	28	211.1
Mason	3,683	3,423	-7.1	598	671	12.2	3,069	2,734	-10.9	11	6	-45.5	5	12	140.0
McCulloch	8,735	8,778	0.5	1,666	2,317	39.1	6,801	6,289	-7.5	210	151	-28.1	58	21	-63.8
Menard	2,346	2,252	-4.0	672	726	8.0	1,661	1,511	-9.0	5	7	40.0	8	8	0.0
Midland	82,636	106,611	29.0	12,323	22,780	84.9	62,650	74,499	18.9	7,000	8,016	14.5	663	1,316	98.5
Pecos	14,618	14,675	0.4	7,099	8,331	17.4	7,386	6,209	-15.9	67	51	-23.9	66	84	27.3
Reagan	4,135	4,514	9.2	1,301	1,941	49.2	2,653	2,458	-7.4	153	108	-29.4	28	7	-75.0
Reeves	15,801	15,852	0.3	9,790	11,545	17.9	5,561	3,909	-29.7	358	340	-5.0	92	58	-37.0
Schleicher	2,820	2,990	6.0	733	1,062	44.9	2,035	1,898	-6.7	41	24	-41.5	11	6	-45.5
Sterling	1,206	1,438	19.2	279	366	31.2	918	1,067	16.2	4	0	-100.0	5	5	0.0
Sutton	5,130	4,135	-19.4	2,071	1,866	-9.9	3,039	2,244	-26.2	3	1	-66.7	17	24	41.2
Terrell	1,595	1,410	-11.6	691	751	8.7	899	651	-27.6	2	1	-50.0	3	7	133.3
Tom Green	84,784	98,458	16.1	17,953	25,501	42.0	62,696	67,642	7.9	3,329	3,955	18.8	806	1,360	68.7
Upton	4,619	4,447	-3.7	1,295	1,666	28.6	3,226	2,666	-17.4	86	88	2.3	12	27	125.0
Ward	13,976	13,115	-6.2	3,751	4,830	28.8	9,725	7,728	-20.5	436	432	-0.9	64	125	95.3
Winkler	9,944	8,626	-13.3	2,567	3,172	23.6	7,081	5,236	-26.1	239	155	-35.1	57	63	10.5
Total	**474,907**	**513,069**	**8.0**	**115,114**	**157,616**	**36.9**	**336,135**	**328,706**	**-2.2**	**19,808**	**21,359**	**7.8**	**3,850**	**5,388**	**39.9**
Texas Total	**14,229,191**	**16,986,510**	**19.4**	**2,985,824**	**4,339,905**	**45.4**	**9,350,297**	**10,291,680**	**10.1**	**1,692,542**	**1,976,360**	**16.8**	**200,528**	**378,565**	**88.8**

Note: These numbers were adjusted to define white, black, hispanic and other as mutually exclusive categories by the Department of Rural Sociology, Texas A&M University.

SOURCES: U.S. Census Bureau, Texas A&M University and Texas Comptroller of Public Accounts.

times of the mid- to late-1980s. Net migration, which measures the number of people moving into and out of the area coincides, for the most part, with the overall population trends of the region.

Most counties in the region lost population as a result of out-migration during the 1980s. Of the 30 counties in the region, only eight had more people moving in than out. Of those eight, half gained less than 100 people.

Gaining more than 7,800 and 4,400 new residents respectively, Midland and Tom Green counties were the only ones in West Texas with significant in-migration. Ector County, though gaining total population between 1980 and 1990, experienced the largest amount of out-migration, with 15,900 people relocating out of the county.

Net-migration in the region was particularly hard on the rural counties of West Texas. Disappearing jobs in the oil patch combined with the decline of the family farm has left many of the region's rural residents out of work and with few prospects for employment in new lines of work. As a result, many of these people relocate to the metropolitan areas in search of job opportunities. This has been especially true in West Texas as many of the rural counties have lost more than 10 percent of their population since 1980 as a result of out-migration. For instance, Winkler County (population 8,626) saw almost 2,600 residents relocate out of the county.

Population trends in the region have resulted in only a slight increase in the population density of the region. In the West Texas region there are approximately 13 residents per square mile. Population growth during the past ten years has led to an increase in the average population density to its current level from a level of just under 12 residents per square mile in 1980. The region is relatively sparsely populated compared to the state, which averages almost 64 persons per square mile. Though the metropolitan counties have a somewhat denser population, many of the rural counties look very much like they did when they were settled in the 1800s, with several counties in the region averaging less than two persons per square mile.

Ethnic Diversity

Though the region's population has been slow to change over the past ten years, its ethnic makeup is becoming more like the state's. While the population of the region has increased by just 8 percent during the past ten years, changes among the ethnic groups have varied greatly. The Anglo population decreased by 2.2 percent while the Black population mirrored the regional average growing by 7.8 percent. However, were it not for strong growth in the Hispanic population, the region's population would have shrunk rather than grown. In the past decade, the total number of Hispanics in the West Texas region has grown by 36.9 percent and their share of the total population has increased from 24.2 to 30.7 percent.

Growth in the Hispanic population has been widespread across the region. Though the Hispanic community became smaller in some counties, their declines came at a slower rate than the declines in other ethnic groups. Of the 30 counties in the region, the Hispanic share increased in all but Coke and Loving counties. While the growth rates of Hispanics in West Texas appear large, they still trail the state's Hispanic-growth rate of 45.4 percent during the same period.

Population growth among African Americans in the region has trailed that of Hispanics. The total number of Blacks decreased in 19 of the region's 30 counties and stayed the same in two others, but stronger growth in the metropolitan counties negated those losses. The percentage of Blacks in the ethnic make-up decreased in 17 of the 30 counties and stayed the same in three others.

The percentage of Anglos in the ethnic mix has declined in West Texas during the past 10 years, surpassing the state average in only five counties and declining in all but eight. Though the number of Anglos has declined, they still represent a clear majority in all but three of the region's counties.

Comparing minority populations accentuates the differences between the region and the state. In the West Texas region, Anglos make up over 64 percent of the residents, compared to only 60 percent of all Texas residents (see Table 5). Hispanics account for 30.7 percent of the region's population

compared to 25.6 percent for the state . Further, African Americans make up just 4.2 percent of the region's population as opposed to 11.6 percent of the state total.

Age

Though the ethnic make-up of the West Texas region differs from state and national norms, the breakdown of its population by age group is very similar. Two trends in age-group breakdown have affected the region just as they have the rest of the nation. The first is the impact of the "Baby Boomers" and the second is the gradual aging of the population.

Most of the Baby Boomers, those born in the population explosion that followed World War II, now occupy the age categories between 25-44. Ranking just behind the "5-9" group, the "30-34" group is the next largest, making up 8.7 percent of the population. West Texas Baby Boomers combine to make up 30.5 percent of the total population for the region.

The Baby Boomers have swelled the ranks of their age divisions, increasing the total population in their age groups by almost 25 percent in the past 10 years. The age-group categories vacated by them have declined rapidly in their wake. In 1980, West Texas residents between the ages of 15 and 24 made up 18.9 of the total population. Ten years later, as the Baby Boomers aged, the number of people in that age group had declined by 19.6 percent and their share of the total population had decreased to 14.1 percent.

As the swollen ranks of the Baby Boomers age, they have increased the average age of the population. This, combined with medical advances that have extended the average life-span, promises to dramatically alter the make-up of the population in coming years.

The effects of increased longevity are evident in West Texas. The number of the region's residents above the age of 65 has increased by 23.8 percent during the past 10 years, from 48,800 in 1980, to 58,000 in 1990. The largest increase of any age category came from the "85 and older" group which almost doubled during the decade, increasing from just 3,300 in 1980, to 5,600 in 1990.

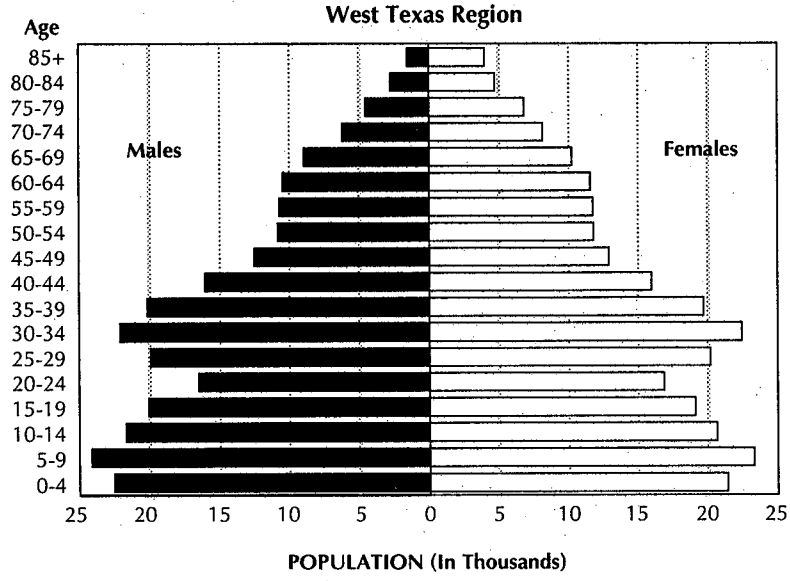
Income

Though most population trends of the state hold true across the region, income levels in the West Texas region vary greatly. Since 1986, per capita income levels for the region have remained at or very near state averages. In 1990, the region averaged $15,775 in income per person while the state averaged $16,717 (see Table 6).

Since the statewide recession of the mid-1980s, however, personal income in the region has grown at an impressive pace, increasing at an average annual rate of 4.1 percent between 1987 and 1990. Despite this growth, the region still has not been able to keep pace with the 6.5 percent annual income growth rate of the state during that period.

Individual counties in the region, however, not only kept pace with the state average, but exceeded it. Growing by an annual average of 12.5 percent since 1987, personal income in Loving County stands at 150 percent of the state average as of 1990. Though the county's per capita personal income level of $25,196 leads the region, several other counties are also above the state average.

Figure 2
1990 POPULATION BY AGE AND SEX
West Texas Region



SOURCES: Bureau of the Census, United States Department of Commerce.

In all, the metropolitan counties of the state fared slightly better than did the non-metropolitan ones. The metropolitan counties, Midland, Ector, and Tom Green, combined for a per capita income level of $16,613, almost equaling the state average, while the non-metro counties averaged $14,365, 86 percent of the state level.

Demographic Trends in the Future

In West Texas, most of these trends in both the size and make-up of the population are expected to continue into the 21st Century. The region's population will continue to increase, but its rate of expansion will continue to trail that of the state. For the next ten years, the region will increase at an annual average rate of just 0.6 percent, while the population of the state will expand by an average of 1.1 percent per year.

Differences in the rate of population growth among the various ethnic groups will continue to increase the ethnic diversity of the region. The Black population in the region will expand at a rate that is very close to, or slightly ahead of, that of the state. The number of Hispanics in the region will continue to grow faster than any other group, though their meteoric rise will slow to an annual rate of 2.1 percent in the coming decade. In the next 10 years, the number of minorities in the region's ethnic mix will continue to grow as the Anglo population declines. Despite their declining numbers, the percentage of Anglos in the region will continue to surpass the state average until well into the 21st Century.

Though the region will continue to grow, its rate of expansion will steadily decline. Though the Hispanic population will continue to increase into the 21st Centrury, other minority growth will slow significantly and the Anglo population will be in steady decline.

By the year 2025, the region's population will reach 611,300. Though minority populations will continue to increase in the foreseeable future, the growth rate among Blacks will steadily decrease before coming to a virtual standstill around the year 2020. At that point, Hispanic growth will have slowed to just 1.6 percent annually and the Anglo population will have been in decline for many years. ✪

Table 5
West Texas' Ethnic Make-up

County	Percent Hispanic 1980	Percent Hispanic 1990	Percent Anglo 1980	Percent Anglo 1990	Percent Black 1980	Percent Black 1990	Percent Other 1980	Percent Other 1990
Andrews	21.8%	31.7%	74.6%	64.7%	2.1%	1.8%	1.5%	1.7%
Borden	14.8	15.0	84.4	83.7	0.3	0.0	0.5	1.3
Coke	12.4	12.3	86.5	86.9	0.0	0.1	1.1	0.6
Concho	27.7	39.2	71.8	60.0	0.0	0.5	0.6	0.3
Crane	24.5	33.9	72.2	62.8	2.7	2.8	0.6	0.6
Crocket	44.6	49.6	53.8	49.4	1.1	0.8	0.6	0.2
Dawson	37.7	42.7	58.1	52.7	3.9	4.2	0.4	0.4
Ector	21.5	31.4	73.1	62.9	4.4	4.5	1.0	1.2
Gaines	30.6	32.6	66.3	64.4	2.5	2.3	0.5	0.7
Glasscock	28.8	29.3	70.3	70.4	0.1	0.0	0.8	0.3
Howard	21.1	26.6	74.0	68.7	3.9	3.6	1.0	1.0
Irion	18.5	23.6	81.3	76.1	0.0	0.1	0.1	0.1
Kimble	17.4	18.7	82.5	80.8	0.0	0.0	0.1	0.4
Loving	17.6	13.1	82.4	86.9	0.0	0.0	0.0	0.0
Martin	34.6	39.5	62.8	58.1	2.5	1.8	0.2	0.6
Mason	16.2	19.6	83.3	79.9	0.3	0.2	0.1	0.4
McCulloch	19.1	26.4	77.9	71.6	2.4	1.7	0.7	0.2
Menard	28.6	32.2	70.8	67.1	0.2	0.3	0.3	0.4
Midland	14.9	21.4	75.8	69.9	8.5	7.5	0.8	1.2
Pecos	48.6	56.8	50.5	42.3	0.5	0.3	0.5	0.6
Reagan	31.5	43.0	64.2	54.5	3.7	2.4	0.7	0.2
Reeves	62.0	72.8	35.2	24.7	2.3	2.1	0.6	0.4
Schleicher	26.0	35.5	72.2	63.5	1.5	0.8	0.4	0.2
Sterling	23.1	25.5	76.1	74.2	0.3	0.0	0.4	0.3
Sutton	40.4	45.1	59.2	54.3	0.1	0.0	0.3	0.6
Terrell	43.3	53.3	56.4	46.2	0.1	0.1	0.2	0.5
Tom Green	21.2	25.9	73.9	68.7	3.9	4.0	1.0	1.4
Upton	28.0	37.5	69.8	60.0	1.9	2.0	0.3	0.6
Ward	26.8	36.8	69.6	58.9	3.1	3.3	0.5	1.0
Winkler	25.8	36.8	71.2	60.7	2.4	1.8	0.6	0.7
Total	**24.2%**	**30.7%**	**70.8%**	**64.1%**	**4.2%**	**4.2%**	**0.8%**	**1.1%**
TEXAS	**21.0%**	**25.6%**	**65.7%**	**60.6%**	**11.9%**	**11.6%**	**1.4%**	**2.2%**

Note: These numbers were adjusted to define Anglo, Black, Hispanic and Other as mutually exclusive categories by the Department of Rural Sociology, Texas A&M University.

SOURCES: U.S. Census Bureau, Texas A&M University and Texas Comptroller of Public Accounts.

Table 6
West Texas' Per Capita Personal Income

1990 Rank in State		1980	1990	Change	Percent Change
113	Andrews	$9,376	$15,316	$5,940	63.4%
7	Borden	10,223	24,897	14,674	143.5
123	Coke	7,563	15,003	7,440	98.4
106	Concho	6,876	15,514	8,638	125.6
177	Crane	10,077	13,672	3,595	35.7
100	Crocket	8,913	15,675	6,762	75.9
138	Dawson	7,411	14,582	7,171	96.8
130	Ector	10,271	14,776	4,505	43.9
208	Gaines	7,527	12,834	5,307	70.5
38	Glasscock	16,269	18,344	2,075	12.8
91	Howard	9,052	16,017	6,965	76.9
16	Irion	8,156	21,093	12,937	158.6
80	Kimble	7,293	16,363	9,070	124.4
6	Loving	25,264	25,196	-68	-0.3
45	Martin	8,923	18,072	9,149	102.5
76	Mason	6,697	16,571	9,874	147.4
192	McCulloch	8,257	13,410	5,153	62.4
73	Menard	10,169	16,739	6,570	64.6
28	Midland	13,761	19,345	5,584	40.6
237	Pecos	8,126	10,904	2,778	34.2
201	Reagan	11,118	13,037	1,919	17.3
238	Reeves	7,245	10,702	3,457	47.7
182	Schleicher	9,100	13,607	4,507	49.5
120	Sterling	9,283	15,075	5,792	62.4
101	Sutton	9,479	15,667	6,188	65.3
25	Terrell	9,937	19,653	9,716	97.8
98	Tom Green	9,025	15,830	6,805	75.4
132	Upton	9,765	14,726	4,961	50.8
141	Ward	8,963	14,494	5,531	61.7
213	Winkler	9,039	12,766	3,727	41.2
Regional Average		**$9,979**	**$15,775**	**$5,797**	**58.1%**
TEXAS AVERAGE		**$9,528**	**$16,717**	**$7,189**	**75.5%**

SOURCES: Bureau of Economic Analysis and Texas Comptroller of Public Accounts.

Labor Force

The West Texas economy was traditionally dependent upon oil and gas production, agriculture and associated services. While petroleum and agriculture still have a major presence in the region, local industry has had to become more diverse. Higher education and health care are growing in importance as occupational fields.

The West Texas region is following many of the state's occupational shift trends. Service and sales occupations constitute a growing portion of the region's labor force; professional and technical occupations are also gaining ground.

Increasing numbers of the region's students attend college. In 1991 and 1992, the region surpassed the state in the percentage of high school seniors planning to attend college.

Labor Force Demographics

The West Texas region has enjoyed comparatively low unemployment over the last several years, in part due to out-migration. The region's working age population is forecast to grow at a slower pace than in the state as a whole.

In 1990, West Texas' working age population (18-64 year olds) totaled 297,500 or 58.0 percent of the region's total population. Statewide, 61.4 percent of the population is of working age.

Work force stability may be delivered to the region by the 25 to 34 age group, as growth within this group is projected to be sustained for 16 years beginning in 1999. This age group represented over 28 percent of the working age population in 1990 and is expected to grow at rates up to 3.5 percent between 1999 and 2014. Workers aged 25 to 34 years are generally the group which return to college to complete their undergraduate degrees or begin work towards advanced degrees.

West Texas is experiencing mild population growth. Annual growth for the region's working age population will lag behind the state average until 1998, when growth will equal or exceed the state's growth until 2004. As the state's working age population continues to grow into the 2020s, West Texas' labor force will begin to decline in 2014. As its work force ages and retires, West Texas may suffer a labor force shortage.

Partially offsetting the long term decline in the working age population, the college age (18-24) population will experience positive growth beginning in 1992 and increase by up to 3.9 percent annually until 2004. The West Texas work force will become better educated because most high school graduates in the region do plan to attend college. National projections indicate jobs requiring a degree—executive, administrative and managerial, specialized professions and technical occupations—will grow by more than 27 percent between now and 2005, while jobs not requiring a college degree are projected to increase by less than 16 percent.

• Oil- and gas-related occupations will continue their decline.

• The number of the region's students extending their education beyond high school is increasing.

• Out-migration may become a major factor in the future availability of skilled labor.

Educational Attainment

Because of the region's oil-related past, West Texas traditionally has been wealthy and the region's educational system has benefitted. The region has above-average test scores, a low dropout rate, and improving educational attainment. The region's older

Table 7
West Texas, Texas and U.S. Educational Attainment Levels in 1990

	West Texas	Texas	United States
Less Than 9th Grade	15.6%	12.3%	9.7%
9th-12th Grade No Diploma	17.7	15.9	11.9
Did Not Complete High School	33.3	28.2	21.6
High School Grad or GED	27.3	25.9	39.2
Some College No Degree	21.3	22.9	19.7
Associate Degree	4.3	4.9	NA
Bachelor Degree	10.0	12.6	11.8
Graduate Degree	3.8	5.5	7.7
Completed High School	66.7	71.8	78.4

SOURCES: U.S. Census Bureau and Texas Comptroller of Public Accounts.

population, which is less educated than the younger population, skews the region's educational attainment levels. Test scores indicate that current students are better educated than their parents and grandparents. In 1992, 80 percent of the region's high school seniors planned to attend college, compared with 67 percent a year earlier.

Many West Texas industries require entry-level workers to be high school graduates. Of the region's population over the age of 18, one-third have not received a

Table 8
West Texas' 10 Largest Occupations in 1990

Occupation	Total	Percent of Total	Percent of State Total	Rank in State
Total, All Occupations	161,900			
General Office Occupations	12,030	7.4%	6.4%	1
Food & Beverage Occupations	10,080	6.2	6.2	2
Construction Trades, Extractive	9,630	5.9	4.3	7
Mechanics, Installers & Repairers	7,850	4.9	4.5	4
Trans. & Material Moving Machine Operators.	7,530	4.6	4.6	3
Hand Laborers, Helpers & Material Movers	6,830	4.2	4.4	5
Teachers & Instructors	6,530	4.0	4.4	6
Salespersons, Retail	5,680	3.5	3.1	8
Secretaries	5,550	3.4	3.0	10
Management Support	5,400	3.3	3.0	11

SOURCES: Texas Employment Commission and Texas Comptroller of Public Accounts.

Table 9
West Texas' 10 Fastest Growing Occupations 1985-1990

Occupation	1985 Total	1990 Total	1985-1990 Job Change	Rank in State Growth
Total, All Occupations	153,000	161,900	8,900	
Food & Beverage Occupations	9,250	10,080	830	1
Teachers & Instructors	5,850	6,530	680	2
Mechanics, Installers & Repairers	7,400	7,850	450	4
Salespersons, Retail	5,250	5,680	430	13
Cashiers	3,350	3,780	430	9
Health Care Maintenance & Treating Occupations	2,500	2,930	430	6
Cleaning & Building Service Occupations	3,050	3,450	400	8
Health Service Occupations	1,700	2,080	380	12
Secretaries	5,200	5,550	350	10
General Office Occupations	13,700	14,550	850	5

SOURCES: Texas Employment Commission and Texas Comptroller of Public Accounts.

high school diploma or equivalent certification, compared to 28.2 percent statewide and 21.6 percent nationally.

The proportion of the region's adult population having some college education is 39.4 percent compared with the statewide figure of 45.9 percent and the national average of 39.0 percent. The annual dropout rate for West Texas schools was 3.8 percent in 1991, substantially below the state average of 5.1 percent. In 1990, approximately 15 percent of all West Texas students were enrolled in some form of vocational education, slightly above the state average of 13 percent.

One tool to measure student achievement is standardized testing. Until the 1989-1990 school year, Texas' public schools used the Texas Educational Assessment of Minimum Skills (TEAMS) test to access student skills. During the last year of the test, 75.1 percent of West Texas students passed all sections, compared to the state average of 73.6 percent. In 1990, TEAMS was replaced by the Texas Assessment of Academic Skills (TAAS). West Texas students scored below state average in 1990, with only 54.5 percent passing all sections of TAAS, compared with 55.7 percent statewide.

West Texas students average above the state and slightly below the nation on the Scholastic Aptitude Test (SAT). In 1991, West Texas students averaged 895 on the SAT compared to the state average of 872 and the national average of 900. On the American College Testing exam, West Texas students averaged 20.0, which was higher than the state average of 19.8 and the national average of 18.6.

Occupational Characteristics

Almost half of the West Texas labor force is located in the region's three metropolitan areas of Midland, Odessa and San Angelo, which serve as centers for manufacturing and transportation. The region's metropolitan area labor force rose by 8,900, or 5.8 percent, from 153,000 in 1985 to an estimated 161,900 in 1990. During the same period, the state's labor force grew by an estimated 10.4 percent.

The West Texas region is similar to the majority of the state with regards to its fastest growing industries. Secondary education and health care lead growth. In addition, several West Texas industries, including agriculture, oil and gas production and services, are vital to the regional economy.

The region's service-related employment has mirrored growth and shifts throughout the state. In 1990, West Texas' service occupations accounted for 14.3 percent of the total labor force compared with an estimated 15.0 percent statewide. The region's employment in service occupations grew at 11.3 percent, slower than the state rate of 14.2 percent. The fastest growing service-related occupations were in food and beverage services, which added 830 jobs.

Professional and technical occupations—ones that require higher education—constitute a slightly larger percentage of the labor force in West Texas than in the state. In 1990, professionals in the region's metropolitan areas constituted 19.2 percent of the labor force compared to 19.0 percent statewide. The largest concentration of the region's professionals are located in the Midland and Odessa area.

West Texas' teachers and instructors make up the largest portion of professional occupations, accounting for 4.0 percent of the total labor force in 1990, compared to 4.4 percent statewide. The number of teachers and instructors in the region has expanded at a much slower rate than the state, rising by 11.5 percent between 1985 and 1990. Statewide, teaching professionals increased by an estimated 16.5 percent during the same period.

The West Texas region's diverse industrial base is supported by an estimated 46,000 production, operative and maintenance workers, accounting for 28 percent of the labor force in 1990. Extractive construction trades constitute the largest portion of mechanical related occupations, with 6.0 percent of the regional work force. Of that, oil and gas production workers account for about 50 percent of all extraction occupations. Nevertheless, oil and gas related occupations continue to decline.

Mechanics, installers and repairers account for the second largest portion of the production occupations. In 1990, these occupations employed 4.9 percent of the total labor force, and have added 450 workers since 1985. Hand laborers and helpers also constitute 4.2 percent of the labor force.

Transportation occupations provide over 7,500 jobs to the West Texas region and make up an estimated 4.6 percent of the total work force. Truck drivers constitute about 54 percent of transportation occupations, with many related to the oil and gas industry. Heavy equipment operators account for 26 percent of the transportation and material moving occupations in the region.

Sales-related occupations have a slightly larger presence in the West Texas region than they do in the state as a whole. In 1990, sales workers made up 11.4 percent of the labor force in the region versus 11.1 percent statewide and grew at a rate of almost nine percent between 1985 and 1990.

Retail sales personnel make up the largest portion of the sales-related work force in both the region and the state. The sector's share of the total labor force in 1990 was 3.5 percent in the region and 3.1 percent statewide. However, the region's retail sales occupational growth rate of 8.1 percent was lower than state growth of 8.3 percent.

General managers and top executives held an estimated 4,100 positions in the three metropolitan areas. This group is 2.5 percent of the metropolitan work force and added 250 jobs between 1985 and 1990.

Occupational trends in the metropolitan areas do not completely represent the region as a whole because 27 of the region's 30 counties are rural. Agricultural occupations play a major role in the region's economy. More than 24,000 workers, 8.1 percent of the total working age population, have a direct relationship to agricultural production in West Texas. More than 40 percent (10,000) of these jobs are on farms and ranches and one-fifth are involved in the livestock trade. Other related employment can be found in farm machinery manufacturing, farm services, wholesale trade of grain and raw agricultural materials.

Average Wage Comparison

Texas has historically been a relatively low wage state, but now average wages are approximately equal in the state and the nation. Texas' average annual wage was $23,800 in 1990, which was $500 above the national average wage of $23,300.

In contrast, the West Texas region's average wage of $21,300 was $2,000 below the national average wage and $2,500 below the state average wage. In six industries, however, the average wage in the West Texas region exceeded the national average wage in 1990, but these industries,

Table 10
West Texas and U.S. 1990 Average Annual Wages

Industry	U.S. Annual Average Wage	West Texas Average Wage	Amount Above U.S. Average
Forestry	$17,900	$27,300	$9,400
Electronic & Electrical Equipment	30,100	33,900	3,800
Petroleum & Coal Products	42,600	43,700	1,100
Rubber & Misc. Plastics	24,700	25,300	600
Stone, Clay & Glass Products	27,600	27,900	300
Private Households	9,300	9,500	200

SOURCES: Texas Employment Commission, Bureau of Labor Statistics and Texas Comptroller of Public Accounts.

employed less than 3 percent of the region's labor force.

Of the region's 10 largest private industries, none average wages higher than the state or the national average. Oil and gas extraction, the region's largest employment sector, had average wages substantially below the state average, $34,200 compared with $43,900 in 1990.

The region's second largest industry, eating and drinking establishments, also had wages below the state and national averages. In 1990, restaurant and bar employees' average annual wage was $7,700, 14.9 percent below the Texas average and 7.2 percent below the U.S. average.

Some explanations for lower wages in the West Texas region include a lower cost of living, few industries requiring high skill levels and a suffering economy caused by the downturn in oil and gas production.

Table 11
Relative Wage Rates for West Texas' 10 Largest Private Industries

Industry	U.S. Average Annual Wages	West Texas Average Annual Wages	Difference	Percent Difference
Oil & Gas Extraction	$38,300	$34,200	$-4,100	-10.7%
Eating & Drinking Places	8,300	7,700	-600	-7.2
Health Services	25,200	21,100	-4,100	-16.3
Food Stores	13,000	12,000	-1,000	-7.7
Wholesale Trade, Durable Goods	31,600	26,500	-5,100	-16.1
Business Services	19,500	15,300	-4,200	-21.5
General Merchandise Stores	12,600	10,600	2,000	-15.9
Auto Dealers & Service Stations	20,400	19,300	-1,100	-5.4
Wholesale Trade, Nondurable Goods	27,800	25,300	-2,500	-9.0
Special Trades Contractors	25,000	18,200	-6,800	-27.2

SOURCES: Texas Employment Commission, Bureau of Labor Statistics and Texas Comptroller of Public Accounts.

Work Force Development

In an effort to keep pace with the changing economy, local educators and industry leaders are attempting to provide students with the necessary skills to enter tomorrow's work force. By introducing vocational and technical training to students in secondary and higher education, local officials are hoping to increase the number of skilled workers.

The long-term goal for the West Texas region labor force is to raise the percentage of more demanding high-skill jobs. With more students attending college and others being trained in skilled occupations, the wage base should also increase. Education programs are being implemented stressing the importance of technical skills as a means to reach these goals.

The Texas Quality Work Force Planning Committee was created to develop a skilled and educated work force capable of contributing to the state's economy as well as compete in the global marketplace. The committee is a partnership between the Texas Education Agency, Texas Department of Commerce and Texas Higher Education Coordinating Board, and also involves employers, educators and training providers.

The federally funded Tech-Prep program is to be implemented by 14 West Texas high schools by 1993. Tech-Prep is designed as a six-year degree plan for students working toward a career in technical fields. Ninth graders begin two years of Pre-Tech-Prep, which involve career counseling. Eleventh graders enter the four-year core of courses, as coordinated with area colleges, to earn an Associate Degree with initial and master technician certification.

West Texas' vast junior college system has many programs directed at regional labor force needs. Midland and Odessa colleges continue to fill the need for petroleum technicians, despite the soft market. The trend of independent producers to hire technicians instead of engineers is spreading.

Howard College has five campuses located in the West Texas region and three outside, with the main campus in Big Spring. Howard College has moved its focus away from petroleum-related technologies as demand has fallen. Today, nursing is the leading program at the college; students are trained in cooperation with local hospitals. The college also teaches alcohol and drug counselling. In addition, the Veterans Administration and Fina Oil and Chemical have benefited from the computer training offered to their employees.

Midland College, working with local school districts and industry, has created many programs to prepare a skilled labor force. The college's Tech-Prep programs are directed primarily towards health care, electronics and computers. To better serve the minority community, the Midland College South Campus was recently opened. The college also provides vocational training for local high schools.

Odessa College has directed efforts toward programs in health care, electronics/computer technology and office occupations. To serve the region's needs, the college is participating in Quality Work Force Planning and Tech-Prep. The college is also home of one of the state's largest petroleum technology programs. Future programs may include child care and environmental technology.

West Texas is home to many four-year colleges and universities. While their degree programs have a wide range, education and engineering have a strong presence. Public universities in the region include the University of Texas-Permian Basin and Angelo State University.

West Texas' occupational expansion is directly tied to the region's education system. The only way to produce high-skilled workers is to have an educational infrastructure that is aware of local industry's needs. As the region's labor force shrinks, the need for a efficient, skilled labor force will increase. ✪

Forecast

Many of the forces of change playing out in Texas will have direct impacts on the economic outlook for the West Texas region of the state by the turn of the century. An aging population along with generally rising health care expenditures will support a growing health care industry in the region. Rising incomes and lifestyle changes, such as more women working outside the home, should drive further increases in the demand for other services.

In other respects, the economy of the West Texas region will differ significantly from that of the state. Perhaps more than any other area of the state, West Texas faces the painful transition from an oil and gas based economy to a more diversified manufacturing and service based economy. A forecast of flat real oil and gas prices through the end of the decade spells continued stagnation for those involved in all parts of the oil and gas production industry. Only by slowly evolving an economy based on other products and markets will the West Texas region generate modest growth. But it is unlikely that this transition will occur quickly enough to stem a slowing, but continued, pattern of population out-migration from the region during the decade.

Changing Structure of the West Texas Economy

The changing fortunes of the oil and gas industry have whip-sawed the economy of the West Texas region. After reaching a peak of 38,500 jobs in the petroleum exploration and related industries during 1981, more than 14,500 jobs were lost during the ensuing nine years. Similarly, employment in the region's manufacturing sector, heavily dependent upon oil and gas exploration, dropped from 25,100 in 1981 to 15,000 in 1990.

These massive losses rippled through every other sector of the West Texas economy during the 1980s and early 1990s. Based on historical relationships, a forecast of a constant real price for gas during the 1990s spells some stability in petroleum and natural gas related industries, but implies no growth.

Instead, a modest number of new employment opportunities in manufacturing in the West Texas region should come from other parts of the manufacturing sector. For example, Figure 3 depicts the expected 15 percent growth in national employment in the food products and processing industry. Also shown in Figure 3 is a 31 percent national employment growth forecast for the electronic and electronic equipment industry. Because of these trends, and others in industries already present in the region, manufacturing employment in the West Texas region is expected to grow slowly during the 1990s at an annual rate of 0.8 percent—about one-half the growth rate expected for manufacturing in the state.

In addition to the modest growth prospects for some manufacturers in the region, government employment will also serve to foster overall employment increases. Government, a steady employer even during the relatively poor economic times of the 1980s, will increase its role in the West Texas economy. With the completion of a new state prison in Lamesa and increases in local government employment largely in school districts, total jobs in government should climb by 16 percent from 1990 to 2000.

These modest growth rates will serve to stabilize a previous pattern of massive job

• Increasing health care expenditures and demand for business services will drive increasing service sector employment opportunities.

• Stable prices for oil and gas through the 1990s spells some stability, but little growth, for related industries.

• Despite some continued out-migration, West Texas' population should increase to 539,800 by the year 2000.

TABLE 12
West Texas Economic Forecast Through 2000

				Average Yearly Growth		
	1990	1995	2000	1990-95	1995-2000	1990-2000
Total Personal Income (in $Billions)	$8.11	$9.68	$13.28	3.6%	6.5%	5.1%
Total Nonfarm Employment (in Thousands)	176.9	183.6	198.9	0.8	1.6	1.2
Mining Employment (in Thousands)	24.0	23.8	23.6	-0.2	-0.2	-0.2
Construction Employment (in Thousands)	5.4	5.0	6.0	-1.8	3.9	1.0
Manufacturing Employment (in Thousands)	15.0	15.3	16.3	0.3	1.3	0.8
TPU/Comm Employment (in Thousands)	10.7	11.0	11.7	0.5	1.3	0.9
Trade Employment (in Thousands)	44.6	45.7	49.5	0.5	1.6	1.0
FIRE Employment (in Thousands)	7.5	6.8	6.7	-1.7	-0.3	-1.1
Services Employment (in Thousands)	32.1	35.9	41.7	2.2	3.1	2.7
Government Employment (in Thousands)	37.4	40.1	43.4	1.4	1.6	1.5
Retail Sales (in $Billions)	$3.7	$4.6	$6.4	4.7	6.8	5.8
Population (in Thousands)	513.1	524.4	539.8	0.4	0.6	0.5
Births (in Thousands)	9.2	8.7	8.7	-1.0	-0.2	-0.6
Deaths (in Thousands)	4.1	4.4	4.7	1.6	1.1	1.3
Per Capita Personal Income	$15,775	$18,469	$24,611	3.2	5.9	4.5

SOURCE: Wharton Econometric Forecasting Associates and Texas Comptroller of Public Accounts.

region during the 1980s. From 1990 to 2000, construction employment in West Texas is forecast to increase slightly from 5,400 jobs to 6,000 jobs, with growth occurring during the last half of the decade.

Service Sector Growth

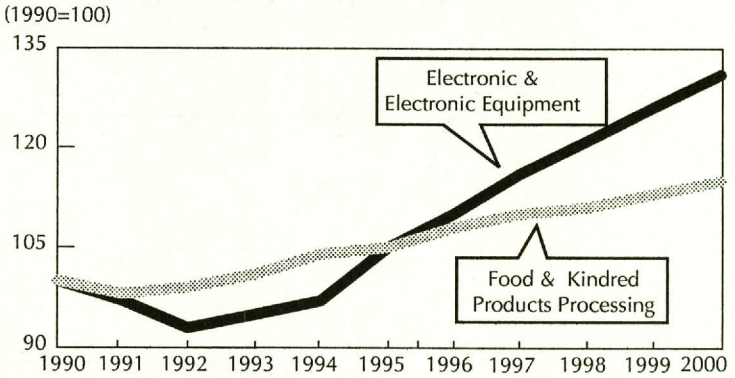
Two other strong national forces of change will serve to generate the bulk of the region's jobs outside of the more traditional sources of manufacturing, government and construction. First, rapidly rising expenditures on health care coupled with an aging population is expected to generate national employment gains in the health care industries of more than 40 percent during the 1990s (see Figure 4). In meeting the health care needs of its population, the West Texas region will share in these employment gains.

Second, companies in the U.S., and particularly manufacturing firms, are reorganizing their business operations. There is a trend toward "out-sourcing" of business functions previously conducted within the company. Notable in this regard are many maintenance, accounting and security functions. As a result, employment in firms providing these business services has grown considerably during the past few years. At the national level this growth is expected to continue during the 1990s with business services employment expected to increase nearly 70 percent over the next ten years. Based on these trends, employment in business services is also forecast to increase in the West Texas region during the last decade of the 20th century.

As a result of business out-sourcing and increasing expenditures on health care, the service sector is expected to be the fastest growing sector of the West Texas economy during the 1990s. Employment growth in services should average 2.7 percent annually from 1990 to 2000, adding 9,600 jobs during this period.

To serve this growing employment base, other sectors are also expected to add jobs during the decade. About 4,900 jobs in wholesale and retail trade will be generated during the 1990s along with nearly 1,000 jobs in the transportation, communication and public utilities industries.

Figure 3
Key National Employment and Production Forecasting Indices

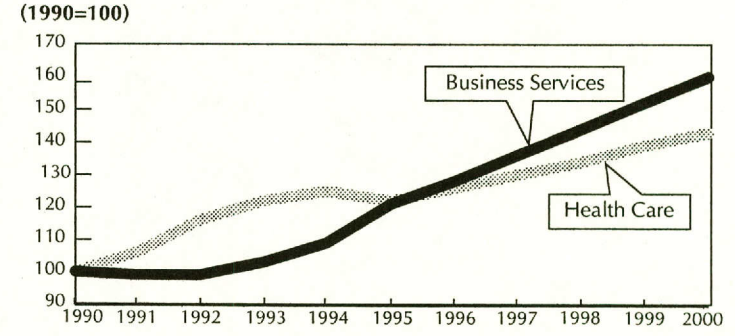


SOURCES: Wharton Econometric Forecasting Associates and Texas Comptroller of Public Accounts.

Population and Income

The underlying economic trends expected for the West Texas region during the next ten years will serve to generate rising incomes, but job growth will not be rapid enough during the decade to stem some out-migration of the population from the region. Total region population should grow slightly from 1990 to 1995, rising from 513,100 to 524,400. Slightly more rapid growth in employment opportunities during the latter half of the decade should lessen out-migration, pushing total population in

Figure 4
Employment Indices for U.S. Business and Health Care Services



SOURCES: Wharton Econometric Forecasting Associates and Texas Comptroller of Public Accounts.

the region to 539,800 by the year 2000.

Total personal income growth in the region should nearly match inflation during the first half of the 1990s, rising at a 3.6 percent annual rate. This growth should accelerate slightly during the last half of the decade, reaching an annual rate of 6.5 percent. Per capita income should also rise slowly during the decade, reaching $24,611 in 2000, up 56 percent from $15,775 in 1990.✪

Forces of Change

Evidence of the forces of change can be seen all around us, in our history as well as in our current situation. While the forces of change have consequences for all Texans, some are particularly relevant to a region of the state. In West Texas, the bounty of the earth has historically been the source of economic prosperity through producing livestock, cotton and oil. Today, changes in agriculture, the depletion of the natural resource base and the effects of aging and out-migration are just a few of the forces of change that will influence the future of the region.

The Legacy and Future of the Land-based Economy

Agriculture is one of the cornerstones of the West Texas economy, supporting first ranchers, then farmers, herders and cities. The history of agriculture in the region shows the ability of man to develop ways to overcome the constraints of nature. Current developments in the industry continue to show that West Texas can adapt to challenges and overcome adversity.

Ranchers first settled in West Texas using the vast grassland to run free range cattle. Farmers tried to succeed them, but were hampered by the lack of reliable rainfall, suffering when the crops were destroyed by the inevitable drought years. Farmers were limited by their inability to effectively use the ground water.

Eventually windmills were introduced to get water for gardens and personal use. Then, when research developed advanced drilling techniques, farmers and ranchers tapped the Ogallala and Edwards Limestone-Trinity Sands aquifers and alluvial deposits, which supplemented the few rivers and springs of the area for crop irrigation and stock water.

At about the same time drilling techniques progressed, researchers developed a drought and storm resistant variety of cotton and the South Plains area of West Texas bloomed, becoming one of the most productive cotton areas in the state.

When droughts again threatened in the 1950s, farmers responded by further increasing irrigation. The increased agricultural demand for water coincided with a growth in urban demand and resulted in a lowering of the level of the Ogallala Aquifer in the northern part of the region. By the 1970s, the Ogallala, once thought inexhaustible, was endangered as depletion outpaced recharge. Experts were worried that the aquifer might not last much longer, while at the same time other ground water resources of West Texas were declining.

Furthermore, as the level of the ground water fell, drilling and pumping costs increased. This increase in cost coincided with an increase in energy prices and a decrease in prices paid for agricultural commodities. Suddenly, many farmers and ranchers found it too expensive to pump the amount of water necessary for their operations.

Fortunately, research and development provided techniques—furrow dikes, drop and drip irrigation—to lessen the amount of water used for irrigation, thereby lowering production costs. The effect of these irrigation techniques, in combination with the return of some portions of West Texas to dryland farming, was that in 1987, for the first time in 36 years, recharge to the Ogallala outpaced depletion.

The reduction in agricultural and urban demand allows the Ogallala Aquifer to recover, but this recovery should not be taken for granted. Continued developments in water-conserving irrigation techniques

- **Dependent on petroleum, a declining natural resource, and agriculture, West Texas must continue to adapt to meet the challenges of the future.**
- **New crops and crop varieties are increasing the region's competitiveness.**
- **Demographic trends, including the aging of the population, will affect the region.**

and adoption of those techniques by farmers could allow the Ogallala Aquifer to continue to serve the South Plains area of West Texas far beyond earlier estimates. Application of these same techniques could also make the other parts of West Texas more productive while maintaining the water supply, as exemplified by the vineyard owned by the University of Texas.

For West Texas to continue to maintain its agricultural competitiveness, farmers must also explore new crops or crop varieties that require less water as well as new types of agriculture. Promising crops like grapes and naturally colored or organically grown cotton are not only drought resistant, but provide additional processed products for the state.

The region's vineyards process grapes into wine, and naturally colored cotton is processed into fabric and then into clothing by manufacturers in the state. Naturally colored cotton has an advantage because it does not require a dye application and the crop can bring double the price per pound, or more, compared to regular white cotton. Organically grown cotton is in demand by environmentally active groups and manufacturers who cater to allergics.

While these crops are only a small percentage of the agricultural production of West Texas, they contribute more to the economy than they would if they were simply grown in the region and then exported. For example, wine grape production in 1991 in Texas was valued at $3.5 million, while the value added by Texas wineries from processing those grapes was $11 million.

Although West Texas is far from the coastal waters of the state, shrimp has been added as an agricultural commodity of the region. Some West Texans have adapted what is considered an agricultural liability, saline water, into an asset by building ponds for aquaculture operations. Aquaculture is the production of plants or animals in a controlled water environment. The products of aquaculture have a high value compared to many crops and the demand for these products is growing due to the health and nutritional benefits of seafood, the limited ocean supply and the controlled environment. While the production of seafood in West Texas is limited, it does represent the adaptability of the region's population to the limits imposed by nature.

Additionally, research and development is improving a West Texas agricultural staple, wool. Selective breeding is one process that science is assisting by identifying sheep that produce finer fiber in greater quantity. Finer fibers and larger quantity translate into higher clip prices.

The region could prosper further from processing this and other traditional agricultural products, since for example, the wool in Texas is not graded to international standards, forcing producers to sell in the domestic market. By grading the wool and separating it according to such things as coarseness the value of the clip would be increased, and once graded, West Texas wool would be able to compete in an international market. Additional processing would also increase the region's income. In regards to mohair, currently almost all the mohair produced by West Texas angora goats is exported. Processing mohair in the region could bring substantial additional annual income.

For future development, the region should look at expanding the markets for its commodities. As incomes in the Pacific Rim, Middle East, Eastern Europe and the countries of the former U.S.S.R. rise, these areas could become the markets for the products of West Texas. Both the Orient and Europe have expressed interest in organically grown and naturally colored cotton, crops that bring in higher dollars per pound than regular white cotton. Russia has exhibited an interest in Texas mohair, recently buying an initial sample of 800,000 pounds.

Finally, as research and development add new technologies to the industry and a global marketplace increases competition, farmers and ranchers must increase their level of education. The increasingly complex machinery used to perform such tasks as monitoring crop development or soil moisture, in addition to biotechnological developments and the higher level of business management skills needed, will require agriculture managers to be better educated to remain productive and profitable.

Petroleum

Another major resource that West Texas has prospered from is petroleum. In the 1920s, wildcatters discovered oil in the Permian Basin, and today the region is the

state's most productive oil area.

The drilling of major oil producing wells brought boom towns to the region and attracted refineries that were followed by the petrochemical companies. One of the nation's largest petrochemical complexes located in the Midland/Odessa area, and the region prospered. Prosperity increased with the rise in the price of oil in the 1970s. Then the crash of the 1980s seriously hampered the economy as people lost their jobs and businesses closed.

The U.S. lost its dominance in the industry due to dwindling supplies of domestic crude and the oil fields developed in other counties. The major oil companies have turned the attention of their production facilities to foreign shores, leaving the smaller independents more and more in charge of the home fires as their overhead costs are lower. Many of these independents are buying the oil leases of the major companies, acquiring reserves and producing oil from known fields rather than wildcatting.

By selling their oil leases, the major companies are creating opportunities for the independents; accompanying these opportunities, however, may be substantial environmental restrictions. The costs attached to meeting the environmental requirements to operate some fields may outweigh their assets.

In addition, drilling for natural gas may increase if prices go up and new markets open, but increasing costs remain a limiting factor in the production industry.

West Texas has taken advantage of the original boon of nature in producing oil and gas, and this part of the industry is still active, but it is declining. The inheritance of crude provided employment and a measure of economic prosperity in the past. Unfortunately, this inheritance has reached its zenith and a declining dependence on the petroleum industry is probably inevitable for future economic development plans.

Demographic Changes

As indicated in the Demographics section, West Texas, in comparison to the state, exhibits a higher percentage of residents aged 65 and older, an age group forecasted to grow generally at a higher rate than the total regional population. This characteristic of the region's population will have major implications for the health care industry and elderly benefits programs, particularly because many of the counties in the region are rural counties at a considerable distance from hospitals or other health care centers.

The region's population will also begin displaying greater ethnic diversity. The percentage of the population that is Hispanic is forecast to grow, and by the second decade of the next century, no race or ethnicity will have a majority status in the region.

West Texas exhibited a high level of outmigration between 1980 and 1990 and, without new life injected from industries that locate or develop within the region, the result may be economic stagnation. Increasing development in value-added processing may be one of the keys to attracting new industries and increasing employment.

In addition, exploring the methods to increase the education level of residents in response to the requirements of the agriculture industry could also benefit the region in other ways. Increased emphasis on education and training will provide the area with the educated labor force that industries outside agriculture also require. Exploring the means to provide this educated work force could be the key to the future prosperity of West Texas. ✪

Statistical Appendix

LIST OF TABLES

WEST TEXAS

West Texas Total Employment 1982-1991

Year	1982	1983	1984	1985	1986	1987	1982-1987 Change	1982-1987 Percent Change
Midland MSA	53,900	49,900	49,900	51,000	45,700	43,800	-10,100	-18.7%
Odessa MSA	61,000	52,800	51,800	52,900	44,700	41,700	-19,300	-31.6
San Angelo MSA	37,500	37,100	37,500	37,500	36,600	36,600	-900	-2.4
MSA Total	152,400	139,800	139,200	141,400	127,000	122,100	-30,300	-19.9
Non-MSA Total	68,800	63,600	65,600	64,000	57,400	55,500	-13,300	-19.3
Region	221,200	203,400	204,800	205,400	184,400	177,600	-43,600	-19.7
Texas	**6,168,100**	**6,100,300**	**6,404,200**	**6,585,600**	**6,464,500**	**6,412,300**	**244,200**	**4.0**
Regional Percent of Total Texas Employment	3.6%	3.3%	3.2%	3.1%	2.9%	2.8%		
Regional Unemployment Rate	2.9	6.2	6.7	4.7	6.4	12.0		
Texas Unemployment Rate	6.9	8.0	5.9	7.0	8.9	8.4		

Year	1988	1989	1990	1991	1987-1991 Change	1987-1991 Percent Change	1982-1991 Change	1982-1991 Percent Change
Midland MSA	45,400	44,000	44,600	45,700	1,900	4.3%	-8,200	-15.2%
Odessa MSA	43,600	42,500	44,200	44,900	3,200	7.7	-16,100	-26.4
San Angelo MSA	37,200	36,900	36,800	37,800	1,200	3.3	300	0.8
MSA Total	126,200	123,400	125,600	128,400	6,300	5.2	-24,000	-15.7
Non-MSA Total	57,000	55,900	57,600	58,100	2,600	4.7	-10,700	-15.6
Region	183,200	179,300	183,200	186,500	8,900	5.0	-34,700	-15.7
Texas	**6,606,500**	**6,739,800**	**6,983,300**	**7,065,800**	**653,500**	**10.2**	**897,700**	**14.6**
Regional Percent of Total Texas Employment	2.8%	2.7%	2.6%	2.6%				
Regional Unemployment Rate	7.9	6.6	6.4	5.3				
Texas Unemployment Rate	7.3	6.7	6.2	6.6				

Note: MSA counties are Ector, Midland and Tom Green.

SOURCES: Texas Employment Commission and Texas Comptroller of Public Accounts.

Employment by Sector in the West Texas Region

Number of Jobs

Sector	1982	1987	1991	1982-87 Change	1982-87 Percent Change	1987-91 Change	1987-91 Percent Change	1982-91 Change	1982-91 Percent Change
Agriculture, Forestry and Fishing	2,500	3,500	4,700	1,000	40.0%	1,200	34.3%	2,200	88.0%
Mining	39,900	25,300	24,800	-14,600	-36.6	-500	-2.0	-15,100	-37.8
Construction	16,200	7,100	7,000	-9,100	-56.2	-100	-1.4	-9,200	-56.8
Manufacturing	24,200	15,700	15,300	-8,500	-35.1	-400	-2.5	-8,900	-36.8
Transportation, Communications and Public Utilities	15,200	11,500	11,000	-3,700	-24.3	-500	-4.3	-4,200	-27.6
Wholesale Trade	13,900	9,300	10,500	-4,600	-33.1	1,200	12.9	-3,400	-24.5
Retail Trade	39,300	35,000	35,000	-4,300	-10.9	0	0.0	-4,300	-10.9
Finance, Insurance and Real Estate	9,000	8,100	6,900	-900	-10.0	-1,200	-14.8	-2,100	-23.3
Services	29,400	27,200	32,900	-2,200	-7.5	5,700	21.0	3,500	11.9
Government	31,600	34,900	38,400	3,300	10.4	3,500	10.0	6,800	21.5
Total	**221,200**	**177,600**	**186,500**	**-43,600**	**-19.7%**	**8,900**	**5.0%**	**-34,700**	**-15.7%**

Percent of Total Employment

Sector	1982	1987	1991
Agriculture, Forestry and Fishing	1.1%	2.0%	2.5%
Mining	18.0	14.2	13.3
Construction	7.3	4.0	3.8
Manufacturing	10.9	8.8	8.2
Transportation, Communication and Public Utilites	6.9	6.5	5.9
Wholesale Trade	6.3	5.2	5.6
Retail Trade	17.8	19.7	18.8
Finance, Insurance and Real Estate	4.1	4.6	3.7
Services	13.3	15.3	17.6
Government	14.3	19.7	20.6
Total	**100.0%**	**100.0%**	**100.0%**

SOURCES: Texas Employment Commission and Texas Comptroller of Public Accounts.

Employment by Sector in the Midland MSA

Number of Jobs

Sector	1982	1987	1991	1982-87 Change	1982-87 Percent Change	1987-91 Change	1987-91 Percent Change	1982-91 Change	1982-91 Percent Change
Agriculture, Forestry and Fishing	200	300	400	100	50.0%	100	33.3%	200	100.0%
Mining	13,400	9,800	9,700	-3,600	-26.9	-100	-1.0	-3,700	-27.6
Construction	4,200	1,200	1,300	-3,000	-71.4	100	8.3	-2,900	-69.0
Manufacturing	4,300	2,700	2,400	-1,600	-37.2	-300	-11.1	-1,900	-44.2
Transportation, Communications and Public Utilities	2,900	2,400	2,400	-500	-17.2	0	0.0	-500	-17.2
Wholesale Trade	3,600	2,300	2,900	-1,300	-36.1	600	26.1	-700	-19.4
Retail Trade	8,600	8,300	8,100	-300	-3.5	-200	-2.4	-500	-5.8
Finance, Insurance and Real Estate	3,100	2,600	2,200	-500	-16.1	-400	-15.4	-900	-29.0
Services	8,800	8,100	8,900	-700	-8.0	800	9.9	100	1.1
Government	4,800	6,100	7,400	1,300	27.1	1,300	21.3	2,600	54.2
Total	**53,900**	**43,800**	**45,700**	**-10,100**	**-18.7%**	**1,900**	**4.3%**	**-8,200**	**-15.2%**

Percent of Total Employment

Sector	1982	1987	1991
Agriculture, Forestry and Fishing	0.4%	0.7%	0.9%
Mining	24.9	22.4	21.2
Construction	7.8	2.7	2.8
Manufacturing	8.0	6.2	5.3
Transportation, Communication and Public Utilites	5.4	5.5	5.3
Wholesale Trade	6.7	5.3	6.3
Retail Trade	16.0	18.9	17.7
Finance, Insurance and Real Estate	5.8	5.9	4.8
Services	16.3	18.5	19.5
Government	8.9	13.9	16.2
Total	**100.0%**	**100.0%**	**100.0%**

SOURCES: Texas Employment Commission and Texas Comptroller of Public Accounts.

Employment by Sector in the Odessa MSA

Number of Jobs

Sector	1982	1987	1991	1982-87 Change	1982-87 Percent Change	1987-91 Change	1987-91 Percent Change	1982-91 Change	1982-91 Percent Change
Agriculture, Forestry and Fishing	100	100	200	0	0.0%	100	100.0%	100	100.0%
Mining	9,300	6,200	5,600	-3,100	-33.3	-600	-9.7	-3,700	-39.8
Construction	5,900	2,400	2,700	-3,500	-59.3	300	12.5	-3,200	-54.2
Manufacturing	8,200	3,600	4,400	-4,600	-56.1	800	22.2	-3,800	-46.3
Transportation, Communications and Public Utilities	3,200	2,100	2,200	-1,100	-34.4	100	4.8	-1,000	-31.3
Wholesale Trade	5,900	3,300	3,700	-2,600	-44.1	400	12.1	-2,200	-37.3
Retail Trade	11,900	8,800	9,200	-3,100	-26.1	400	4.5	-2,700	-22.7
Finance, Insurance and Real Estate	2,200	1,700	1,300	-500	-22.7	-400	-23.5	-900	-40.9
Services	7,800	5,900	8,000	-1,900	-24.4	2,100	35.6	200	2.6
Government	6,500	7,600	7,600	1,100	16.9	0	0.0	1,100	16.9
Total	**61,000**	**41,700**	**44,900**	**-19,300**	**-31.6%**	**3,200**	**7.7%**	**-16,100**	**-26.4%**

Percent of Total Employment

Sector	1982	1987	1991
Agriculture, Forestry and Fishing	0.2%	0.2%	0.4%
Mining	15.2	14.9	12.5
Construction	9.7	5.8	6.0
Manufacturing	13.4	8.6	9.8
Transportation, Communication and Public Utilites	5.2	5.0	4.9
Wholesale Trade	9.7	7.9	8.2
Retail Trade	19.5	21.1	20.5
Finance, Insurance and Real Estate	3.6	4.1	2.9
Services	12.8	14.1	17.8
Government	10.7	18.2	16.9
Total	**100.0%**	**100.0%**	**100.0%**

SOURCES: Texas Employment Commission and Texas Comptroller of Public Accounts.

Employment by Sector in the San Angelo MSA

Number of Jobs

Sector	1982	1987	1991	1982-87 Change	1982-87 Percent Change	1987-91 Change	1987-91 Percent Change	1982-91 Change	1982-91 Percent Change
Agriculture, Forestry and Fishing	200	400	500	200	100.0%	100	25.0%	300	150.0%
Mining	1,300	500	600	-800	-61.5	100	20.0	-700	-53.8
Construction	2,300	1,700	1,100	-600	-26.1	-600	-35.3	-1,200	-52.2
Manufacturing	6,300	5,600	5,400	-700	-11.1	-200	-3.6	-900	-14.3
Transportation, Communications and Public Utilities	3,800	3,200	2,800	-600	-15.8	-400	-12.5	-1,000	-26.3
Wholesale Trade	1,500	1,600	1,600	100	6.7	0	0.0	100	6.7
Retail Trade	7,800	8,000	7,800	200	2.6	-200	-2.5	0	0.0
Finance, Insurance and Real Estate	1,500	1,700	1,500	200	13.3	-200	-11.8	0	0.0
Services	6,600	7,400	9,100	800	12.1	1,700	23.0	2,500	37.9
Government	6,200	6,500	7,400	300	4.8	900	13.8	1,200	19.4
Total	**37,500**	**36,600**	**37,800**	**-900**	**-2.4%**	**1,200**	**3.3%**	**300**	**0.8%**

Percent of Total Employment

Sector	1982	1987	1991
Agriculture, Forestry and Fishing	0.3%	0.7%	0.5%
Agriculture, Forestry and Fishing	0.5	1.1	1.3
Mining	3.5	1.4	1.6
Construction	6.1	4.6	2.9
Manufacturing	16.8	15.3	14.3
Transportation, Communication and Public Utilites	510.1	8.7	7.4
Wholesale Trade	4.0	4.4	4.2
Retail Trade	20.8	21.9	20.6
Finance, Insurance and Real Estate	4.0	4.6	4.0
Services	17.6	20.2	24.1
Government	16.5	17.8	19.6
Total	**100.0%**	**100.0%**	**100.0%**

SOURCES: Texas Employment Commission and Texas Comptroller of Public Accounts.

West Texas Gross Retail Sales 1984-1991

In Millions of Dollars

Year	1984	1985	1986	1987	1984-1986 Change	1984-1986 Percent Change
Midland MSA	$ 920.6	$ 1,069.9	$ 775.9	$ 753.2	($144.70)	-15.7%
Odessa MSA	1,139.5	1,144.5	932.7	960.9	(206.80)	-18.1
San Angelo MSA	602.6	642.3	612.4	622.0	9.80	1.6
MSA Total	2,662.7	2,856.7	2,321.0	2,336.1	(341.70)	-12.8
Non-MSA Total	3,795.6	4,189.6	4,323.7	4,423.8	528.10	13.9
Region	6,458.3	7,046.3	6,644.7	6,759.9	186.40	2.9
Texas	**$109,373.4**	**$115,426.6**	**$110,089.5**	**$110,728.3**	**$716.10**	**0.7%**

Year	1988	1989	1990	1991	1987-1991 Change	1987-1991 Percent Change	1984-1991 Change	1984-1991 Percent Change
Midland MSA	$ 798.2	$ 818.9	$ 914.6	$ 902.6	$ 149.4	19.8%	($ 18.0)	-2.0%
Odessa MSA	1,026.4	982.9	1,096.5	1,066.6	105.7	11.0	(72.9)	-6.4
San Angelo MSA	633.0	626.9	643.2	675.0	53.0	8.5	72.4	12.0
MSA Total	2,457.6	2,428.7	2,654.3	2,644.2	308.1	13.2	(18.5)	-0.7
Non-MSA Total	5,547.0	6,174.9	6,634.7	7,397.6	2,973.8	67.2	3,602.0	94.9
Region	8,004.6	8,603.6	9,289.0	10,041.8	3,281.9	48.5	3,583.5	55.5
Texas	**$116,813.9**	**$123,650.9**	**$133,394.1**	**$139,049.0**	**$28,320.7**	**25.6%**	**$29,675.6**	**27.1%**

Note: MSA counties are Ector, Midland and Tom Green.

SOURCE: Texas Comptroller of Public Accounts.

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