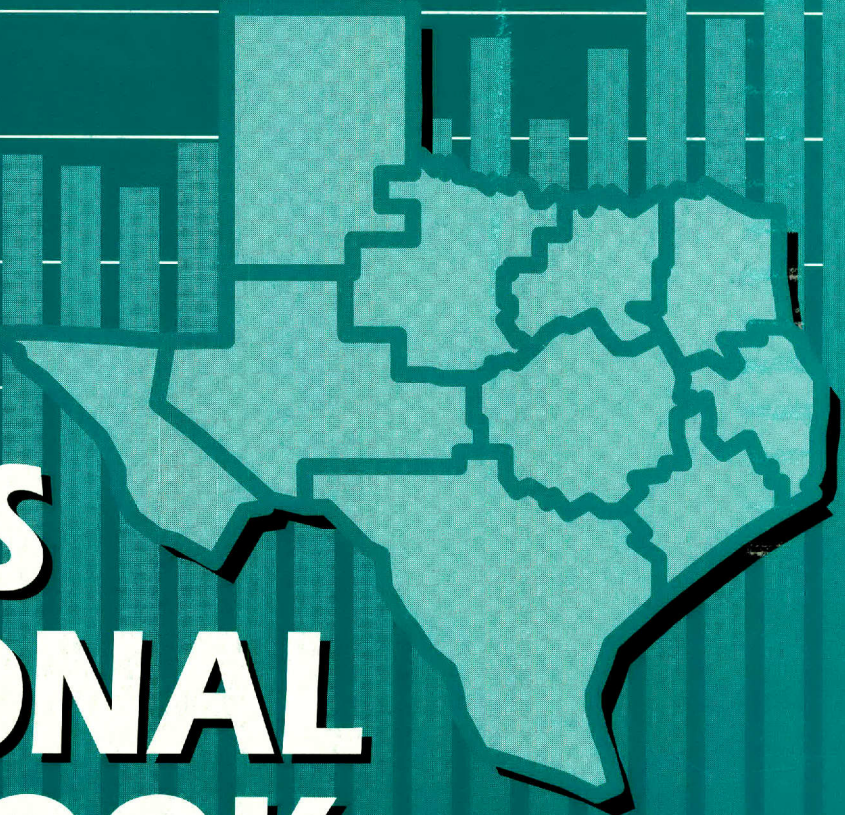


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# TEXAS REGIONAL OUTLOOK



**Southeast Texas**

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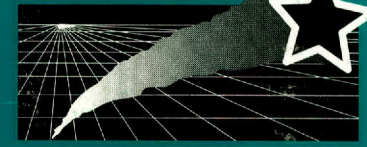
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*A Report  
of the Comptroller's*



**FORCES OF CHANGE**  
PROJECT

**JOHN SHARP**  
*Comptroller of Public Accounts*





JOHN SHARP  
Comptroller

COMPTROLLER OF PUBLIC ACCOUNTS  
STATE OF TEXAS  
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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.

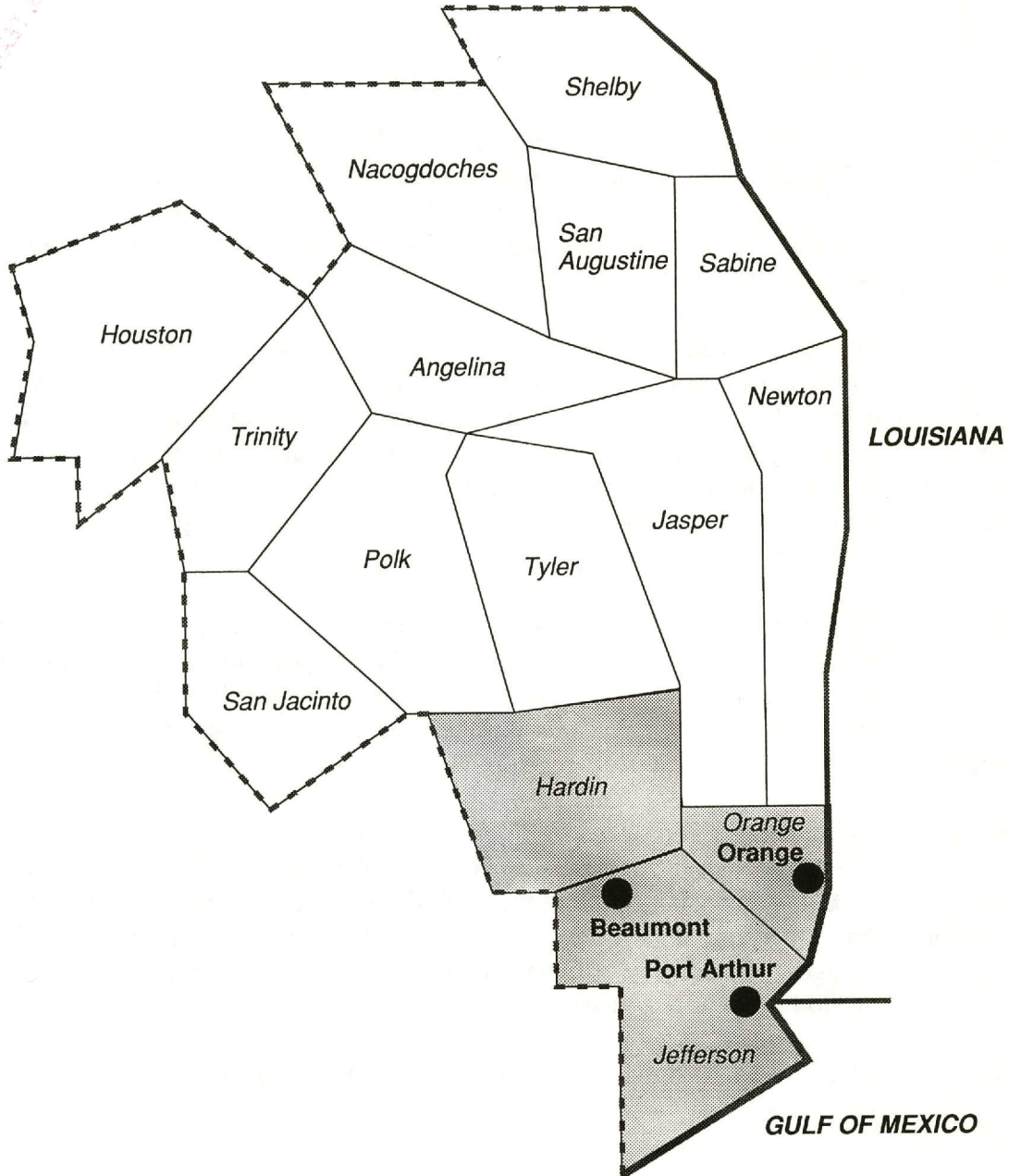
I hope you find this report informative, useful and thought-provoking.

Sincerely,

JOHN SHARP  
Comptroller of Public Accounts

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# Southeast Texas Counties and Metropolitan Areas



EDWARDS TEXAS 1989  
GIVERSHLY OF TEXAS FOR RURAL  
1988  
DEPT. OF LAND AND NATURAL  
RESOURCES

Shaded areas indicate a Metropolitan Statistical Area (MSA).

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# **REGIONAL OUTLOOK: SOUTHEAST TEXAS**

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# Introduction

**W**e 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 workforce. 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 Southeast Texas region of the state. Reviewing the economic history and geography of Southeast 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 Southeast 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,



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**SOUTHEAST  
TEXAS**

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. ★

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# Economic History and Geography

**T**he key to understanding the development of Texas is the relationship of man to the land. This is true of the Southeast Texas region. This area of Texas, made up of 15 counties, extends up from the northern Gulf Coast into the Piney Woods and along the Sabine river. The first things early settlers in Southeast Texas saw were the huge pine forests. Timber was to become one of the first resources that the area profited by, although it was not the most sensational. That accolade is reserved for oil. The discovery of oil in the area, in the early 1900s, and the increased demand for crude, helped Texas become one of the most prosperous states in the nation.

## Early Economic History

The first known native inhabitants of the Southeast Texas region were the Native American Atakapan and Caddo tribes. The Atakapans were known as wandering hunters that adapted well to the land of humid forests, rich bottomlands, and marshes. The Atakapans were made up of several bands of Native American tribes. They inhabited an area from east of the Sabine River to west of Galveston Bay and inland for more than 100 miles. Their tribal name was derived from the Choctaw word meaning "man-eater." The bands that lived in the southernmost part of the region shared many traits with their neighbors the Karankawas, who were known for uncivilized behavior and cannibalistic rituals. Bands of Atakapans that lived in the northern parts of the region were often mistaken for Caddos, who inhabited the northernmost part of Southeast Texas. The Caddo were a more civilized, sedentary, agrarian tribe, cultivating corn, beans and squash. The Caddos' word for friend or ally, "Taychas" or "Tejas," was adopted by the Spanish when referring to the tribesmen. The word later evolved into its present form, Texas.

The Atakapans and Caddos were wiped out by small pox and disputes. Some Ataka-

pans joined the Caddos and Wichitas on the Brazos River and a few joined the Alabama and Coushatta tribes, who moved into Southeast Texas in the late 18th century and early 19th century, but the Atakapan bands became extinct as an autonomous entity. The Alabama and Coushatta tribes survived and today maintain a reservation in Southeast Texas adjacent to the Big Thicket National Preserve in Polk County.

The first major Anglo-American settlers brought the culture of the Upper South from Tennessee and Arkansas. These settlers are probably responsible for the type of cattle raising practiced in the Southeast Texas region in the 1800s, which differed from that in most other areas of Texas. Here it followed the methods used in colonial America. Cattle were part of the method of self-contained agriculture and usually foraged for themselves on the open range. Dogs frequently assisted in cowhunting and there is no mention of roping as in South Texas. Almost all cattle raisers also had other livestock, such as hogs and poultry, and cultivated crops.

Eventually, between 1870 and 1890, open-range cattle roamed on flood-prone land, while the more fertile prairie was reserved for cotton and other crops. Later, cattle made a comeback, replacing cotton in more modern times. Today, the Southeast Texas region has several areas known for concentrations of beef and dairy cattle.

Another livestock industry important to the Southeast Texas area is poultry. Transportation improvements allow the industry, once located near large urban centers, to be

- **Historically, the economy of Southeast Texas depended on the land and its resources: lumber, cotton, cattle and crude.**

- **Petroleum remains important to the Southeast Texas economy mainly due to refining and petrochemical plants.**

- **Capital improvements of the port facilities stimulated the economy of the region in the 1980s.**



concentrated in a rural area and ship its product to city markets. The Southeast Texas region's temperate climate, adequate precipitation and available feed create an excellent environment for poultry. The region is home to numerous poultry production and processing facilities.

Settlers from the Deep South soon outnumbered the earlier settlers from the Upper South, bringing with them the plantation system of agriculture. The farming traditions of the South introduced the region to the culture of cotton.

Land owners divided the large plantations into smaller acreage for sharecroppers after the Civil War. The sharecroppers continued to cultivate cotton. It was not until the 20th century that many farmers switched from cotton to feed crops, due to erosion of the soil, boll weevil infestation and root-rot in the cotton plants.

The first documented Texas rice harvest occurred nearly 130 years ago near Beaumont. With the opening of the Southern Pacific Railroad, rice became a commercial crop in the area during the mid-1880s. In 1891, the state's first rice mill opened and rice-farmers established steam pump irrigation systems using the bayous and rivers of the coastal prairie to flood the fields. In 1899, a short-grain rice from Japan called Kiushu and the introduction of a long-grain rice from Honduras gave rice farmers two fine products.

By 1912, rice-growing had spread from the Sabine to the Guadalupe and Texas became the second largest rice producing state in the country. Rice continued to be an important commodity along the upper and central Gulf Coast after World War II. Though Texas once led the nation in rice production, the state now ranks fourth. Industrialization and urbanization in the area now compete with rice-growers for water and threaten current production rates. In 1989, Jefferson County, with a 55 inch average rainfall, ranked sixth among Texas' 23 rice-growing counties. Beaumont is home to Texas A & M's Agricultural Research and Extension Center that has developed several Texas varieties of rice, including Jasmine. The Douget-Dishman Rice Company, Inc., located in Beaumont, markets Jasmine rice grown and milled in the area.

The area suffered from droughts during and a national agricultural depression fol-

lowing World War I. In the 1930s, three events, the Great Depression, the Dust Bowl years and mechanized cultivation, caused major changes in Texas' agriculture industry. In the Southeast Texas region, as in other areas, many of the former sharecroppers moved to the cities, resulting in the conversion of some of the fields to forests and pastures. Woodland plantation is the name given to former crop fields planted with pine trees. Today, the main cultivated crops in most areas of the region are hay and timber with rice the predominant crop in the coastal areas.

In addition to the major agricultural commodities produced in Southeast Texas, a number of specialty commodities are emerging. Several such items that may eventually become major contributors to the area's agricultural sector include Jasmine rice, Christmas trees, blueberries, soybeans and aquaculture.

### **Timber Industry**

The timber available in Southeast Texas was an important commodity to the early settlers, and the lumber industry was one of the first industries in Texas. Loggers cut both hardwood and pine timber in East Texas in the 1870s, and then floated the logs down the Sabine and Neches Rivers to mills in Beaumont and Orange.

The advent of railroads made East Texas lumber available to other areas of the state. In the process, those towns that served as rail and mill centers such as Beaumont, Orange and Port Arthur prospered. During the later half of the 19th century, lumber ranked highest in Texas railroad freight tonnage.

In 1899, the lumber industry in East Texas produced over one billion board feet. Large lumber companies rapidly grew in the area and exploited the pine forest to near exhaustion. By 1907, the timber industry reached its peak with production decreasing thereafter due to resource depletion. The increasing demand by the lumber industry to fill the needs of the mills and railroad companies hastened the destruction of the forests. Demand for wood became even greater after the 1911 development of a method for making sulfate paper from yellow pine, and the lumber industry virtually destroyed the virgin pine forests before 1920.



The change from cotton fields back to forested lands in some areas occurred after 1930. Thanks to cooperative private and public efforts to replant the forests, some areas of the Piney Woods may have more forest land now than they did in the early 1800s. The replanting of the forest was advantageous because in the 1940s, a method of producing newsprint from yellow pines was developed that further increased demand for Southeast Texas lumber.

During the 1970s, annual tree growth exceeded annual harvest, but pine timber removal since 1986 has exceeded annual growth. Projections by the U.S. Forest Service indicate an increase in the demand for timber that will continue to outpace supply.

The U.S. and Texas Forest Services operate to both protect and develop Texas' timber resources that consist mostly of pine trees. While the U.S. Forest Service confines its efforts to about 650,000 acres of national forests, the Texas Forest Service assists private landowners on the remaining 11.7 million acres of East Texas forest land. The Texas Forest Service is working toward replanting and reforesting both the state forests and private timber areas by growing seedlings in nurseries and providing them for planting. The agency also promotes tree improvement, predator insect eradication and wildlife management.

As for forest pests, there is some controversy regarding the migration of the southern pine beetle from designated wilderness areas of the national forests. Timber management is prohibited in these areas, which allows the southern pine beetle, an insect predator that kills pine trees, to increase in number. In some cases the beetle population becomes so large that once it moves outside the wilderness area and onto other parts of the national forest or private timber lands, eradication is difficult. The controversy stems from the desire on one side to leave wilderness areas strictly alone and on the other to protect valuable resources.

Another ongoing controversy exists over the cutting methods employed by logging companies and the resultant damage to the wildlife habitat. Modern logging techniques have replaced selective cutting with even age timber management that includes clearcutting. Now, trees in replanted areas are all the same age, unlike the variation found in natural stands. Clearcutting has

reduced the numbers of some species of wildlife, including owls, hawks and woodpeckers, but has been beneficial to other species. The controversy over cutting methods has already made its way into the federal courts. One species of wildlife affected by clearcutting, the red-cockaded woodpecker, is on the endangered species list. The Texas Parks and Wildlife Department, having verified that the bird's population was declining, was instrumental in having it designated as endangered. Due to habitat loss, very few if any red-cockaded woodpeckers exist in Southeast Texas outside the state and national forests.

The bounty of nature provided the original timber that created the logging industry in Southeast Texas. The replanted pines provide continued economic benefit. Lumber, plywood, fence posts and paper are some of the products made from trees in the area. Recent additions to the Southeast Texas region's forest industry are Christmas tree farms.

#### **"Golden Triangle" Ports**

By the late 1800s, Beaumont and Orange had become processing and trade centers for the East Texas lumber industry, because of their access to Southeast Texas' natural waterways. In the 1890s, Arthur Stilwell, president of Kansas City Southern Railroad, purchased 50,000 acres on the banks of Sabine Lake. Envisioning a transportation center that combined the southern terminal for his railroad and a port, Stilwell developed the site and dredged a 25-foot deep canal that provided oceangoing ships access to the terminal. Stilwell named his new city Port Arthur. Soon, construction began on other canals in the area, including the Sabine-Neches Channel to Beaumont and the Gulf Intracoastal Waterway.

The opening of the Gulf Intracoastal Waterway in Texas during the early 1900s provided inland travel between ports. The canals and shallow channels connected bays and ports, and quickly grew as a major water transportation route.

Texas' 13 largest ports handled 124.2 million tons of imports and 44.3 million tons of exports in 1989. Modern containerized facilities, as well as connections to rail, truck, and industrial processing plants, have made Texas' ports an important connection between both foreign and domestic mar-



kets, especially in the shipping of lumber, petroleum and petrochemicals. The ports of the "Golden Triangle" also handle bulk grains such as rice, bagged agricultural goods, iron and steel, and military shipments. After Houston, the important ports in the state are Corpus Christi, Texas City, Beaumont, Port Arthur, and Freeport, ranked in order of total tonnage handled in 1991.

The ports of the region are among the busiest in the nation partly because of the great sums of money their officials have been willing to invest in infrastructure improvement. Seeking to stimulate the economy after the drop of oil prices in the 1980s, all three cities have undergone capital improvements in the past decade. Plans are currently underway by the Port of Beaumont Navigation District on a bank erosion project and to build a new wharf to enhance the port's competitiveness. At the smaller port of Orange, a \$3.5 million docking facility was recently completed.

### **The Importance of Petroleum**

Another major resource of the Southeast Texas region is petroleum. On January 10, 1901, the Lucas 1 oil well blew in a gusher at the Spindletop field just south of Beaumont. The well spewed approximately 75,000 to 100,000 barrels of oil per day, covering the surrounding fields of grass and rice.

No one in the nation had ever seen anything like the gusher at Spindletop. A manic rush for leases ensued and, within a few months, lease owners had established over 200 wells in the field. By midsummer of 1901, prices plummeted due to a glut caused by overproduction. A barrel of oil sold for as little as three cents when a cup of water cost oil field workers five cents. Although the production cost was much higher than the selling price, people kept producing oil because everyone was pumping from a common pool; if you didn't pump it out, your neighbor would. In 1902, Spindletop produced over 17 million barrels, or 94 percent of the state's production. Within a year and a half of the drilling of the first well, the underground pressure gave out at Spindletop due to overproduction, marking the first inklings of concern for resource conservation.

Spindletop was important both because

two major oil companies, Gulf and Texaco, were born there and because it was the beginning of oil field innovation. One of the drillers invented a new valve for capping wells and installed it. The cap finally stopped the flood about ten days after this first Texas geyser spouted its plume of oil. Also, mud was first used at Spindletop to assist in drilling through sand formations. Thus, some of the first oil field inventions took place at the first great oil well in Texas. These innovations fostered the development of oil industry support companies such as Hughes Tool Company, Halliburton and Schlumberger. Continuing oil field innovations are part of the reason Texas remains a major player in the oil industry.

The amount of oil discovered at Spindletop shifted the center of the oil industry from Pennsylvania to Texas, and was the harbinger of a new, industrial age for the state. Further discoveries in the Southeast Texas region were at Sour Lake, Saratoga and Batson and they allowed the region to maintain a level of oil production dominance.

Farming, ranching and some processing of raw materials comprised the Texas economy prior to Spindletop. After Spindletop, the region became a major oil and gas production center and the training ground for petroleum field workers. The language of the industry developed at Spindletop, and a person working as a well borer became a driller, skilled and semiskilled helpers became roughnecks and roustabouts. The amount of oil caused many industries in Texas to convert from coal to oil almost immediately and the state became a principal market for oil-burning equipment. For example, the Santa Fe Railroad went from one oil-fired locomotive in 1901 to 227 in 1905.

Spindletop also led to the establishment of the coastal area of Southeast Texas as a major refining area. Although refineries originally produced mainly kerosene for light and heat, Henry Ford's introduction of the automobile would provide the reason for them to produce more gasoline. In 1916, there were about 3.4 million registered cars in the U.S. By 1919, 85 percent of domestic petroleum demand was for gasoline and there were two refineries in the region, one at Port Arthur and one at Beaumont. The Port Arthur refinery was built by Gulf in



1901, to take advantage of the oil from Spindletop. It originally had a 125 barrel per day capacity which Gulf expanded to 10,000 barrels per day the next year.

World War II increased the demand for oil and the post-war boom in automobiles, combined with the increasing demand for the products of petroleum refining, caused a boom in the oil industry. In fact, from 1945 to 1959, demand for petroleum products grew by 89 percent.

Oil prices rose in the early 1970s 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 higher price per barrel brought more dollars into the region. The price increases of the late 1970s, instigated by the fall of the Shah of Iran and the beginning of the Iran-Iraq war, again exacerbated by panic buying to insure inventories, also benefited the region.

The increases in the 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" of dramatic price increases followed by a glut and recession, restructured the domestic oil industry. The undervalued stocks of Gulf Oil would lead to its take over by Chevron in the first half of the 1980s. Texaco's legal problems, caused by an attempt to increase its reserves, would result in its subjection in the mid-1980s to the largest judgment and settlement ever visited on a company. Thus, the two major companies generated by the first major oil strike in Texas, Spindletop, would be victims in one form or another of the oil booms and busts of the 1970s and 1980s.

Although the petroleum 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 for-

eign shores, it is hardly out of the picture. The proven reserves of Texas alone are enough for 11 years of oil production at 1990 levels. But the heyday is over and Texas is now a net importer of oil.

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. In addition, environmental concerns may cause the increasing use of cleaner burning natural gas. Of the top ten manufacturing companies in the Southeast Texas region, three are refineries and one is an oil field supply company.

### **The Predominance of Petrochemicals**

Technological advances in the laboratory accompanied the discovery of oil in Texas. As the automobile was transforming personal transportation, oil companies became interested in finding ways to obtain more gasoline from a barrel of crude oil. The invention of thermal cracking, a refining technique that uses heat and high pressure, increased the amount of gasoline obtainable from a barrel of crude.

In 1913, production of thermally cracked gasoline began and several oil and chemical companies realized that petroleum refining produced chemical raw materials or feedstocks. The availability of salt and sulfur, along with oil and natural gas, also attracted chemical companies to the area.

The environment along the Gulf Coast proved ideal for petrochemical production, with a warm climate and the availability of cheap electricity, sea water and chemical feedstocks. The savings in building and maintaining a chemical plant in the South was estimated to be one-third to one-half the cost of a comparable plant in the North.

World War II was a catalyst for the petrochemical industry through the investment of government funds for building additional chemical plants and through the manufacture of aviation fuel and ingredients for explosives. High quality aviation fuel developed from the discovery of catalytic cracking, a process that yielded superior chemical feedstocks. World War II also increased the defense industry's need for other products of the chemical industry, such as synthetic rubber.



## **SOUTHEAST TEXAS**

After the war, chemical and oil companies bought the chemical plants that the government had built. As consumer demand for petrochemical products, especially plastics, increased, the petrochemical companies grew.

The industry expanded in the 1980s because of lower crude prices and increased demand. More recently, demand has fallen and expectations are that the industry will contract, although long term projections for the industry look good. Currently, of the top ten manufacturing companies in terms of employment in the region, three are petrochemical companies.

### **Diversification**

Other industries important to the Southeast Texas region include construction and tourism. Recent expansions of petrochemical companies, along with infrastructure additions including highway improvements and several prisons, have caused construction employment to increase in recent years.

The tourism industry's impact on Southeast Texas is based on the area's many historic sites, natural areas and parks. The region includes both claimants to the title of the oldest town in Texas, San Augustine and Nacogdoches, and the Alabama and Coushatta Reservation.

In addition, travel expenditures are high in several counties of the Southeast Texas region. Jefferson County, the location of Beaumont, museum capital of Texas, had \$134 million in travel expenditures in 1989 (the most current figure available). Angelina county, home of the southern portion of the Angelina National Forest and Sam Rayburn Reservoir, had \$33 million in travel expenditures. Both Orange and Nacogdoches Counties closely followed with \$26.6 and \$25.3 million respectively.

### **Beaumont**

Although the name Beaumont means beautiful mountain, there are no mountains in Southeast Texas. A small elevation southeast of the town is probably the origin of the name. Settlement began in the early 1800s when trappers built a trading post, that evolved into a small lumber town in the late 1800s. Lumberjacks would cut trees along the Neches River and float them

down to the sawmills in the city.

Everything changed for Beaumont when Spindletop blew in. Land worth around \$10 per acre suddenly increased in value and could now be sold for close to 100,000 times that figure. The formerly sedate town of about 10,000 boomed with a sudden influx of about 40,000 people within a few months of the appearance of the gusher. The Gladys City - Lucas Gusher Monument, one of the city's tourist attractions, recreates the boom town feel of this time in history.

Building on the expansion provided by Spindletop, Beaumont has become a modern industrial city, home to refineries and petrochemical companies.

### **Geography**

The reality of Southeast Texas is far removed from the general perception of Texas as a hot, dry, barren desert, with tumbleweeds blowing down the main streets of ghost towns. The region is the wettest area in the state, with annual rainfall averaging from 48 to 58 inches. Two major rivers, the Sabine and Neches, traverse the area; the annual water discharge of the Sabine River is the largest of any river in Texas. Several lakes are in the area, and both Toledo Bend and Sam Rayburn reservoirs offer drinking water and excellent fishing.

Southeast Texas is in the Gulf and Atlantic Coastal Plain, one of the five major physiographic regions of North America that extend into Texas. Both woodlands and coastal prairie make up the region and the land is gently sloping to gently rolling. Elevation is generally less than 500 feet. The mean annual temperature ranges from 66 to 68 degrees and the climate is subtropical humid. The growing season is approximately 240 days.

The Southeast Texas region is sandy with a clay subsoil or a dark clay soil. While there are several areas that contain excellent farm land, the majority of the area is not especially fertile. The fertile areas include alluvial soil found along rivers that may be too wet for most crops due to problems with flooding, hence the predominance of rice in many areas.

Perhaps the crop that grows best in the area is pine trees. The Southeast Texas region is part of the Piney Woods of East Texas. The name comes from the expanse

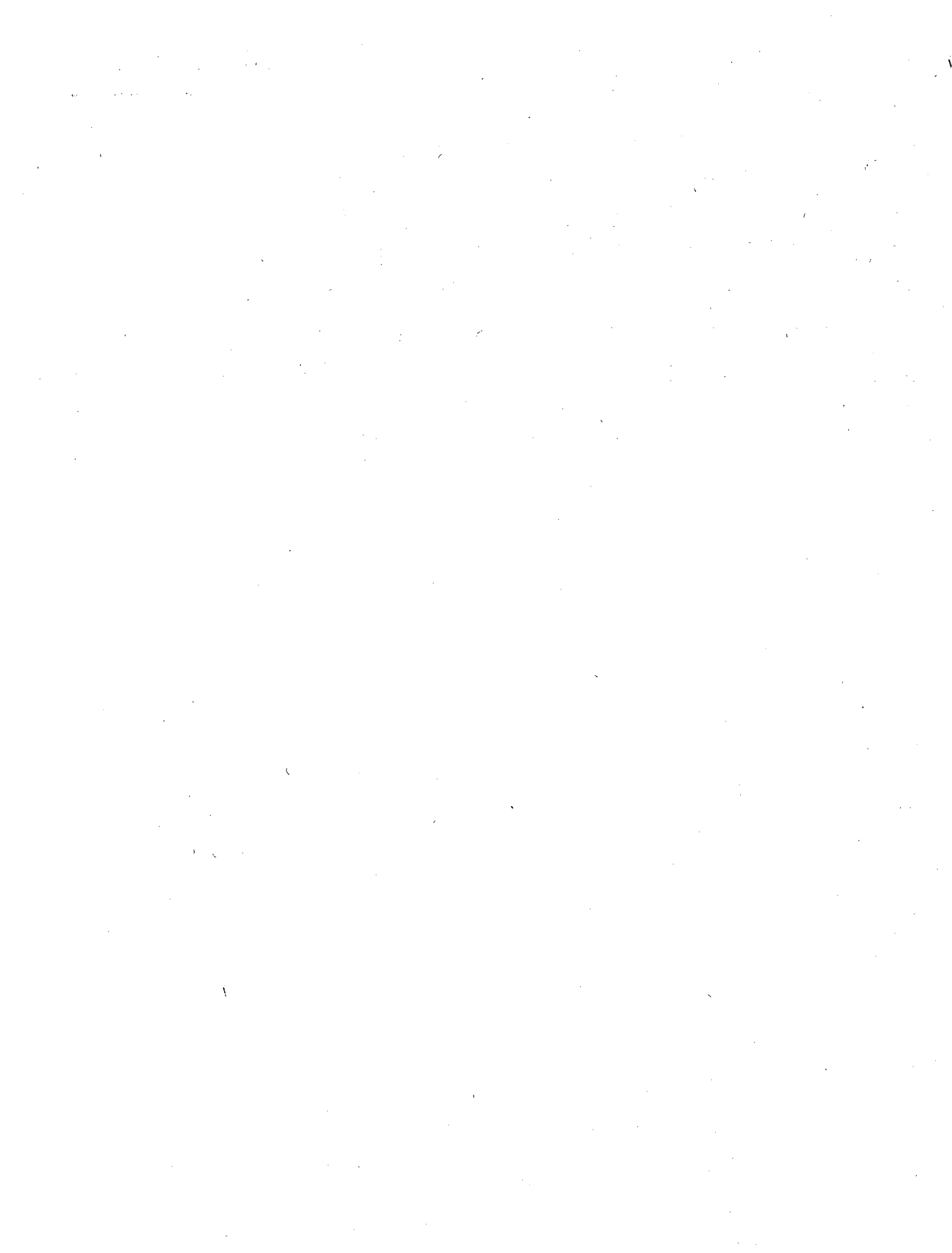


of virgin pine forest that existed when the first settlers arrived. Included are the longleaf, shortleaf and loblolly pines. Intermixed with the pine forests are hardwoods like post oaks and hickory that occupy the river valleys. The pines share the forests with ferns. Coastal, marsh and salt grasses grow in the coastal prairie.

All four of the state's national forests, the Sabine, Sam Houston, Angelina and Davy Crockett, are located in the region. Three state forests are also here, the E. O. Sieke, John Henry Kirby and the Paul N. Master-son Memorial Forest. The Big Thicket

National Preserve, in the southern part of the region, showcases what remains of a unique middle latitude rain forest.

Several state parks and a wildlife refuge are also in Southeast Texas. Sea Rim State Park, located west of Sabine Pass, is home to the endangered red wolf, as well as alligators, nutria, muskrats, raccoons, river otters, migrating birds, and is the state's only marshland preserve. McFadden National Wildlife Refuge west of Sea Rim State Park offers a home to migratory water fowl and has the most alligators in Texas. ♣







# Economic Structure and Trends

**T**he Southeast Texas region boasts an economy that is both similar to, and different from, other regions of the state. The distinctiveness of a regional economy can be expressed in terms of the ways in which it differs from other regions, the state and the nation. This section of the report will examine the economic structure and trends of Southeast Texas.

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

## Broad Employment Trends in Southeast Texas

Overall employment in Southeast 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 1986-87 following the crash in the state's oil industry. In the late 1980s, however, Southeast Texas enjoyed some employment growth. Employment in 1991 reached a record 234,800, a net gain of 16,900 jobs or 7.8 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 the Southeast Texas region grew at a pace slightly ahead of the state, but it grew three times faster than in the nation.

Since 1987, the region has been adding jobs. But for most years throughout the decade, job growth in the state outpaced Southeast Texas. The region has slowly been losing its share of statewide employment, a trend temporarily reversed by an uptick in the region's share of Texas employment in 1991.

With some variations, the largest employment sectors in the Southeast Texas region reflect the largest sectors statewide. Table 1

highlights the fact that the Southeast Texas region has a relatively larger construction sector and is more manufacturing intensive than the state as a whole.

The importance of the service sector is also evident. In fact, in both the region and the state, the largest employment gains over the past decade have occurred in the services sector. Between 1982 and 1991, Texas' service sector added more than 560,000 jobs, including 13,900 in the Southeast Texas region.

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

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 the Southeast Texas region in particular, is health care. This trend has been driven by the aging of the population as well as rising income and the rapid

- **The Southeast Texas region is more manufacturing intensive and has a proportionally larger construction sector than the state as a whole.**

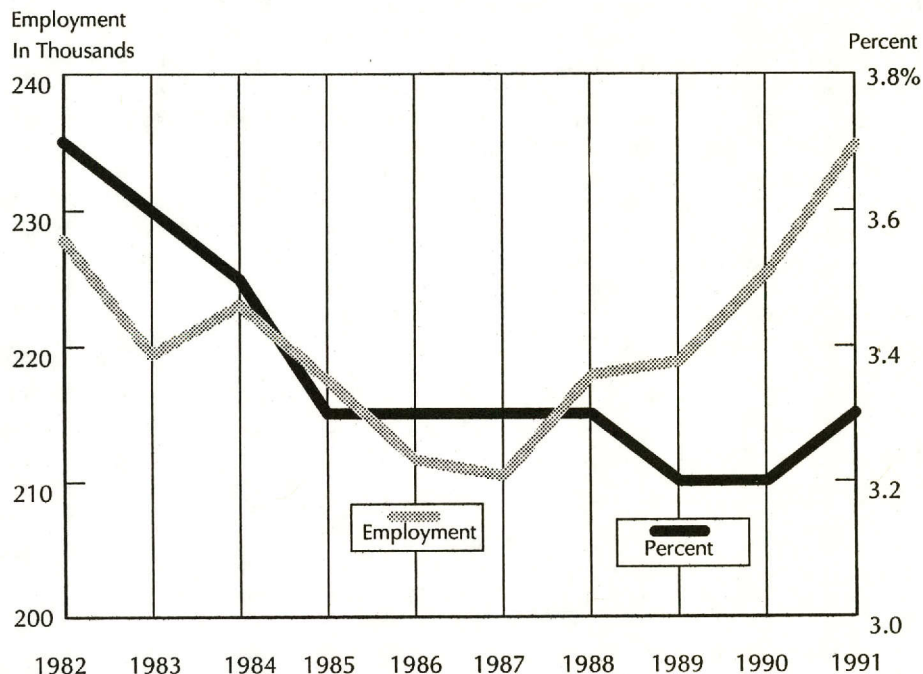
- **The region specializes in many facets of the oil and chemical production industries including refining, industrial organic chemicals, oil and gasfield machinery and pipelines.**

- **The region also specializes in timber-related industries—such as hardwood and softwood veneer and plywood, paperboard products, wood pallets and logging.**

- **Industries such as heavy construction, special and general building contractors, health services and poultry processing are likely to continue to capture a large share of new growth in the future.**



**Figure 1**  
**Southeast Texas Employment**  
**Total and Percent of Statewide Employment**



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

advancement of health care technology.

Finally, the large-scale entry of women 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 Southeast Texas whose share of total regional employment is more than two times larger than the industry's corresponding share of total national employment.

Southeast Texas' employment base is relatively manufacturing intensive in compari-



son to both the state's and the nation's economy. The region's manufacturing sector accounts for 20 percent of its total employment as compared with 14 percent statewide and 17 percent nationally. Not surprisingly, manufacturing dominates the list of industries in which the region specializes. In fact, 25 of the 30 industries listed in Table 2 are manufacturing industries. More than 53 percent of all manufacturing employment in the region in 1991 was located in the Beaumont-Port Arthur metropolitan area. A good deal of the region's manufacturing strength is built around oil and gas.

#### *Oil and Gas Production, Refining and Chemicals*

Southeast Texas has a strong concentration of oil and gas and chemical and petrochemical production industries. The region is a center of Texas oil and gas production, and the impact of oil and gas is felt across industry lines, with specialization spread among petroleum refining, oil and gas equipment manufacturing and pipelines.

In addition, chemicals and petrochemical production are strong areas of specialization in the region, particularly industrial organic chemicals, agricultural and other chemical production industries. Huge names in the petroleum and chemical industries—such as Mobil, Dupont, Chevron, Fina and Texaco—are among the region's largest employers.

#### *Forest Products*

Much of the Southeast Texas region is heavily forested. It is not surprising then, that wood and paper products manufacturing is among the region's top areas of specialization. Southeast Texas is well represented in industries such as softwood and hardwood veneer and plywood, reconstituted wood products, wooden pallets and skids, paperboard mills, logging and sawmill operations. Wood and paper products manufacturers like Temple-Inland, Champion and Louisiana Pacific have major facilities in Southeast Texas.

#### *Other Manufacturing*

Poultry products are another area of specialization for the region. In Shelby, Angelina and Nacogdoches counties, chicken processing companies Holly Farms, Pilgrims

Pride and Green Acre Foods have manufacturing facilities.

Major tire manufacturing plants in Jefferson County translate to synthetic rubber being a specialized industry in Southeast Texas. Iron foundries are also well represented in the region.

#### **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

#### **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 the Southeast 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 Southeast 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)

<u>Texas</u>	<u>% of Total</u>	<u>Southeast Texas</u>	<u>% of Total</u>
Services	23.0%	Services	20.7%
Retail Trade	18.4	Manufacturing	20.1
Government	18.0	Retail Trade	19.0
Manufacturing	13.9	Government	17.9
Wholesale Trade	6.2	Construction	8.1

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

growth 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 in a region 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.

*Construction*

Construction and related industries head the list of Southeast Texas region industries that gained in competitive share (see Table 3). The first four industries in Table 3 are heavy construction, special contractors, general contractors and engineering services. Construction gains in the region can be traced to several sources. Refining and petrochemicals—which are predominant in the region—are construction-intensive industries. Plant expansions and "turnarounds" have driven construction job gains in the region. At the same time, the region has recently become the site of intense construction on three different pris-

ons. Construction of facilities to house federal, state and county prisoners has fueled the region's competitive gains in construction employment.

*Services and Trade*

Health and social services are also among the industries that gained in competitive share. Other services that gained in competitive share include agricultural services, legal services and miscellaneous repair services. These service industries are driven more by demand from within the region than export potential to areas outside the region.

Along those same lines, several retail trade industries appear to be gaining in competitive share. Food stores, general merchandise stores and eating and drinking places all showed increases in competitive share. Wholesale trade of durable goods, a more export-oriented industry, is also among the strong gainers of competitive share.

Tourism is boosting the export potential in the region's trade and services sectors. Tourism, like more traditional exports, brings in dollars from outside the region. In the Southeast Texas region, tourism and business travel-related expenditures topped \$356.4 million in 1989 (latest data available). Travel-related employment rose to 6,370 in 1989. Much of the area's allure to tourists is based on its natural resources, including water-based recreation on Southeast Texas lakes.



**Table 2  
Top 30 Areas of Specialization  
in the Southeast Texas Region Economy**

<u>Industry</u>	<u>Regional Employment in 1991</u>	<u>Location Quotient*</u>
Synthetic Rubber	2,024	29.4
Malleable Iron Foundries	710	19.7
Petroleum Refining	6,710	12.4
Softwood Veneer and Plywood	1,351	10.9
Reconstituted Wood Products	628	8.4
Industrial Organic Chemicals	4,646	8.4
Paperboard Mills	1,789	7.9
Environmental Quality and Housing	1,239	7.2
Oil and Gas Field Machinery	1,385	6.8
Alkalies and Chlorine	318	5.8
Hardwood Veneer and Plywood	556	5.6
Administration of Economic Programs	513	4.6
Electromedical Equipment	628	4.3
Metal Household Furniture	426	4.3
Motor Homes	289	3.9
Pipelines, Except Natural Gas	328	3.8
Plumbing Fixtures	608	3.6
Sawmills and Planing Mills	2,333	3.5
Wood Pallets and Skids	500	3.5
Logging	1,202	3.4
Poultry Processing	2,867	3.2
Heavy Construction	10,335	3.2
Plastics Materials and Resins	1,186	3.1
Truck Trailers	317	2.9
Agricultural Chemicals	319	2.8
Hardwood Dimension and Flooring Mills	382	2.6
Water Transportation	2,180	2.6
Industrial Valves	295	2.5
Gray and Ductile Iron Foundries	803	2.3
Rice Milling	54	2.1

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

SOURCE: Texas Comptroller of Public Accounts.



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

<u>Industry</u>	<u>Regional Employment in 1991</u>	<u>Gain in Competitive Share*</u>
Heavy Construction	10,335	3,815
Special Trade Contractors	6,152	2,044
General Building Contractors	4,143	1,997
Engineering and Management Services	3,349	1,155
Eating and Drinking Places	14,241	650
Health Services	24,775	464
Food Stores	9,694	350
Poultry Slaughtering and Processing	2,867	447
Softwood Veneer and Plywood	1,351	327
Social Services	5,904	298
Paperboard Mills	1,789	292
General Merchandise Stores	5,970	253
Miscellaneous Repair Services	1,097	239
Transportation Services	523	227
Wholesale Trade--Durable Goods	5,227	226
Oil and Gas Extraction	2,291	221
Bottled and Canned Soft Drinks	489	211
Fabricated Structural Metal	728	180
Gray and Ductile Iron Foundries	803	165
Sausages and Prepared Meats	178	162
Agricultural Services	917	155
Malleable Iron Foundries	710	154
Sheet Metalwork	414	128
Motor Homes	289	118
Metal Household Furniture	426	110
Oil and Gas Field Machinery	1,385	106
Legal Services	1,713	99
Millwork	777	95
Refrigeration and Heating Equipment	120	90
Fabricated Platework (Boiler Shops)	569	82

\*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.

SOURCE: Texas Comptroller of Public Accounts.



### *Manufacturing*

Several of the region's manufacturing industries added significant amounts of competitive share employment.

Poultry slaughtering and processing is a growing industry in Southeast Texas, and the region grabbed a large share of the jobs generated over the period 1988 to 1991. In addition, the region remained attractive for soft drinks, fabricated metals, sheet metal and refrigeration equipment manufacturers as well as iron foundries.

The timber industry is important in most parts of Southeast Texas. Softwood veneer and plywood, paperboard mills and millwork are among the industries that gained in competitive share from 1988 to 1991.

Driven by more stable prices, oil and gas extraction in the Southeast Texas region added employment faster than other regions from 1988 to 1991.

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 one industry in the Southeast Texas region. Softwood veneer and plywood employment suffered mild employment declines between 1988 and 1991, but it appears on the list of industries that gained in competitive share. This indicates that while regional employment may be declining, this industry is doing much better within the region than throughout the rest of the nation.

What emerges from this analysis of specialization and change is a picture of a region with a strong manufacturing sector providing outside income to support other industries. In addition, the Southeast Texas region is still largely dependent on exports of its natural resources. The oil and gas industries—including refining, extraction and petrochemicals production—still play a major role, as do timber, paper and wood products. Health care is also a large and growing area of specialization for the Southeast Texas region. ❁







# Demographics

## Population Growth

**A**ccording to the 1990 census, the Southeast Texas region has a population of 666,678, representing an increase of 1.8 percent since the 1980 census. This is significantly less than the state's growth rate of 19.4 percent during the same period. Different counties in the region, however, have experienced population swings that vary greatly from the region's norm. Population growth in the majority of the counties in the region lagged far behind the state during the past decade, with some experiencing population declines. Yet, even though growth came slowly to most parts of the region, a few Southeast Texas counties saw increases that out-distanced the state average.

The counties of San Jacinto, Trinity and Polk, which border the Houston Metropolitan Statistical Area, had population gains that greatly exceeded those of the region and even those of the state as a whole. Growing at a 43 percent clip, San Jacinto County led all counties in the region in percentage population gain. (See Table 4.) Also bordering the Houston MSA, the counties of Polk and Trinity grew at rates of 25.7 and 21.1 percent respectively during the past decade.

Proximity to the city of Houston, however, did not guarantee strong population growth. Houston County, which borders the Houston MSA to the north, had a population decline of 4.1 percent for the past 10 years.

In addition to bordering the Houston MSA, Jefferson and Hardin counties make up 2 of the 3 counties of the Beaumont-Port Arthur MSA. Though Hardin gained slightly (1.5 percent), Jefferson suffered the largest population decline of any county in the region. Between 1980 and 1990, the population in Jefferson County declined by more than 11,500, or 4.6 percent. The third county of the MSA, Orange County, also experienced a population decline during the period, losing 3,300 people, or 4 percent of its total population.

This is particularly significant because the state's metropolitan areas traditionally tend to outpace the state average for population growth. The population of the Beaumont-Port Arthur MSA, which declined by 3.8 percent during the 1980s, not only trailed the state average growth of 19.4 percent, but also fell below the 2.7 percent growth of the region's rural areas.

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. The counties of San Jacinto, Polk and Trinity all saw their population increase as a result of relocations. Over 90 percent of the population gains in these counties during the past decade can be attributed to the migration of people into the counties. Trinity County, which saw more than 2,000 move there in the past 10 years, would have had a population decline if only births and deaths had been taken into account.

As was the case with total population, the counties of the Beaumont-Port Arthur MSA experienced dramatic decline as a result of net out-migration. Jefferson County alone saw 27,400 residents, or 10.9 percent of its total population, move out of the county during the 1980s. Orange County lost 12.9 percent of its population during the period, as 10,000 more people moved out of the county than into it. The MSA's other county, Hardin, also suffered from net out-migration as more than 2,600 people relocated outside of the county.

- Population growth in Southeast Texas has been much slower than the statewide average.
- While the region is becoming more ethnically diverse, it is still less so than the state as a whole.
- Like the state, the population of Southeast Texas is aging.
- In most counties of Southeast Texas, income levels remain below state and national averages.



**Table 4  
Southeast Texas Population**

County	Total			Hispanic			White			Black			Other		
	1980	1990	Percent Change	1980	1990	Percent Change	1980	1990	Percent Change	1980	1990	Percent Change	1980	1990	Percent Change
Angelina	64,172	69,884	8.9%	4,047	6,072	50.0%	50,264	52,777	5.0%	9,583	10,551	10.1%	278	484	74.1%
Hardin	40,721	41,320	1.5	572	679	18.7	35,953	37,006	2.9	4,097	3,459	-15.6	99	176	77.8
Houston	22,299	21,375	-4.1	809	965	19.3	14,277	14,042	-1.6	7,151	6,272	-12.3	62	96	54.8
Jasper	30,781	31,102	1.0	382	594	55.5	24,424	24,529	0.4	5,904	5,852	-0.9	71	127	78.9
Jefferson	250,938	239,397	-4.6	10,279	12,629	22.9	166,985	147,333	-11.8	70,143	73,779	5.2	3,531	5,656	60.2
Nacogdoches	46,786	54,753	17.0	1,320	2,788	111.2	37,218	42,575	14.4	7,920	8,948	13.0	328	442	34.8
Newton	13,254	13,569	2.4	109	153	40.4	9,974	10,329	3.6	3,152	3,027	-4.0	19	60	215.8
Orange	83,838	80,509	-4.0	1,762	1,933	9.7	74,595	71,142	-4.6	6,806	6,734	-1.1	675	700	3.7
Polk	24,407	30,687	25.7	903	1,610	78.3	19,070	24,531	28.6	3,816	3,848	0.8	618	698	12.9
Sabine	8,702	9,586	10.2	111	111	0.0	7,196	8,339	15.9	1,371	1,109	-19.1	24	27	12.5
San Augustine	8,785	7,999	-8.9	80	138	72.5	6,093	5,60	-8.0	2,588	2,236	-13.6	24	18	-25.0
San Jacinto	11,434	16,372	43.2	111	431	288.3	8,883	13,319	49.9	2,391	2,534	6.0	49	88	79.6
Shelby	23,084	22,034	-4.5	260	539	107.3	17,884	16,719	-6.5	4,853	4,710	-2.9	87	66	-24.1
Trinity	9,450	11,445	21.1	84	272	223.8	7,439	9,485	27.5	1,904	1,642	-13.8	23	46	0.0
Tyler	<u>16,223</u>	<u>16,646</u>	<u>2.6</u>	<u>134</u>	<u>177</u>	<u>32.1</u>	<u>13,936</u>	<u>14,426</u>	<u>3.5</u>	<u>2,094</u>	<u>1,986</u>	<u>-5.2</u>	<u>59</u>	<u>57</u>	<u>-3.4</u>
Regional															
Total	654,874	666,678	1.8	20,963	29,091	38.8	494,191	492,159	-0.4	133,773	136,687	2.2	5,947	8,741	47.0
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.

Net migration had a varying effect on the other counties in the region. For the most part, the counties either on, or in close proximity to the Louisiana border had negative amounts of net migration. Shelby, San Augustine, Jasper and Newton counties all had hundreds, or even thousands, of people relocate out of their counties during the past decade. Sabine County, which gained more than 1,000 new residents, was the only border county to gain in population as a result of migration. To the north, Nacog-

doches County had a net gain of almost 5,000 residents during the decade.

Population changes over the past ten years have affected the region's counties in different ways. In Southeast Texas there are approximately 52 residents per square mile. The region's slight population growth during the past ten years has led to an increase in the average population density from its level of 51 residents per square mile in 1980. The region remains less densely populated than the state, which



averages almost 64 persons per square mile. Jefferson County is the most densely populated county in the region. However, due to substantial population declines between 1980 and 1990, the population density of the county has declined from 226 persons per square mile in 1980, to 215 by 1990. Like Jefferson, Orange County has also become less densely populated, falling from 221 persons per square mile in 1980 to 212 by 1990.

The region's non-metropolitan counties became more densely populated. As could be expected, the faster-growing counties in the western portion of the region saw substantial jumps in their level of population density. During the past ten years, the population density of San Jacinto County grew to stand at 27 persons per square mile in 1990, up from just 18 in 1980.

### **Ethnic Diversity**

While the population of the region has increased by 1.8 percent during the past ten years, growth among the ethnic groups has varied greatly. The Anglo population decreased by 0.4 percent while the Black population increased by 2.2 percent. Rapid growth in the Hispanic population, as well as a growing Asian population, supplied the remainder of the increase. In the past decade, the total number of Hispanics in the Southeast Texas region has grown by 38.8 percent, though its share of the total population remains slight at just 4.4 percent (see Table 4).

Growth in the Hispanic population has been widespread across the region, with some smaller counties more than doubling or tripling their totals of ten years ago. The number of Hispanics exceeded the regional growth average in every county in the region except for Sabine where their numbers remained unchanged. The share of the ethnic make-up occupied by Hispanics increased in all but one of the 15 counties in the region, declining slightly in Sabine. While their population growth rates in the Southeast Texas region appear huge, Hispanics still represent only a small share of the total population.

The African American population in the region remained stable between 1980 and 1990. The total number of Blacks decreased in ten of the region's 15 counties,

although strong growth in the other counties led to an overall increase in population. The percentage of Blacks in the ethnic make-up decreased in 11 of the 15 counties.

The role of Anglos in the ethnic mix has also declined in the Southeast Texas Region during the past 10 years. Though the number of Anglos grew in several of the rural counties, their numbers decreased significantly in the region's two largest counties. The number of Anglos declined in one-third of the region's counties.

Despite their decreasing dominance in the ethnic mix, Anglos still vastly outnumber all other ethnic groups put together. In the Southeast Texas region, Anglos make up almost three-quarters of all residents, compared to only 60 percent of all Texas residents (see Table 5). However, the region closely mirrors the national average of 75.7 percent Anglo.

Comparing minority populations accentuates the disparity between the region and the state. African Americans make up 20.5 percent of the region's population as opposed to only 11.6 percent of the state total and 11.7 percent of the nation. Further, Hispanics account for only 4 percent of the region's population compared to 25.6 percent for the state and 9 percent for the nation.

### **Age**

Though the ethnic make-up of the Southeast Texas region differs greatly 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 7.8 percent of the population. Southeast Texas Baby Boomers combine to make up 28.4 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 13.6



percent in the past 10 years while total population for the region increased by less than 2 percent. The age-group categories vacated by them have declined rapidly in their wake. In 1980, Southeast Texans between the ages of 15 to 24 made up 18.4 percent of the total population. Ten years later, as the Baby Boomers aged, the number of people in that age group had declined by 20 percent and their share of the total population had decreased to 14 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 the Southeast Texas region. The number of the region's residents above the age of 65 has increased by 16 percent during the past 10 years, from 80,100 in 1980, to 92,900 in 1990. The largest increase of any age category came from the "85 and older" group which increased by more than 50 percent during the decade, increasing from just 5,900 in 1980, to 9,100 in 1990.

Another trend evident in the region is the propensity of women to live longer than

men. The number of men in the region exceeds the number of women until about the age of 25, where they remain equal for about 10 years. After that, however, the proportional number of women in each age group increases until, at 85 years old and above, the male/female ratio is less than one male for every two females.

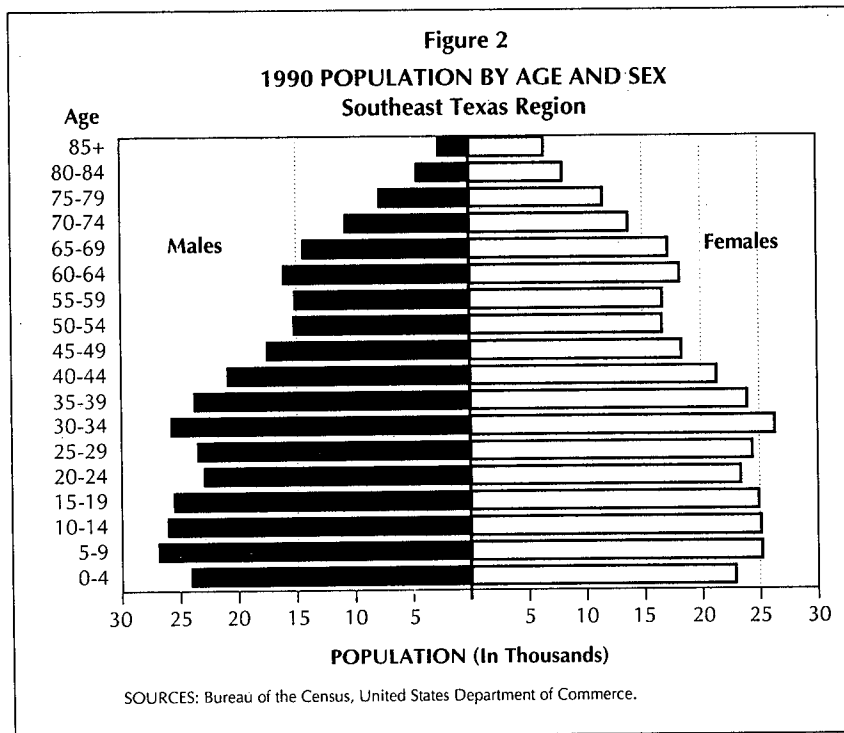
**Income**

Though many demographic trends of the state may hold true for the region, income levels in the Southeast Texas region are consistently below those of the state and nation. In 1990, the region averaged \$15,351 in income per person while the state averaged \$16,717 and the national average was \$18,696 (see Table 6). The region's troubles are compounded by the fact that most of the income is concentrated in the metropolitan areas, thus disguising extremely low levels of personal income in some of the rural counties.

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 5.6 percent between 1987 and 1990. Despite this strong growth, the region has still not been able to keep pace with the 6.5 percent annual income growth rate of the state during that period.

Bolstered by an annual growth rate of more than 8 percent since 1988, personal income in Jefferson County remains at 104 percent of the state average as of 1990. Though Jefferson County's level of \$17,418 makes it the only county to exceed the state average, two other counties come within 10 percent of reaching the state level. The region's second most populous county, Orange, has an average income level of \$14,969 per person, 90 percent of the state level. Angelina County, averaging \$15,085 per resident, also stands at 90 percent of the state average.

In all, the metropolitan counties of the region fared much better than did the non-metropolitan ones. The metropolitan counties, Jefferson, Orange and Hardin combined for a





**Table 5  
Southeast Texas Ethnic Make-up**

County	Percent Hispanic		Percent White		Percent Black		Percent Other	
	1980	1990	1980	1990	1980	1990	1980	1990
Angelina	6.3%	8.7%	78.3%	75.5%	14.9%	15.1%	0.4%	0.7%
Hardin	1.4	1.6	88.3	89.6	10.1	8.4	0.2	0.4
Houston	3.6	4.5	64.0	65.7	32.1	29.3	0.3	0.4
Jasper	1.2	1.9	79.3	78.9	19.2	18.8	0.2	0.4
Jefferson	4.1	5.3	66.5	61.5	28.0	30.8	1.4	2.4
Nacogdoches	2.8	5.1	79.5	77.8	16.9	16.3	0.7	0.8
Newton	0.8	1.1	75.3	76.1	23.8	22.3	0.1	0.4
Orange	2.1	2.4	89.0	88.4	8.1	8.4	0.8	0.9
Polk	3.7	5.2	78.1	79.9	15.6	12.5	2.5	2.3
Sabine	1.3	1.2	82.7	87.0	15.8	11.6	0.3	0.3
San Augustine	0.9	1.7	69.4	70.1	29.5	28.0	0.3	0.2
San Jacinto	1.0	2.6	77.7	81.4	20.9	15.5	0.4	0.5
Shelby	1.1	2.4	77.5	75.9	21.0	21.4	0.4	0.3
Trinity	0.9	2.4	78.7	82.9	20.1	14.3	0.2	0.4
Tyler	<u>0.8</u>	<u>1.1</u>	<u>85.9</u>	<u>86.7</u>	<u>12.9</u>	<u>11.9</u>	<u>0.4</u>	<u>0.3</u>
<b>Total</b>	<b>3.2</b>	<b>4.4</b>	<b>75.5</b>	<b>73.8</b>	<b>20.4</b>	<b>20.5</b>	<b>0.9</b>	<b>1.3</b>
<b>TEXAS</b>	<b>21.0</b>	<b>25.6</b>	<b>65.7</b>	<b>60.6</b>	<b>11.9</b>	<b>11.6</b>	<b>1.4</b>	<b>2.2</b>

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.

per capita income level of \$16,402 (almost equaling the state average), while the non-metro counties averaged just \$13,452, only 80 percent of the state level.

The Southeast Texas region has some of the poorest counties in the state. Six of the region's 15 counties rank among the 50 poorest in the state. And San Jacinto County, with an income level of just \$9,726, has the state's eleventh lowest level of per capita income.

### Demographic Trends in the Future

In the Southeast Texas region, trends in both the size and make-up of the population are expected to continue into the 21st century. The region's population level will

continue to lose ground to the faster growing state level. For the next ten years, the region will grow at an annual average rate of 0.1 percent. During this period 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 behind, that of the state. The number of Hispanics in the region will continue to grow much faster than any other group, though their rapid rise will slow to an annual rate of 1.4 percent in the coming decade. In the next 10 years, the number of minorities in the region's ethnic mix will grow as the Anglo population



**Table 6  
Southeast Texas  
Per Capita Personal Income**

<u>1990 Rank in State</u>		<u>1980</u>	<u>1990</u>	<u>Change</u>	<u>Percent Change</u>
119	Angelina	\$ 8,075	\$15,085	\$7,010	86.8%
191	Hardin	7,875	13,436	5,561	70.6
155	Houston	7,121	14,136	7,015	98.5
190	Jasper	7,749	13,448	5,699	73.5
70	Jefferson	10,591	17,418	6,827	64.5
187	Nacogdoches	6,755	13,480	6,725	99.6
241	Newton	5,650	10,002	4,352	77.0
124	Orange	9,353	14,969	5,616	60.0
210	Polk	7,003	12,806	5,803	82.9
221	Sabine	6,525	12,448	5,923	90.8
218	San Augustine	6,042	12,636	6,594	109.1
244	San Jacinto	5,435	9,726	4,291	79.0
181	Shelby	5,783	13,619	7,836	135.5
224	Trinity	6,082	12,190	6,108	100.4
146	Tyler	6,479	14,398	7,919	122.2
Regional Average		\$8,716	\$15,045	\$6,329	72.6
<b>TEXAS AVERAGE</b>		<b>\$9,528</b>	<b>\$16,717</b>	<b>\$7,189</b>	<b>75.5</b>

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

declines at an average annual rate of 0.2 percent. The percentage of whites in the region will continue to surpass the state average, however, making up more than 70 percent of the total population until the year 2010.

Though the region continues to grow, recent years have seen the rate of expansion decrease. The population of the

Southeast Texas region will peak around the year 1993 at approximately 677,000. Though the Hispanic population will continue to increase, other minority growth will have slowed significantly and the Anglo population will be in declines. By the year 2025, the region's population will decline to 625,000. ❁



# Labor Force

**S**ince the days of Spindletop, Southeast Texas' economy has had close ties to the oil and gas industry. Today, refining and chemical production play a major role in the local economy, and in the northern part of the region, timber is king. These industries require a large supply of electricians, mechanics, machine operators and laborers. Not surprisingly, petrochemical and timber processing occupations are dominant in the region, backed by wages higher than the national average.

Service and sales-related occupations are growing in the region as well as the state. The region's service sector has added to the viability of the economy as almost 2,000 jobs were added in the Beaumont-Port Arthur metropolitan area from 1985 to 1990. On the down side, these jobs generally are low paying, therefore adding little to boost the economy.

As the world advances technologically, Southeast Texas will have to improve its educational system—and thus its labor force—if the region is going to compete. Work force training will bridge the gap between high-paying and low-paying occupations.

## Labor Force Demographics

The Southeast Texas labor force is experiencing a slow shift. The region's population, like the state's population, is aging. The fastest growing segment of the region's population is above the age of 75. This trend of aging has implications for the region's work force.

In 1990, the Southeast Texas working age population (18-64 year olds) made up 58.5 percent of the region's total population. However, this group is projected to shrink to 57.6 percent in the next four years, decreasing by 0.1 to 0.2 percent annually. After 1995, the region's work force population is forecasted to grow, but at a very slow pace, to 59 percent by the year 2000.

Southeast Texas' working age population is expected to increase at an annual average of between 0.1 percent and 0.8 percent between 1995 and 2005, reaching 60.2 percent of total population.

As the supply of labor changes in the future, so will the number of jobs which require special training. Higher education will continue to increase in importance. National projections show jobs requiring a degree—executive, administrative and managerial, specialized professions and technical occupations—will grow by more than 27 percent between now and 2005. Jobs not requiring a college degree are projected to increase by less than 16 percent during the same period of time.

## Educational Attainment

As the importance of education has increased, Southeast Texas' school systems have responded by increasing vocational education programs. While this helps prepare students for the labor force, Southeast Texas continues to rank below the state on many achievement tests.

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 assess student skills. During the last year of the test, 54.2 percent of Southeast 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). Southeast

- **Chemical and timber-related jobs earn top pay, while wages in many other industries are below state and national averages.**
- **Education and health care occupations will continue to experience the fastest growth in the region.**
- **Critical work force needs have been identified, with plans in place for developing a higher quality labor force.**



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

	<u>Southeast Texas</u>	<u>Texas</u>	<u>United States</u>
Less Than 9th Grade	11.2%	12.3%	9.7%
9th-12th Grade No Diploma	19.2	15.9	11.9
High School Grad or GED	32.8	25.9	39.2
Some College No Degree	20.8	22.9	19.7
Associate Degree	4.5	4.9	na
Bachelor Degree	7.8	12.6	11.8
Graduate Degree	3.7	5.5	7.7

Figures in the above table represents the percent of the population which attained each category as its highest level of educational achievement.

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

Texas continued to score below state averages, with only 35.8 percent passing all sections of TAAS; compared with 55.7 percent statewide.

The region's strong industrial ties and the relatively low number of students attending college has created a strong need for vocational education. In 1990, approximately 20

percent of all Southeast Texas students were enrolled in some form of vocational education, compared to the state average of just 13 percent.

Southeast Texas' public schools rank below state averages on Scholastic Aptitude Test averaging 832 throughout the region, compared with the state average of 872 and

**Table 8  
Beaumont-Port Arthur 10 Largest Occupations in 1990**

<u>Occupation</u>	<u>Total</u>	<u>Percent of Total</u>	<u>Percent of State Total</u>	<u>Rank in State</u>
Total, All Occupations	155,900			
General Office	10,150	6.5%	6.9%	1
Food & Beverage	9,650	6.2	6.2	2
Mechanics, Installers and Repairers	8,450	5.4	4.5	4
Transportation, & Material Moving Machine Opers.	8,075	5.2	4.6	3
Hand Laborers, Helpers & Material Movers	7,800	5.0	4.4	5
Construction Trades, Extractive	7,800	5.0	4.3	7
Teachers & Instructors	7,100	4.6	4.4	6
Machine Setters, Operators & Tenders	5,400	3.5	3.1	9
Secretaries	4,550	2.9	3.0	10
Management Support	4,250	2.7	3.0	11

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





**Table 9  
Southeast Texas' 10 Fastest Growing  
Occupations 1985-1990**

<u>Occupation</u>	<u>1985 Total</u>	<u>1990 Total</u>	<u>1985-1990 Job Change</u>	<u>Rank in State Growth</u>
Total, All Occupations	147,450	155,900	8,450	
Transportation & Material Moving				
Machine Operators	7,450	8,075	625	3
Health Services	2,800	3,250	500	12
Mechanics, Installers & Repairers	8,000	8,500	450	4
Food and Beverage	9,250	9,650	400	1
Cleaning & Building Services	3,500	3,875	375	8
Secretaries	4,200	4,550	350	10
Hand Laborers, Helpers and Material Movers	7,450	7,800	350	7
Health Care Maintenance and Treating	3,350	3,675	325	6
Personal Service	2,300	2,600	300	17
Teachers and Instructors	6,800	7,100	300	2

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

the national average of 900 in 1990. During the same period, students averaged 19.9 for the American College Testing in the region, compared to 19.8 statewide and 18.6 nationally.

In 1990, 69.6 percent of the region's population over the age of 18 have completed high school or received an equivalent certification. Many continued their education into college. The statewide population with at least a high school diploma was 71.8 percent, compared to the national level of 78.4 percent. Southeast Texas lags behind the state and nation in percentage of population with bachelor and graduate degrees.

**Occupational Characteristics**

The Southeast Texas labor force has experienced only slight shifts over the past five years. All major occupations experienced some growth, led by service-related occupations. Southeast Texas is similar to the majority of the state, in that the fastest employment growth is in elementary and secondary schools, restaurants, hospitals and department stores. Nevertheless, a large part of the region's labor force continue to have ties to either the petrochemical,

timber or transportation industries.

The Beaumont-Port Arthur metropolitan area has the highest concentration of employment in the region and thus provides a good representation of occupational trends. The possible exception to this is timber-related occupations, which are concentrated in the northern non-metropolitan counties of the region.

The region's large manufacturing base, supported by more than 49,000 production, operative and maintenance workers in 1990, accounts for an estimated 31.5 percent of the regional labor force. This is substantially higher than the state's level of 26.8 percent and it gives further evidence of the importance of manufacturing to the regional economy. Mechanics, installers and repairers continue to be a major factor in the Southeast Texas labor force, employing 8,500 or 5.4 percent of all numbers in 1990.

Occupations in clerical and administrative fields employ almost 25,000 people or 15.9 percent of the labor force. Service occupations were the fastest growing, experiencing an 8.0 percent increase in jobs from 1985 to 1990, with 15,500 people employed in the Beaumont metropolitan area.

Professional and technical occupations—ones that require higher education or spe-



cialized skills—constitute a larger percentage of the regional labor force than the state as a whole. In 1990, professionals accounted for 19.1 percent of the total labor force in the region, which is slightly higher than the 19.0 percent state average. Professionals and technical people accounted for almost 30,000 jobs in 1990.

Teachers and instructors make up the largest portion of those with professional occupations, accounting for 4.6 percent of the total labor force 1990. Statewide, teachers and instructors constituted 4.4 percent of the labor force in 1990.

Between 1985 and 1990, engineers' share of total employment in the region rose by only one tenth to 1.6 percent. Across the state, it remained constant, but at the lower level of 1.4 percent. Chemical engineers are predominant in the region, accounting for one quarter of the engineers.

Southeast Texas' largest transportation-related occupation is truck drivers. In 1990, the region's truck driving constituted 2.1 percent of the labor force. Across the state, truckers' share of the total labor force stood at 2.4 percent as of 1990.

As in most of the state, Southeast Texas' service-related occupations are increasing their employment share, but at a rate of growth slower than statewide. From 1985 to 1990, service jobs in Southeast Texas rose by three tenths to 15.4 percent, while statewide they rose five tenths to 15.0 percent.

Health service occupations, such as nursing aides, dental assistants and medical assistants, are experiencing the fastest growth within the service sector in both Texas and Southeast Texas. Health service occupations continue to constitute a higher percentage of the total labor force in the region, with 2.1 percent in 1990 compared with the state's 1.5 percent.

Food and beverage occupations ranging from bartenders to bakers, accounted for 9,650 jobs in the Beaumont-Port Arthur area in 1990. This occupational group's share of the total labor force corresponds with the state's level of 6.2 percent. From 1985 to 1990, however, the number of food and beverage workers increased by 14.7 percent throughout the state, while growing by only 4.3 percent in the metropolitan area, adding 400 jobs.

Sales-related occupations are following state and national growth trends. Sales

occupations have a smaller presence in Southeast Texas than they do in the state as a whole. In 1990, wholesale and retail sales workers made up 10.5 percent of the labor force in the region versus 11.1 percent statewide. The region lagged behind the state in sales employment growth.

Retail sales personnel make up the largest percentage of the sales-related work force in both the region and the state. The sector's share of the total labor force remained unchanged at 3.5 percent in the region, while falling from 3.2 percent to 3.1 percent statewide.

While sales-related occupations are on the rise, clerical and administrative support occupations are declining in presence in both the Southeast Texas region and the state. Between 1985 and 1990, their share of the total labor force fell from 16.2 percent to 15.9 percent in the region and from 18.1 percent to 17.7 percent throughout the state. Secretaries constitute the most sizable portion of the clerical and administrative support group. Statewide, 3.0 percent of the total labor force were secretaries in 1990, compared with 2.9 percent in Southeast Texas.

### Average Wage Comparison

Texas has historically been considered a low wage state, but the state now approximately equals the nation in this regard. Texas' average annual wage was \$23,850 in 1990, which was \$500 or 2.6 percent above the national average wage. Average wages in Southeast Texas are generally lower than national averages for the region's ten largest industries. Exceptions are two of the three most predominant industries of Southeast Texas: chemicals and allied products, and petroleum and coal products. Lumber and wood products wages are in line with U.S. averages.

The region is able to attract and employ a top quality work force in the forestry, paper products, and petrochemical industries by paying higher than national average wages. However, only 16.2 percent of the region's top ten industries' workers are above their national counterparts for average wages. Other industries related to forestry and petroleum, such as pipelines, water transportation and engineering/management services also rank high on regional pay scales



**Table 10**  
**Southeast Texas and U.S. 1990 Average Annual Wages**

<u>Industry</u>	<u>U.S. Annual Average Wage</u>	<u>Southeast Texas Average Wage</u>	<u>Amount Above U.S. Average</u>
Paper & Allied Products	\$32,600	\$44,000	\$11,400
Forestry	17,900	26,400	8,500
Chemicals & Allied Products	39,600	47,200	7,600
Petroleum & Coal Products	42,600	48,700	6,100
Rubber & Misc. Plastics	24,700	29,600	4,900
Water Transportation	31,200	34,600	3,400
Furniture Stores	18,600	19,400	800
Legal Services	40,000	40,100	100

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

as employers compete for high quality employees and draw from outside the region.

The majority of the region's work force earns wages below U.S. averages. Some factors influencing lower wages in other jobs include a relative lower cost of living, lower average educational levels of the

work force and employers' conformity to prevailing wage rates.

**Work Force Development**

In an effort to keep pace with changing occupations in the region, local educators

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

<u>Industry</u>	<u>U.S. Average Annual Wages</u>	<u>Southeast Texas Average Annual Wages</u>	<u>Difference</u>	<u>Percent Difference</u>
Chemicals & Allied Products	\$39,600	\$47,200	\$7,600	16.0%
Petroleum & Coal Products	42,600	48,700	6,100	12.5
Lumber & Wood Products	20,700	20,600	-100	-0.5
Special Trades Contractors	25,000	22,400	-600	-2.6
Eating & Drinking Places	8,300	7,600	-700	-9.2
Food Stores	13,000	11,900	-1,100	-9.2
General Merchandise Stores	12,600	10,800	-1,800	-16.7
Health Services	25,200	19,700	-5,500	-29.7
Business Services	19,500	14,700	-4,800	-32.6
Heavy Construction, except building	29,900	22,500	-7,400	-32.8

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



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 at the secondary and higher education levels, the need for on-the-job training should be greatly reduced.

The long-term goal for Southeast Texas' labor force is to increase the percentage of more demanding high-skill jobs. As skill and education levels increase, the wage base will also increase. To increase the region's high-tech skill base, planning programs will become more important to the region.

Texas Quality Work Force Planning Regional Committees have been organized all over the state using council of government boundaries. The committees' goals are 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 Texas Quality Work Force Planning 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.

As an extension of and coordinated by Quality Work Force Planning, a federally funded program called Tech-Prep is being implemented in the Fall of 1992 by 15 of the region's high schools. Tech-Prep is designed as a six year degree plan for students working toward a career in technical fields. After career counseling, ninth graders begin two years of Pre-Tech-Prep which emphasizes academic skills. Eleventh grade students enter the four-year core of courses, as coordinated with area colleges, to earn an Associate Degree with initial and master technician certification.

After completing the associate degree program, students will be ready to enter the labor force or continue their education on the university level to attain advanced technical skills.

The Lamar University System is taking an active role in labor force development at its three Institutes of Technology located in Beaumont, Port Arthur and Orange. Occupations targeted for future program development are health services, criminal justice, business technology and industrial technologies. Students will gain the necessary skills to become professional, legal or medical secretaries, hazardous materials technicians, and electronics and computer maintenance technicians. Future programs may include process operating technology, drafting and microcomputer specialists.

Stephen F. Austin University, in Nacogdoches, is a major asset to work force development in East Texas as well as the whole state. The university offers a wide range of degree programs tailored to the needs of East Texas such as forestry management. Teacher training and business school graduates find jobs over the entire state.

Angelina Junior College in Lufkin makes significant contributions to work force development in the northern section of Southeast Texas. Associate degree programs for millwrights and electricians provide the skills to enter the lumber and forestry products industry. Targeted occupations for the recently approved Tech-Prep program include health careers, personal and protective services, business office skills and industrial and technical fields. \*



# Forecast

**M**any of the forces of change playing out in Texas will have direct impacts on the economic outlook for the Southeast Texas region by the turn of the century. An aging population augmented by generally rising real 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 Southeast Texas will differ significantly from that of the state. New prison construction and the gradual completion of changes at area petrochemical and petroleum refining plants should keep the construction market tight through the mid-decade, with some softening thereafter. A recovering national economy will help absorb some of the capacity increases at area petroleum-based firms in the region, and should drive modest expansions in the paper and building products industries.

## **Changing Structure of the Southeast Texas Economy**

Two major forces have driven the recovery of the traditional petroleum-processing industry in the region. First, despite the lingering national recession, demand for petrochemical products has grown during the past five years, tightening supplies and improving profit margins. Secondly, increasingly stringent environmental regulations have led many companies to improve the emission performances of their plants. Both of these changes are operating in the national market and will likely generate some additional sustained employment growth (see figure 1).

In addition to the growth prospects for area petroleum-based facilities, 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 Southeast Texas economy through 2000. With the construction of new state and federal prisons in mid-Jefferson county, government employment in the Southeast Texas region should climb by 28.6 percent from 1990 to 2000, well above the 23.8 percent increase expected for the state during this period.

As a result of stabilized demand in petroleum processing industries, the pressures of required environmental changes and the construction of the prison facilities, construction employment has been, and will continue to be, an important component of change in the region's economy. Employment in construction in the region has soared by 63 percent from a low of 11,100 in 1987 to more than 18,000 presently. This level should begin to drop in the relatively near future as permanent prison jobs begin to replace some of the construction-related activity. As the changes required to meet the Clean Air Act requirements are completed, construction employment should continue to decline in the latter half of the decade before stabilizing at about 15,600—17.9 percent below an expected peak of 19,000 in the decade, but up 40.5 percent from 1987.

Outside of these areas, low interest rates on homes and even a slowly recovering national economy yield a relatively strong outlook for the lumber and wood products industry, and continued employment growth during the decade. Southeast Texas should reap some of these gains, and could stand to gain a growing national share if environmental concerns in the Northwest

- **New state and federal prisons will fuel employment growth.**

- **Construction employment is at record highs, but should gradually decline.**

- **Growth in health care and business services are expected.**

- **Paper and building products industries will experience modest growth.**



**TABLE 12**  
**Southeast Texas Economic Forecast Through 2000**

	<u>1990</u>	<u>1995</u>	<u>2000</u>	<u>Average Yearly Growth</u>		
				<u>1990-95</u>	<u>1995-2000</u>	<u>1990-2000</u>
Total Personal Income (in \$Billions)	\$10.05	\$13.31	\$18.82	5.8%	7.2%	6.5%
Total Nonfarm Employment (in Thousands)	228.9	259.8	282.9	2.6	1.7	2.1
Mining Employment (in Thousands)	0.9	0.9	0.9	-1.1	0.0	-0.5
Construction Employment (in Thousands)	15.0	15.2	15.6	0.2	0.6	0.4
Manufacturing Employment (in Thousands)	46.6	50.3	52.6	1.5	0.9	1.2
TPU/Comm Employment (in Thousands)	19.2	22.0	23.0	2.8	0.9	1.9
Trade Employment (in Thousands)	51.6	59.1	63.6	2.8	1.5	2.1
FIRE Employment (in Thousands)	8.2	8.3	7.9	0.3	-1.2	-0.4
Services Employment (in Thousands)	46.5	56.5	67.5	4.0	3.6	3.8
Government Employment (in Thousands)	40.9	47.5	51.9	3.0	1.8	2.4
Retail Sales (in \$Billions)	4.4	5.9	8.3	6.3	7.0	6.6
Population (in Thousands)	666.7	726.2	730.8	1.7	0.1	0.9
Births (in Thousands)	9.9	10.0	9.4			
Deaths (in Thousands)	6.8	7.8	8.3			
Per Capita Personal Income	\$15,074	\$18,327	\$25,747	4.0%	7.0%	5.5%

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



continue to depress the production of forest products in that region of the country.

Based on these trends, growth in manufacturing and government employment should help drive a 23.6 percent increase in the number of jobs in Southeast Texas during the 1990s. Total employment is projected to increase from 228,900 in 1990 to 282,900 by the year 2000. This overall growth pattern, however, hides some other important changes. In construction, for example, employment is expected to rise to more than 20,000 jobs in 1993, before gradually declining and stabilizing at a level about 18 percent higher than the trough of construction employment in 1987.

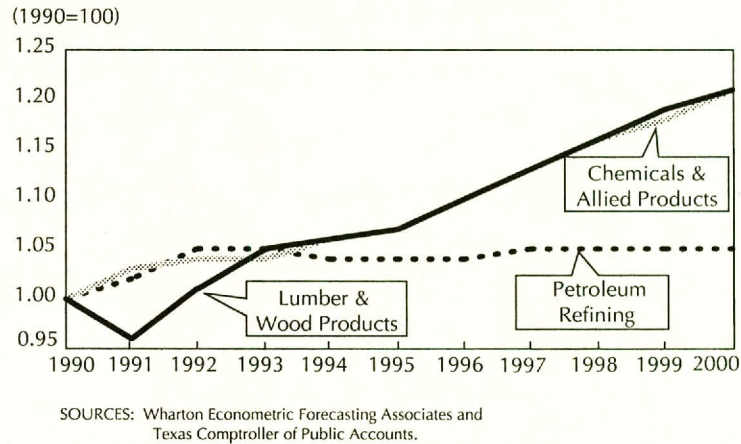
**Service Sector Growth**

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, are expected to generate national employment gains in the health care industries of more than 40 percent during the 1990s (see figure 2). In meeting the health care needs of its population, Southeast Texas 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 "outsourcing" 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. Southeast Texas should display this same trend in the 1990s, with business services being a strong growth sector in the region.

As a result of these and other trends, the service sector is expected to generate significant growth during the 1990s in Southeast Texas. Employment growth in services should average 3.8 percent annually from 1990 to 2000, adding 21,000 jobs during this period.

**Figure 3  
Key National Employment and  
Production Forecasting Indices**

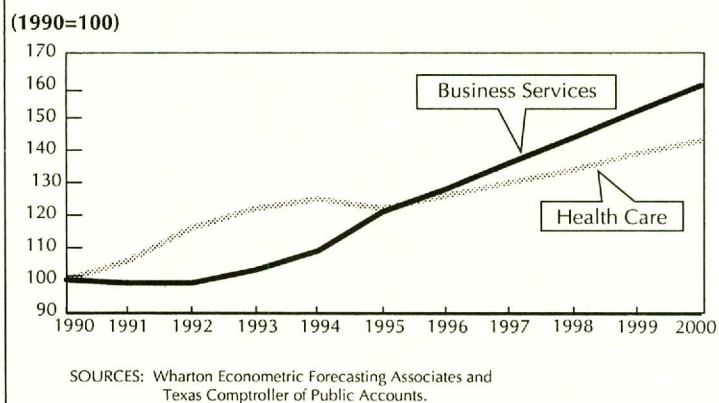


To serve this growing employment base, other sectors are also expected to add jobs during the decade. About 12,000 jobs in wholesale and retail trade will be generated during the 1990s along with an additional 3,800 jobs in the transportation, communication and public utilities industries.

**Population and Income**

The underlying economic trends expected for the Southeast Texas region during the next ten years will serve to support a

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





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## **SOUTHEAST TEXAS**

growing population base and rising income. Total region population should grow by more than 64,000 during the upcoming decade, an annual average of 0.9 percent.

Along with increasing employment will be rising income. Total personal income is projected to increase by 5.5 percent annual-

ly from 1990 to 2000. On a per capita basis, regional income should rise from \$15,074 in 1990 to \$25,747 in 2000. Regional retail sales should grow at an annual average rate of 6.6 percent during the decade. \*

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# Forces of Change

**E**vidence of the forces of change can be seen all around us, in our history and in our current situation. While the forces of change have consequences for all Texans, some are particularly relevant to a region of the state. The following discussion points to some of the forces of change that will significantly influence the future of Southeast Texas.

## **The Legacy and Future of a Resource-based Economy**

In Southeast Texas, the bounty of the land has been the source of economic wealth and prosperity. Today, three of the forces of change that will impact this economy are: the depletion of the finite resource base, increasing environmental concerns and the demographic effects of aging and out-migration.

The soil of Southeast Texas supported subsistence farming and free range cattle for a time. Then, agriculture came under the influence of King Cotton. The plantation system of agriculture practiced in this area helped the state become a leading producer of cotton in the nation. Sharecropping replaced the plantation system after the Civil War.

This early prosperity from cotton was an inheritance from nature's bounty, but by the 1930s cotton lost its dominance in Southeast Texas. The cultivation of feed crops and food crops became dominant over cotton and forests replaced some former cotton fields.

The region's forests provided early settlers with everything from homes to fences to firewood, and they also brought in the logging companies and lumberjacks. Lumber was among the first industries in Texas, and it provided wealth both for the state and the region.

Excessive logging destroyed the original forests in the early twentieth century. Lumber continues to be an important industry in the area only because belated recognition

of the need for both conservation and reforestation caused the replanting of trees.

In the midst of the area's lumber industry's development, however, contention is arising from the need to provide employment while, at the same time, protecting the environment. The early development of the industry resulted in habitat destruction that caused the demise of several species that were native to East Texas, including black bears, ivory-billed woodpeckers and jaguars.

Some methods of timber cutting currently in use, particularly clearcutting and the cutting of older timber, threaten the survival of another species, the red-cockaded woodpecker. The settlement of the controversy over forest development methods might well be in the courts and could serve to limit some of the activities of the timber industry due to the endangered status of this species. Another controversy exists over the desire on one hand to leave wilderness acres strictly natural and the desire on the other to allow some forest management to reduce insect pests.

Although environmental controversy accompanies some developments in agriculture, the industry continues as a legacy of the land. Modern forest management researches methods of increasing the timber yields of the forest while preserving it. This is increasingly important in light of the fact that the annual lumber harvest has recently exceeded annual growth. As health consciousness dominates the food industry, developments of strains of beef with less fat and organic gardening become more than just fads. The expansion of the poultry industry and

• **Dependent on a declining resource base, Southeast Texas must adapt in order to meet the challenges of the future.**

• **Growing environmental concerns must be considered to sustain continued development of the resource base.**

• **Demographic trends, such as an aging population, will affect the region.**



development of aquaculture in recent times are also a response to health concerns, especially the calorie and cholesterol content of food. Continued development in the area of health-oriented food cultivation may provide fresh impetus to the agriculture industry in Southeast Texas.

### **The Importance of Petroleum**

The Southeast Texas region has also prospered from oil. The difference here is that the oil was both produced and processed, rather than just produced as in other areas of the state. Yet these petroleum-based industries that have brought great wealth and promise a measure of continued prosperity are also the very industries that, to an extent, threaten the economic and physical health of the area through the toxic waste they produce.

At the turn of the century, the discovery of oil at Spindletop was the harbinger of a new age of industrialization for Texas. The discovery of oil was particularly advantageous, because it closely preceded a developing need for cheap fuel for light, home heating and steam and rail engines. Both refineries and petrochemical companies took advantage of the close location of the Spindletop field to the coast by building their facilities in the Southeast Texas region. These downstream activities of the petroleum industry multiply its impact on the region's economy.

In addition, Southeast Texas became the home of many oil industry support companies as entrepreneurs took advantage of oil field innovations and technological advances that occurred in the area. For example, Howard R. Hughes, father of the famous billionaire, formed Hughes Tool Company to market an improved drill bit he purchased while a contractor at Spindletop.

Technological advances and the how-to knowledge that research and experience have contributed are products marketable to a global economy from which the Southeast Texas region can continue to profit. When the oil fields in Kuwait were burning, it took technology and experience from Texas to stop the devastating loss of the resource and to preserve the wells. Continued developments in exploration and production techniques will continue to be saleable products in the future.

Texas has taken advantage of the original gift of nature in producing oil, and this part of the industry is still active, but declining. The inheritance of crude provided both employment and economic prosperity in the past, but this inheritance reached its zenith and a declining dependence on the production part of the oil industry is inevitable. Unfortunately, no new inheritance of the stature of oil lurks on the economic horizon.

This does not, however, signal the death of oil from the economy of the Southeast Texas region as petroleum processing continues at the region's refineries and petrochemical companies. The maturing of the petrochemical industry, though, makes restructuring and possible employment reductions inevitable. The industry, however, maintains a competitive edge through research and development, technological innovation and increased efficiency. Exxon is producing fuel from used motor oil, and other companies are replacing toxic substances such as chlorofluorocarbons with new chemicals. Research and technological development may be the lifeline for an industry forced to import a main ingredient necessary for processing.

### **Environmental Concerns**

The prosperity that has accompanied the development of the petroleum industry has not come without a cost. The hazardous waste created by every phase of the industry has left an alarming legacy of its own. Texas is second only to Louisiana in the amount of toxic pollution released into the environment. In 1990, Texas industries produced 418 million pounds of hazardous waste and toxic substances. The good news is that this was a decline of 38 percent from the year before. Most of the hazardous waste in Texas, 57 percent, was injected into underground disposal wells. The rest of the hazardous waste, 43 percent, was discharged into area waterways, released into the air or buried in the land.

Transportation of hazardous waste may expose Texans to dangerous substances. The fact that the Southeast Texas region is a hub for the transportation of both the refining and petrochemical industries, increases the likelihood of releases of toxic substances into the environment. There are four basic methods of transporting haz-



ardous materials and wastes—truck, train, pipeline and barge.

Accidents or spills sometimes occur even with the use of safety precautions. Texas ranked 5th nationwide in incidents involving hazardous materials. In 1991, Texas had 599 accidents with damages totaling \$3.64 million. These accidents occur mostly on highways.

Hazardous waste that threatens the region physically also threatens its economic development. Methods of disposal, recycling or producing less waste must be sought that allow economic development, but not at the cost of environmental preservation. The need for economic development is not necessarily contradictory or exclusive of the environment and its conservation.

Environmental protection is necessary because it is not possible to know today everything that will be valuable tomorrow. The burning of natural gas as a waste product occurred in the early days of oil production. Today natural gas is a source of significant wealth, and for the U.S., a measure of energy independence. Species of plants that yesterday were nothing more than ornaments, are today's treatment for heart attacks. Land developed to display its natural beauty and the restoration of old and abandoned property today draws tourists.

A prime example of economic development in harmony with environmental conservation is evident in Southeast Texas. If responsible parties in the 1930s had not worked to preserve and replant the pine forests, Southeast Texas would not have the

thriving lumber industry that is today an economic mainstay, or the national forests.

### **Demographic Changes**

As indicated in the Demographics Section, Southeast Texas will reflect many of the same demographic changes that are influencing the state; in particular, the aging of the population. The forecasted increase of Texans age 65 or older will have major implications for the health care industry and elderly benefits programs in this corner of Texas.

The region also suffered high out-migration levels between 1980 and 1990 and, without new life injected from industries that locate or are developed within the region, the result may be economic stagnation.

In light of additional environmental concerns and the depletion of oil reserves, the Southeast Texas region should seek further diversification of its economic structure. In the future, to diversify the economy and attract the companies that will not only bring jobs to the area, but also the possibility of higher wages, Southeast Texas could explore not only economic development packages to expand the industrial base, but also the means of providing the educated work force that such companies demand. Human resource development in terms of education and training may provide the key to the future prosperity of Southeast Texas.







# Statistical Appendix

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### Southeast Texas Total Employment 1982-1991

<u>Year</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1982-1987</u>	
							<u>Change</u>	<u>Percent Change</u>
Region	227,900	219,400	223,100	217,500	211,600	210,400	-17,500	-7.7
MSA Total	146,300	139,100	137,900	134,500	128,300	127,200	-19,100	-13.1
Non-MSA Total	81,600	80,300	85,200	83,000	83,300	83,200	1,600	2.0
Beaumont- Port Arthur MSA	146,300	139,100	137,900	134,500	128,300	127,200	-19,100	-13.1
<b>Texas</b>	<b>6,168,100</b>	<b>6,100,300</b>	<b>6,404,200</b>	<b>6,585,600</b>	<b>6,464,500</b>	<b>6,412,300</b>	<b>244,200</b>	<b>4.0</b>
Regional Percent of Total								
Texas Employment	3.7%	3.6%	3.5%	3.3%	3.3%	3.3%		
Regional Unemployment Rate								
Texas	7.2	11.6	11.5	10.1	11.8	12.5		
Texas Unemployment Rate								
Texas	6.9	8.0	5.9	7.0	8.9	8.4		

<u>Year</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1987-1991</u>		<u>1982-1991</u>	
					<u>Change</u>	<u>Percent Change</u>	<u>Change</u>	<u>Percent Change</u>
Region	217,900	218,900	225,400	234,800	24,400	11.6	6,900	3.0
MSA Total	129,900	130,800	137,000	144,600	17,400	13.7	-1,700	-1.2
Non-MSA Total	88,000	88,100	88,400	90,200	7,000	8.4	8,600	10.5
Beaumont- Port Arthur MSA	129,900	130,800	137,000	144,600	17,400	13.7	-1,700	-1.2
<b>Texas</b>	<b>6,606,500</b>	<b>6,739,800</b>	<b>6,983,300</b>	<b>7,065,800</b>	<b>653,500</b>	<b>10.2</b>	<b>897,700</b>	<b>14.6</b>
Regional Percent of Total								
Texas Employment	3.3%	3.2%	3.2%	3.3%				
Regional Unemployment Rate								
Texas	10.4	8.6	7.5	6.8				
Texas Unemployment Rate								
Texas	7.3	6.7	6.2	6.6				

Note: MSA counties are Hardin, Jefferson and Orange.  
 SOURCES: Texas Employment Commission and Texas Comptroller of Public Accounts.



## Employment by Sector in the Southeast Texas Region

### Number of Jobs

<u>Sector</u>	<u>1982</u>	<u>1987</u>	<u>1991</u>	<u>1982-87</u>		<u>1987-91</u>		<u>1982-91</u>	
				<u>Change</u>	<u>Percent Change</u>	<u>Change</u>	<u>Percent Change</u>	<u>Change</u>	<u>Percent Change</u>
Agriculture, Forestry and Fishing	1,600	1,500	2,000	-100	-6.3%	500	33.3%	400	25.0%
Mining	4,500	2,100	2,400	-2,400	-53.3	300	14.3	-2,100	-46.7
Construction	17,000	11,300	19,100	-5,700	-33.5	7,800	69.0	2,100	12.4
Manufacturing	57,500	45,000	47,300	-12,500	-21.7	2,300	5.1	-10,200	-17.7
Transportation, Communications and Public Utilities	14,900	12,800	12,400	-2,100	-14.1	-400	-3.1	-2,500	-16.8
Wholesale Trade	10,100	8,000	8,800	-2,100	-20.8	800	10.0	-1,300	-12.9
Retail Trade	42,600	43,300	44,600	700	1.6	1,300	3.0	2,000	4.7
Finance, Insurance and Real Estate	8,800	8,700	7,600	-100	-1.1	-1,100	-12.6	-1,200	-13.6
Services	34,600	39,600	48,500	5,000	14.5	8,900	22.5	13,900	40.2
Government	<u>36,300</u>	<u>38,100</u>	<u>42,100</u>	<u>1,800</u>	<u>5.0</u>	<u>4,000</u>	<u>10.5</u>	<u>5,800</u>	<u>16.0</u>
<b>Total</b>	<b>227,900</b>	<b>210,400</b>	<b>234,800</b>	<b>-17,500</b>	<b>-7.7</b>	<b>24,400</b>	<b>11.6</b>	<b>6,900</b>	<b>3.0</b>

### Percent of Total Employment

<u>Sector</u>	<u>1982</u>	<u>1987</u>	<u>1991</u>
Agriculture, Forestry and Fishing	0.7%	0.7%	0.9%
Mining	2.0	1.0	1.0
Construction	7.5	5.4	8.1
Manufacturing	25.2	21.4	20.1
Transportation, Communication and Public Utilities	6.5	6.1	5.3
Wholesale Trade	4.4	3.8	3.7
Retail Trade	18.7	20.6	19.0
Finance, Insurance and Real Estate	3.9	4.1	3.2
Services	15.2	18.8	20.7
Government	<u>15.9</u>	<u>18.1</u>	<u>17.9</u>
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

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



## Employment by Sector in the Beaumont-Port Arthur MSA

### Number of Jobs

Sector	1982	1987	1991	1982-87		1987-91		1982-91	
				Change	Percent Change	Change	Percent Change	Change	Percent Change
Agriculture, Forestry and Fishing	600	500	700	-100	-16.7%	200	40.0%	100	16.7%
Mining	2,900	1,600	1,900	-1,300	-44.8	300	18.8	-1,000	-34.5
Construction	12,100	8,100	15,700	-4,000	-33.1	7,600	93.8	3,600	29.8
Manufacturing	35,600	24,600	25,500	-11,000	-30.9	900	3.7	-10,100	-28.4
Transportation, Communications and Public Utilities	11,400	9,100	9,000	-2,300	-20.2	-100	-1.1	-2,400	-21.1
Wholesale Trade	6,600	5,000	5,800	-1,600	-24.2	800	16.0	-800	-12.1
Retail Trade	28,300	27,000	27,500	-1,300	-4.6	500	1.9	-800	-2.8
Finance, Insurance and Real Estate	5,400	5,100	4,500	-300	-5.6	-600	-11.8	-900	-16.7
Services	23,600	26,200	33,100	2,600	11.0	6,900	26.3	9,500	40.3
Government	19,800	20,000	20,900	200	1.0	900	4.5	1,100	5.6
<b>Total</b>	<b>146,300</b>	<b>127,200</b>	<b>144,600</b>	<b>-19,100</b>	<b>-13.1</b>	<b>17,400</b>	<b>13.7</b>	<b>-1,700</b>	<b>-1.2</b>

### Percent of Total Employment

Sector	1982	1987	1991
Agriculture, Forestry and Fishing	0.4%	0.4%	0.5%
Mining	2.0	1.3	1.3
Construction	8.3	6.4	10.9
Manufacturing	24.3	19.3	17.6
Transportation, Communication and Public Utilities	7.8	7.2	6.2
Wholesale Trade	4.5	3.9	4.0
Retail Trade	19.3	21.2	19.0
Finance, Insurance and Real Estate	3.7	4.0	3.1
Services	16.1	20.6	22.9
Government	13.5	15.7	14.5
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

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





**Southeast Texas Gross Retail Sales 1984-1991**

In Millions of Dollars

<u>Year</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1984-1986</u>	
					<u>Change</u>	<u>Percent Change</u>
Region	\$ 3,941.0	\$ 3,882.9	\$ 3,778.0	\$ 3,916.5	(\$163.00)	-4.1%
MSA Total	2,358.1	2,291.9	2,258.3	2,287.7	(99.80)	-4.2
Non-MSA Total	1,582.9	1,591.0	1,519.7	1,628.8	(63.20)	-4.0
Beaumont MSA	2,358.1	2,291.9	2,258.3	2,287.7	(99.80)	-4.2
<b>Texas</b>	<b>\$109,373.4</b>	<b>\$115,426.6</b>	<b>\$110,089.5</b>	<b>\$110,728.3</b>	<b>\$716.10</b>	<b>0.7</b>

<u>Year</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1987-1991</u>		<u>1984-1991</u>	
					<u>Change</u>	<u>Percent Change</u>	<u>Change</u>	<u>Percent Change</u>
Region	\$ 3,990.8	\$ 4,114.9	\$ 4,369.4	\$ 4,428.6	\$ 512.1	13.1%	\$ 487.6	12.4%
MSA Total	2,338.1	2,382.3	2,550.8	2,588.9	301.2	13.2	230.8	9.8
Non-MSA Total	1,652.7	1,732.6	1,818.6	1,839.7	210.9	12.9	256.8	16.
Beaumont MSA	2,338.1	2,382.3	2,550.8	2,588.9	301.2	13.2	230.8	9.8
<b>Texas</b>	<b>\$116,813.9</b>	<b>\$123,650.9</b>	<b>\$133,394.1</b>	<b>\$139,049.0</b>	<b>\$28,320.7</b>	<b>25.6</b>	<b>\$29,675.6</b>	<b>27.1</b>

Note: MSA counties are Hardin, Jefferson and Orange.

SOURCE: Texas Comptroller of Public Accounts.





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