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TEXAS REGIONAL OUTLOOK

The Usper Rio Grande Region

JULY 2002

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Fellow Texans:

I am pleased to share with you the *Texas Regional Outlook* for the Upper Rio Grande Region. This report presents my latest economic forecast for the state as a whole and the outlook for this unique six county region surrounding the El Paso metropolitan area.

This report is one in a series of regional outlooks that I have asked my staff economists to prepare for all 13 regions of Texas. In addition to these reports, I will be traveling throughout the state to listen to what you and other fellow Texans have to say about the challenges facing your region and to get ideas on what the state can do to bring more jobs and economic growth to your area.

After these open forums, I plan to take your ideas and consult with the finest minds I can find a blue-ribbon panel of experts who will work with me to produce a list of recommendations that I can present to the 78th Texas Legislature. With your help, we can identify opportunities for growth in your region and recommend changes to remove any obstacles that may stand in the way of building local economies and to provide for sound economic policies in the years to come.

For information regarding our regional meetings, please call Ann Quirk at 1-800-531-5441, extension 6-4159, or visit my Web site at www.window.state.tx.us/ecodata/regional/forums/. If you are unable to attend one of our meetings, you may still submit your comments and suggestions by e-mail to regional.forums@cpa.state.tx.us, or write to:

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I look forward to hearing from you. Thanks for all that you do for Texas.

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Sincerely,

Lecton Rylander

Carole Keeton Rylander Texas Comptroller





Texas Regional Outlook

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Texas Economy Poised for Rebound

Texas continues to outpace national economic growth. Despite the slump in the national economy, Texas faired relatively well and is poised for a rebound. This is largely attributable to strong productivity growth, enhanced by the state's central Sunbelt location, relatively low business and housing costs, and the continued flood of new residents into the state.

Despite this resilience, however, like practically every other part of the country, the Texas economy has been affected by the national downturn. From May 2001 to May 2002, overall nonfarm employment in the state fell by 91,800, or 1.0 percent, compared with 1.3 percent growth during the same period a year earlier and an average annual growth rate of 4 percent during the economic boom of 1997 and 1998.

More than ever, the economy of Texas has become tied to the health of the national economy. This is evidenced by the nearly identical job loss rates of approximately 1 percent in Texas and the U.S. over the past year. The breadth of the national downturn was such that 36 states lost jobs during this period. Although relatively high energy prices allowed the oil and gas industry to benefit during most of 2001, other sectors of the Texas economy, such as manufacturing and, to a lesser extent, consumer spending, were affected by the national economy

Wary of the threat of a national downturn, the Federal Reserve Board reduced short-term interest rates 11 times in 2001. Despite lower borrowing costs, the National Bureau of Economic Research declared that the national economy had fallen into recession in March. The downturn accelerated after the September 11 terrorist attacks. The national economy now appears to have bottomed out and has begun a slow upswing.

The Texas economy continued to display growth during the first half of 2001. During the year, real (inflation-adjusted) gross state product increased an estimated 3.2 percent and 167,000 more residents moved into the state than left. Even with slowing employment growth, the statewide unemployment rate averaged less than 5 percent for the fourth straight year, for its lowest rates since the late 1970s. Perhaps most importantly, Texas continued to outpace national economic growth.

The outlook for the Texas economy in for the remainder of 2002 and 2003 is looking up. Real gross state product growth is projected to be 2.1 percent in 2002 (see Table 1). In 2003, however, following a strong national economic recovery fueled by low interest rates, federal tax cuts and stimulative federal spending in response to September 11, Texas' economic growth will rebound at a relatively robust 4.6 percent rate. Nonfarm employment and personal income growth should follow a similar trend.

With continued population and labor force growth accompanied by fewer job opportunities than in recent years, the statewide unemployment rate will rise from an average of 4.9 percent in 2001 to 5.7 percent in 2002. As the national and state economies rebound, however, the state jobless rate will drop slightly to 5.4 percent in 2003.

Looking toward the future, the outlook for 2004 and 2005 is even more favorable, as the U.S. and Texas economies return to normal growth. During the two years, real gross state product growth will average 4.3 percent, non-



farm employment will rise by 2.9 percent annually, personal income will increase by 6.8 per year, and the statewide unemployment will plunge to 4.6 percent by the end of the two years. Overall, despite the slowdown in 2002, from 2001 through 2005, Texas economic growth will outpace U.S. growth by approximately 0.75 percent per year, while the state's population increases by 1.7 percent annually, reaching almost 23 million.

Manufacturing

Both 2001 and 2002 were years that most Texas manufacturers will not want to remember. Faced with weighty inventories and faltering personal computer sales worldwide, Dell Computer Corporation and Compaq Computer Corporation both announced job layoffs during this period. Largely because of the personal computer market, the state's semiconductor and electronic component producers also felt the effects.

T	TABLE 1						
lexas Economic	History ar		ok for Ca	lendar Y	ears, 199	9-2005	
	sp	ring 2002	c rorecas	C			
	1999	2000	2001	2002*	2003*	2004*	2005*
FEXAS ECONOMY							
Gross State Product							
(Billion 1996 Dollars)	670.1	711.5	734.4	749.8	784.4	822.0	853.0
Annual % Change	5.1	6.2	3.2	2.1	4.6	4.8	3.8
Personal Income							
(Billion Dollars)	539.1	581.3	607.5	633.1	674.5	723.6	770.1
Annual % Change	5.3	7.8	4.5	4.2	6.5	7.3	6.4
Nonfarm Employment							
(Thousands)	9,158.9	9,432.2	9,515.9	9,517.5	9,709.4	10,013.1	10,270.9
Annual % Change	2.4	3.0	0.9	0.0	2.0	3.1	2.0
Resident Population							
(Thousands)	20,590.5	20,991.9	21,371.3	21,754.3	22,116.1	22,490.8	22,889.4
Annual % Change	2.5	1.9	1.8	1.8	1.7	1.7	1.8
Unemployment Rate (%)	4.6	4.2	4.9	5.7	5.4	4.7	4.6
Oil Price (Dollars per Barrel)	\$17.29	\$28.82	\$23.77	\$22.69	\$22.73	\$23.24	\$23.74
Natural Gas Price							
(Dollars per MCF)	\$2.01	\$3.50	\$3.78	\$2.65	\$2.55	\$2.61	\$2.60
U.S. ECONOMY							
Gross Domestic Product							
(Billion 1996 Dollars)	8,856.5	9,224.0	9,332.3	9,484.0	9,848.5	10,218.9	10,524.4
Annual % Change	4.1	4.1	1.2	1.6	3.8	3.8	3.0
Consumer Price Index							
(1982-84=100)	166.6	172.2	177.1	180.2	184.9	189.8	194.8
Annual % Change	2.2	3.4	2.8	1.8	2.6	2.6	2.0
Prime Interest Rate (%)	8.0	9.2	6.9	5.0	7.0	8.0	8.

* Projected

SOURCES: Carole Keeton Rylander, Texas Comptroller of Public Accounts and WEFA Group.

Outside of high-tech, the news was not much happier. Apparel manufacturers, largely concentrated along the Texas-Mexico border, continued to be affected by international competition, and they reduced their work forces in response. Even so, the news could have been much worse had consumers not remained willing to spend, often in response to promotional offers. From May 2001 to May 2002, statewide manufacturing employment declined by 5.6 percent, or 60,300, which was still slightly better than the 6.1 percent loss in manufacturing employment nationwide.

Productivity was affected temporarily by the terrorist attacks, partly because of increased security at airports and border checkpoints. The increased travel and waiting times and the unpredictability of delays have hindered trade at the border and increased transportation costs. Productivity growth typically slows in a national recession in any event, because output falls faster than companies' ability to adjust their work forces. In 2001, however, the productivity of American workers rose at almost a 2 percent annual rate. If the recovery follows historical patterns, productivity will shoot up even more with renewed demand for goods and services when the economy improves.

Over the next two years, the state's manufacturing sector should improve as national and worldwide demand for computers, semiconductors and other high-tech products rebuilds, and excess inventories diminish. Overall, manufacturing employment will decline by 4.1 percent in 2002 as the high tech downturn and national recession play out. But in 2003, the Comptroller's forecast expects 2.4 percent job growth, which would be Texas' best manufacturing growth year since 1997.

Oil and Gas Counter the Trend

In 2001, the resurgence of the state's oil and gas sector partially countered the losses borne by the state's battered manufacturers. Because of tight worldwide markets, Texas wellhead oil prices moved above \$30 per barrel in fall 2000, and a cold winter in the Northeast and Midwest pushed the taxable price of natural gas to a record \$8 per thousand cubic feet in January 2001. Although oil and gas prices subsequently abated, they remained relatively high, spurring statewide and national drilling activity. By spring 2001, the Texas rotary rig count surged past 500, its highest level in 15 years.

By summer, however, the slowing world economy and excess supplies began to push energy prices downward, affecting drilling activity in Texas. By November 2001, the drilling rig count of 407 had fallen to the November 2000 level; by May 2002, the rig count of 325 was down 35 percent from its May 2001 level. Nevertheless, because of the lag between drilling activity and hiring plans, year-over-year mining employment was up as recently as March of this year, but by May, sector jobs were down by 2,400, or 1.5 percent, from the May 2001 level.

Over the next two years, the outlook for the state's oil and gas sector is challenging. As worldwide energy prices flatten again over the next two to three years, Texas mining employment will fall 2.2 percent in 2002 and another 3.5 percent in 2003 before these trends begin slowing in 2004.

Construction Points Downward

From an historical perspective, Texas' construction sector benefited in more in past years than most industries from the national and state economic boom. Rapid job and income growth, combined with the influx of new residents, kept home sales and new housing construction brisk, while strong industrial and commercial growth spurred nonresidential construction activity.

Compared to the gains in 1997 and 1998, statewide construction growth clearly has been plateauing over the past few years. Sector employment continued to grow through most of 2001 because of the backlog of active projects, but ended the year with reduced year-over-year employment. Growth slowed from a 9.2 percent annual rate at the end of 1998, to 5.2 percent at the end of 1999, to 3.8 percent at the end of 2000

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and to a loss of 1.9 percent, or 10,500 jobs, from May 2001 to May 2002.

Due to relatively low mortgage rates, both statewide home sales and housing permits are running close to their respective post-1990 record highs. But even with the revival of residential construction, the state's economic cycle and higher office vacancy rates point to a further deceleration in statewide construction employment growth over the short term, thereby dampening the demand for new construction projects. In 2002, construction employment is expected to decline by an average of 1.0 percent, another 1.7 percent in 2003, and then rebound in 2004.

Transportation, Communications and Public Utilities: September 11 Hits Hard

Perhaps more than any other sector, transportation, communications and public utilities (TPU) has been affected by the events of September 11. After the September 11 attacks, U.S. air traffic abated and layoffs were announced at most major U.S. air carriers, including Texasbased American and Continental Airlines. Consequently, job growth in the states air transportation industry fell from a year-to-year gain of 3,800 in May 2001 to a year-to-year loss of 8,500 in May 2002. Largely because of these losses, TPU lost 23,300 jobs from May 2001 to May 2002, a 3.9 percent drop.

Although national air traffic is recovering, it will take some time for it to move past its pre-September 11 levels. According to the Federal Aviation Administration, nationwide passenger enplanements in both 2001 and 2002 will be well below the year 2000 record level.

In recent years, Texas' trucking, warehousing and a number of other transportation services have benefited from the expanding national and state economies, as well as from increasing trade with Mexico. In 2001, while the U.S. and Texas economies were retrenching, trade with Mexico remained fairly resilient through much of the year. But the U.S. recession eventually affected this industry as well, with trucking and warehousing employment down by 2.2 percent, or 3,100 jobs, by May 2002.

With the rapidly growing popularity of the Internet and cellular communications, Texas communications employment boomed at a 7 percent average annual rate from 1999 to 2001. The national downturn took hold and intensified here as well, so that by May 2002, employment in this sector had fallen by 7,800 jobs statewide, or 5.1 percent, largely because of job reductions at the state's major telephone providers.

Finally, utilities employment-until the folding of Enron-had enjoyed a trend-bucking year, growing by 4,000 jobs, or 5.4 percent, from October 2000 to October 2001, largely because of the deregulation of the state's electric utility sector. The construction of gas-fired electricity generation facilities in Texas has boomed in recent years, as the prospect of selling power at a reasonable return to the state's rapidly growing residential, industrial and commercial sectors emerged. However, with Enron's bankruptcy and ensuing layoffs, the utilities sector quickly gave back the 4,000 jobs it had gained the previous year. Even with job gains in electric utilities, by May 2002 the utilities sector overall had 1,700 fewer employees than in May 2001, a loss of 2.2 percent.

Over the next two years, Texas TPU employment will gain strength as the air transportation sector rebounds and the U.S. and Mexican economies improve. With the recovery beginning in the second half of the year, overall TPU employment is expected to fall by 1.5 percent in 2002 and then rebound at a strong 4.6 percent rate in 2003.

Finance, Insurance and Real Estate Drifts Downward

Finance, insurance and real estate (FIRE) turned in a relatively flat year, with a 0.7 percent loss of 3,700 jobs from May 2001 to May 2002. During this period, employment in banks and other financial institutions was up by 0.2 percent, supported by the state's growing population and moderate demand for new home financing. Jobs among the state's insurance providers registered no change, at 166,200 in both May 2001 and May 2002. Real estate, securities and investment industries, which were boosted by increasing home sales but hurt by weaknesses in the U.S. stock market and Texas nonresidential construction, accounted for essentially all of FIRE's net employment decline, experiencing a job loss of 2.0 percent from May 2001 to May 2002.

As business loan demand remains weak and real estate demand remains fragmented, the outlook for the state's FIRE sector does not appear promising. Statewide FIRE employment will fall 0.7 percent in 2002, followed by a somewhat larger 1.1 percent drop in 2003, before turning upwards in 2004.

Trade Softens

Consumer confidence and spending faltered as job layoffs mounted in 2001 and then fell further following the September 11 attacks. By the end of the year, however, both U.S. and Texas confidence began to rebound as the U.S. economy apparently reached bottom.

During the first nine months of fiscal 2002 (September through May), state sales tax receipts—of which just more than 50 percent come from household expenditures—fell by 1.2 percent, compared with a gain of almost 5 percent in all of fiscal 2001. Partially spurred by dealer incentives at the beginning of the fiscal year, motor vehicle sales tax collections increased 5.0 percent during the same period.

Even though Texas consumer confidence began recovering at the end of 2001, it remains 13 percent below its August 2001, pre-attack level. Consequently, flagging consumer expenditures have reduced the wholesale and retail trade job count by 1.1 percent from May 2001 to May 2002, compared with annual average gains of more than 3 percent in fiscal 1999 to 2001. Just under half of this loss was in wholesale trade, which has been hurt by a decreased demand for manufactured products. Net job losses in wholesale trade totaled 11,800 over the past year, a 2.2 percent loss. Retail trade including building materials, restaurants, automobile dealers and service stations, food, furniture, clothing, general merchandise stores and other miscellaneous retailers—cut back 12,000 jobs, a 0.7 percent decline. Bucking the trend, a few sectors—sellers of building materials, automobile dealers/service stations, and eating and drinking places—added jobs.

Over the next two years, statewide trade employment growth should slowly improve as consumer confidence and spending is buoyed by renewed state and national economic growth. In 2002, sector employment is expected to rise by only 0.1 percent as the national economic recovery gains strength in the second half of the year. In 2003, a more robust 1.8 percent job gain is likely.

Services Also Suffer

Because of the breadth of the national downturn, in 2001 the Texas service sector lost jobs for the first time in more than 30 years. From May 2001 to May 2002, services lost 6,600 jobs, a decrease of 0.2 percent.

Not all service sector industries lost jobs. Most notably, health services employment rose by 20,900 jobs, a 2.9 percent increase. This growth was influenced by the aging of the population, the availability and use of new medical procedures and rapidly increasing spending on prescription drugs and other medical services. Jobs at establishments providing social and rehabilitation services increased 3.1 percent and accounted for 6,300 new jobs. Private educational services added 4,500 jobs, a 3.7 percent increase, and agricultural services took advantage of a particularly strong demand for veterinary and landscape/horticultural services to add 2,100 jobs, a 3.4 percent increase.

Most of the state's service sectors added or lost a relatively small portion of their employment, over the past year—with two notable exceptions. First, motion pictures lost 2,700 jobs, an 8.4 percent decrease, as terrorism concerns and economic weakness cut into discre-





tionary consumer expenditures. Second, and much more significant, business services, owing mostly to adjustments in the once-booming personnel supply sector, lost 38,600 jobs over the year, a 5.4 percent decline and over 40 percent of all the jobs lost statewide from May 2001 to May 2002. The silver lining in this otherwise troubling statistic is that these were largely parttime jobs, so the state's loss of full-time jobs was a smaller share of the losses than the bottom-line number might indicate.

Service jobs are sometimes mischaracterized as requiring relatively low skills, being poorly paid and contributing little to overall economic growth. Many jobs in business, health, engineering and other professional services require extensive advanced education and training, and generate significant economic returns to the community and the state. Some of these high-wage sectors are the ones faring the best; over the long term, much of the growth of the Texas economy will continue to be generated by this sector.

Over the next two years, the outlook for the state's service sector should improve greatly as the demand for business-related services returns with the improving overall economy. In 2002, service sector employment will increase by 1.4 percent and then rise another 3.8 percent in 2003.

Local Public Schools Propel Government Sector Job Growth

Federal, state and local government employment growth continues at a moderate and steady rate. Overall, from May 2001 to May 2002, public sector employment was up 2.5 percent, or 38,800 jobs, with most of these gains coming from increased hiring at public schools and other local governments.

Texas' civilian federal government employment rose 2.0 percent, or by 3,500, during this period. The number of jobs in state government increased by 2.4 percent, or by 8,000. Local government employment, about half of which is fueled by public schools, increased by a whopping 27,300 jobs, or 2.6 percent, over the past year. The remaining local government job gains were in various other programs at the city, county and special district level. A relatively high birth rate and influx of new students from other states and countries continues to keep the state's school-age population growing.

As the economy picks up, the outlook calls for a gradual slowdown of Texas' public sector job growth over the next two years. In 2002, government employment growth is expected to continue to increase at a moderate 1.6 percent rate, but in 2003, growth will slow to 1.0 percent as tight budgets prevail and as school hiring needs at local public schools become, at least temporarily, satisfied.

Even With the Economic Slowdown, People Keep Moving to Texas

New residents continue to move to Texas. Migration in general responds to the economic opportunities in one region relative to the opportunities in other parts of the country and the world. At the height of the state economic boom in 1998, 225,000 more people moved into Texas than moved out. As the gap between Texas and U.S. job growth closed, however, migration declined to an estimated 167,000 in 2001. Over the next two years, the flood of new residents is expected to slip further, reaching a low point of 149,000 in 2003, before turning sharply upwards as job opportunities once again become more plentiful in Texas than the nation as a whole.

With natural increase (births minus deaths) averaging a little more than 210,000 per year, the state's population is expected to increase at an average of 1.7 percent annually, from 21.3 million in July 2001 to 22.1 million in July 2003. And by 2005, Texas will have nearly 23 million residents. Because a growing population helps support the demand for retail trade, services and government output, in the coming years Texas' continued population gains will help stabilize the state economy.



Upper Rio Grande Region Economic Trends and Outlook

Based on the Comptroller's new 13-region economic model of Texas, employment in the Upper Rio Grande region (covering a six county area surrounding the El Paso metropolitan area) is projected to grow at a 1.6 percent annual rate, about the same growth rate expected for the state as a whole. By 2005, total employment in the Upper Rio Grande region should reach more than 365,500 and should add an average of nearly 8,900 jobs each year from 2002 to 2005. Based on historical data since 1970, the Comptroller projects stable economic growth for the region. During the next five years, the Upper Rio Grande region should keep pace with the rest of the state. The primary challenge for this region is providing the educational skills needed to train its work force to meet the changing needs of business in an internet economy.

This report details recent economic changes in the Upper Rio Grande region, presents "base-





line" economic forecasts for key indicators through 2005, discusses the structural changes that have led and will lead to economic growth in the region, presents a forecast for occupational changes likely in the region over the next five years and identifies possible target industries for future development. Economic development leaders within the region may wish to use this report to guide development of the region's economy in upcoming years.

The Last 30 Years

The Upper Rio Grande region, surrounding El Paso, saw significant growth during the last 30 years of the 20th century. In real terms (1992 dollars), gross regional product in this region the sum total of all value added within the region—nearly tripled from \$5.5 billion in 1970 to \$15.4 billion in 2000 (Graph 1). This is an average annual growth rate of 3.5 percent.

During this time, the population of the Upper Rio Grande region nearly doubled, rising from 380,400 to 745,700. As a result of growth in the value of production in the region and somewhat slower population growth, per capita real incomes, although low by national standards, rose dramatically over the last 30 years. For example, in real terms (1992 dollars) disposable personal income—income not used to pay federal taxes—rose from \$9,600 in 1970 to \$14,770 in 2000. This means that the average person or household in the region has 54 percent more real purchasing power in 2000 than they did in 1970.

In terms of jobs, growth in this region was good during much of the 1970s and very early 1980s. Following the collapse in world oil prices in the early 1980s, the Mexican economy fell into a deep recession. In 1982, Mexico devalued its currency and nationalized nearly all of its banks. As a direct result of these economic storms, the Upper Rio Grande region saw employment decline in both 1982 and 1983. Employment growth resumed again in 1984 and averaged a 2.3 percent annual rate from 1983 to 2000.



These growth rates determine if the region is playing a larger role in the Texas economy. In terms of population, the Upper Rio Grande region has increased in size relative to the state, rising from about 3.4 percent in 1970 to 3.7 percent in 2000. In terms of both employment and gross regional product, the size of the Upper Rio Grande region has grown slightly slower in comparison to the state. In 1970, this region accounted for 3.1 percent of the state's employment and 2.9 percent of the gross regional product. By 2000, the Upper Rio Grande region acounted for 2.8 percent of employment and 2.5 percent of gross regional product with its share of the value of statewide production holding unchanged since 1996 (Graph 2).

Shifting Growth Patterns

Even within slowly growing economies, important structural shifts occur over time. These shifts often result from regional and even nationwide changes in production, consumption and technology. Understanding these shifts can help identify prospects for future growth within the region. Table 2 presents the historical employment figures for the Upper Rio Grande region for 18 broad industries in 1980, 1990 and 2000.¹ These industries correspond to a functional classification of activities within the region rather than one more traditionally defined through Standard Industrial Classification (SIC) codes usually used to examine the economic structure of a region. The sectors in this table are ranked according to the average annual growth rate in employment over the last 20 years.

Topping this list is business services. This growth is largely the result of a long-term reorganization of many existing businesses that increasingly rely on outsourcing. The post-World War II model of industrial organization continues to divide as more and more responsibilities that were previously held within the structure of the parent firm are now outsourced to other companies. In the case of responsibilities such as janitorial services, this is a trend towards specialization. In the case of copy machine repair, or training personnel to use new computer programs, outsourcing is driven by increasing technological sophistication as spe-

TABLE 2 Upper Rio Grande Region Employment and Growth 1980-2000						
	Em	ployment in Re	aion	Average Annual		
	1980	1990	2000	Growth Rate		
Services to Business	6,971	16,360	27,043	7.0%		
Healthcare	9,314	15,207	21,856	4.4%		
Tourism and Entertainment	14,179	22,008	32,344	4.2%		
High Tech, Communications, Aviation and Electronics	5,416	8,029	10,053	3.1%		
Construction, Building Materials	12,165	13,948	21,269	2.8%		
Local Government	22,921	31,424	39,991	2.8%		
Personal Services	8,352	14,095	14,174	2.7%		
State Government	5,393	4,994	8,627	2.4%		
Other Transportation and Public Utilities	8,988	9,494	14,246	2.3%		
Other Durable Goods Manufacturing	6,627	9,261	10,171	2.2%		
Other Services	9,110	12,393	13,469	2.0%		
Wholesale and Retail Trade	37,568	46,786	53,763	1.8%		
Finance, Insurance and Real Estate	15,489	15,837	20,140	1.3%		
Federal Government	8,828	9,912	9,009	0.1%		
Other Non-Durable Goods Manufacturing	22,395	24,394	22,334	(0.0)%		
Agriculture, Ag-related, Ag processing	7,347	7,191	6,480	(0.6)%		
Oil and Gas Production, Refining and Petrochemicals	611	700	489	(1.1)%		
Other	708	501	227	(5.5)%		



cially trained workers are needed to operate equipment. Increased use of contract workers that may replace full-time employees is direct outsourcing and drives the growth of business services employment because some of these contract workers are provided through temporary help agencies.

To a large extent the increasing use of contract labor is merely a reshuffling of employment opportunities from other sectors (manufacturing in particular) to this sector. As such, this shift represents a positive change in the productivity and competitiveness of these businesses rather than degradation of manufacturing capacity.

The second fastest growing industry is health care. Here, national trends are dominating regional growth. As incomes grow, more and more is spent on health care. As populations age, more and more is spent on health care. The increasing technological sophistication of health care, while improving the effectiveness of health care also drives up costs. Unfortunately, because health care is a service that most often must be administered by trained professionals on a oneon-one basis, the ability of technological innovations to lower personnel requirements-a byproduct of technology seen in many other industries-has not been as broadly felt in health care. As a result, the demand for health care services has risen rapidly over the past 20 years.

The third fastest growing sector is tourism and entertainment reflecting increasing wealth. With rising incomes consumers often have more leisure time—or at least more money to spend on leisure and entertainment. Rising real incomes are behind many of the gains in the entertainment and tourism as local residents spend more in the region on entertainment, and tourists from other regions visit the area.

The Upper Rio Grande region has seen some good growth in a variety of industries in the high tech area. In particular strong growth has been recorded in the electrical distribution euqipment industry, in electronic components and in electrical equipment. Beyond these industries, many of which are related to cross-border maquiladora trade, the Upper Rio Grande region has seen good growth in computer and data processing, in engineering services and in research and testing services.

At the other end of the growth spectrum are the areas in which the region has lost ground. In some cases, such as in the oil and gas industry, this is part of a much wider trend brought on by the distribution of natural resources and industry consolidation. Agriculture and ag-related employment is in decline in this region as it is in others because productivity improvements continue to allow this industry to produce more and more output with fewer and fewer workers.

Identifying Regional Comparative Advantage

One key to understanding how a region's economy evolves is to examine what unique advantages the region provides to certain industries, and how those industries have fared over time.

One device for identifying and summarizing the industries in which a region specializes is through a "location quotient." This descriptive statistic identifies which industries are unique to a region by comparing the percentage of employment in each industry in the region to the percentage of employment that the same industry accounts for in the nation as a whole. If an industry accounts for more of the region's total employment than it does of the nation's, the region is seen as specializing in that industry. Moreover, because the industry has flourished in the region, the region is said to have demonstrated a comparative advantage for that industry. In practice, the percentage of an industry in the region's employment base must usually greatly exceed the national percentage for the industry to be truly considered unique to the region.

The industries with location quotients greater than 1.5 in 2000 in the Upper Rio Grande region are identified in Table 3 along with the national employment growth rates from 1990 to 2000 of these industries. This list contains industries that are typically found in any list of industries unique to Texas as well as many industries that are unique to the Upper Rio Grande region.

Prominent in this list are footwear and apparel-related industries. These basic manufacturing employers have been mainstays of the El Paso economy for some time. But, as indicated by the negative growth rate in employment in these industries in the U.S. from 1990 to 2000, employers across the nation in these sectors have been under some pressure due largely to the international environment. Beyond the competitive international market for the goods produced in these industries is the fact that these industries are able to utilize new labor saving technology so that productivity improvements also contribute to employment declines.

Overall, outside of the trade services and plastics industries, many of the Upper Rio

Grande region's base industries have seen employment declines nationwide during the 1990s. In many cases international competition is causing job losses in addition to those positions eliminated through productivity gains.

This underscores that many of the industries in the Upper Rio Grande region that have grown there due to the region's unique attributes in the past are unlikely to be able to carry the region further into the next millennium. In particular, the apparel and oil and gas industry including related facilities for refining, have not created many new jobs over the past decade.

But while the location quotient is a useful measure to summarize the industries in which the region specialized in the past, it is a static measure. A more dynamic approach looks at the growth of industries in the region and compares that growth to what might have been expected

TABLE 3 Location Quotients for Key Industries in the Upper Rio Grande Region						
	Location Quotient	National Employment Average Annual Growth Rate 1990-2000				
Footwear, Except Rubber and Plastic	19.0	(8.6)%				
Primary Nonferrous Smelting and Refining	13.6	(3.0)%				
Apparel	12.5	(5.6)%				
Household Appliances	9.6	(0.4)%				
Household Audio and Video Equipment	7.2	(0.2)%				
Electric Distribution Equipment	4.4	(2.1)%				
Weaving, Finishing, Yarn, and Thread Mills	4.0	(2.8)%				
Service Industries for the Printing Trade	3.3	(2.4)%				
Miscellaneous Plastics Products	2.9	1.7%				
Paperboard Containers and Boxes	2.6	0.4%				
Miscellaneous Electrical Equipment	2.6	(1.3)%				
Concrete, Gypsum, and Plaster Products	2.5	0.9%				
Petroleum Refining	2.3	(3.0)%				
Miscellaneous Transportation Services	2.2	4.9%				
Trucking and Warehousing	2.1	3.1%				
Luggage, Handbags, and Leather Products	2.0	(2.3)%				
Paints and Allied Products	2.0	(1.7)%				
Grain Mill Products and Fats and Oils	2.0	(0.2)%				
Gas Utilities	1.9	(2.2)%				
Beverages	1.8	(0.3)%				
Dairy Products	1.7	(1.3)%				
Automotive Rentals, Without Drivers	1.6	(0.3)%				
Nonferrous Rolling and Drawing	1.5	(0.3)%				



had the industries followed the same growth pattern as these industries in other parts of the nation. This dynamic approach to looking at the region's economic structure is known as shiftshare analysis.

Like the location quotient, the approach in shift-share analysis is designed to develop a standard through which to assess if the currently observed level of industry concentration in a region is higher than expected, about what should be expected or less than expected. If local employment is greater than what might otherwise be expected, then the region has demonstrated some strength in attracting the growth of that industry. In practice, the yardstick usually employed is changes in each industry in the national economy, modified somewhat for local conditions.

One result of shift-share analysis is the "regional industry growth differential." This measure is the ratio of what employment in an industry in the region actually was in the most recent period divided by what industry employment would have been if it had historically grown at the same rate as the industry did across the nation. The interpretation of this measure of dynamic growth potential is that it represents the number of times larger (or smaller) actual employment is in the most recent time period compared to what it would have been if the industry had grown at the same rate as the industry did across the nation. In practice, industries

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Industry	Regional Industry Growth Differential	Average Annual Employment Growth 1980-2000
Weaving, Finishing, Yarn, and Thread Mills	52.38	18.9%
Miscellaneous Plastics Products	8.25	14.4%
Electronic Components and Accessories	2.83	6.9%
Electric Distribution Equipment	2.83	3.7%
Household Audio and Video Equipment	2.83	4.3%
Household Appliances	2.83	4.1%
Miscellaneous Electrical Equipment	2.83	5.4%
Electrical Industrial Apparatus	2.82	3.2%
Toys and Sporting Goods	2.77	5.4%
Footwear, Except Rubber and Plastic	2.53	(2.7)%
Industrial Machinery	1.88	4.1%
Special Industry Machinery	1.88	3.1%
Metalworking Machinery and Equipment	1.88	2.8%
Trucking and Warehousing	1.69	5.4%
Fabricated Structural Metal Products	1.65	2.8%
Paperboard Containers and Boxes	1.64	3.2%
Converted Paper Products Except Containers	1.64	3.4%
Household Furniture	1.60	3.1%
Petroleum Refining	1.53	(0.4)%
Blast Furnaces and Basic Steel Products	1.50	(1.7)%
Primary Nonferrous Smelting and Refining	1.50	(1.0)%
Nonferrous Rolling and Drawing	1.50	1.2%
Concrete, Gypsum, and Plaster Products	1.34	2.5%
Miscellaneous Fabricated Textile Products	1.33	2.3%
Apparel	1.33	(2.2)%
Producers, Orchestras, and Entertainers	1.29	6.8%
Amusement and Recreation Services	1.29	7.3%
Bowling Centers	1.29	1.1%

identified as unique in the region through the location quotient measure tend to be those that have demonstrated a sustained period of economic strength in the region, whereas those identified by the growth differential measure can be those starting to show some emerging strength.

Table 4 presents the industries in the Upper Rio Grande region that have a regional industry growth differential greater than 1.25 and employed at least 200 workers in 2000. The average annual rate of employment growth in the industry from 1980 to 2000 in the Upper Rio Grande region is also shown. The 1.25 cut-off point indicates that industry employment in 2000 in the region was 25 percent larger than would have been expected based on the industry's employment in 1980 and the growth of the region and industry nationwide from 1980 to 2000. In the same sense as with the static location quotient, these industries have demonstrated a significant level of concentration over time in the Upper Rio Grande region and show this region has some comparative advantage in their development.

There is some overlap between this list and Table 3, but it is far from complete. The region continues to show some strength in attracting parts of the apparel industry, but by far the biggest source of emerging strength is in attracting jobs either related to the maquiladora trade or to trade facilitation in general. In this regard the regions proximity to Ciudad Juarez is crucial. Ciudad Juarez has developed the largest concentration of maquiladora operations of any Mexican city, and much of the growth in plastics, electronics, audio and video equipment and other industries in El Paso and the region is directly linked to these operations.²

Overall, there does appear to be some significant trend toward industrial diversification in the Upper Rio Grande region including industries involved in international trade and many industries that require more highly skilled workers. Table 4 confirms some of the comparative advantages identified in the location quotient and helps identify others. Measures such as the location quotient or the industry growth differential identify industries for which the Upper Rio Grande region has demonstrated a comparative advantage. These industries define the competitive character of the region, and these measures are discussed in the last section of this report to identify industries with strong potential to help the region grow in the future.

Growth Forecasts Through 2005

Forecasted changes in the statewide economy and the strong theoretical framework of the 13-region Texas model allow the estimation of baseline forecasts of growth for each region in Texas. Overall, depending on the measure used, the Upper Rio Grande region during the first five years of the new millenium is expected to grow at about the same rate as it did during the last five years of the 1990s, and at about the same rate as the state as a whole. Through 2005, real gross regional product in the region—the total value added through production within the region—should expand at a 2.0 annual rate, from \$15.4 billion in 1992 dollars in 2000 to \$17.0 billion in 2005.

Through 2005, employment growth in the Upper Rio Grande region should average 1.6 percent annually, the same growth rate posted from 1995 to 2000 in the region, and the same rate expected for the state over the next five years. The region should add about 28,200 additional jobs from 2000 to 2005, rising from 337,400 in 2000 to 365,600 in 2005. As expected across the state, this rate of growth will be slowest during the next couple of years but will accelerate into 2004 and 2005. This level of economic growth will accompany moderating population gains. Population in the region is expected to rise from 745,700 in 2000 to 772,600 in 2005.



The employment growth seen in the region will not fall evenly across all industries, but there are two ways to look at the distribution of this growth. Table 5 presents the 25 top growth industries in the region in terms of the number of new jobs they will generate between 2000 and 2005. Large industries dominate this list because even low growth rates applied to a large employment base generate large numbers of new jobs. The top four ranked industries in terms of jobs added from 2000 to 2005 are also the four largest industries.

Many of the industries generating large numbers of new jobs in the Upper Rio Grande region through 2005 will be driven by changes in consumer expenditure patterns that have been seen over the past few years. For example, there is a continued shift towards expenditures on consumer services such as restaurants, health services, and child care activities. Many of the industries supplying these services employ a large number of people, so even moderate growth in the demand for these industries can result in sizable job growth. For example, an expected 8.1 percent annual growth in the demand for health care will generate a substantial number of new jobs.

In other cases, employment of school teachers, police, sanitation workers and most other local government employees will increase as population grows. As a result of even modest population and employment growth and the fact

	TABLE 5 Upper Rio Grande Industries Adding the Most Jobs Between 2000 and 2005 (Projected)					
	Regional Employment Jobs 2000 2005 Added					
1	Local Government	39,991	45,625	5,634	2.7%	
2	Retail Trade, Except Eating and Drinking Places	38,965	43,507	4,542	2.2%	
3	Eating and Drinking Places	20,844	23,680	2,836	2.6%	
4	Personnel Supply Services	11,784	14,133	2,349	3.7%	
5	Health Services	3,889	5,746	1,857	8.1%	
6	Miscellaneous Business Services	7,729	9,286	1,557	3.7%	
7	Hospitals	10,115	11,643	1,528	2.9%	
8	Offices of Health Practitioners	5,056	6,503	1,447	5.2%	
9	State Government	8,627	9,842	1,215	2.7%	
10	Automobile Parking, Repair, and Services	3,457	4,417	960	5.0%	
11	Computer and Data Processing Services	1,529	2,327	798	8.8%	
12	Communications	2,596	3,390	794	5.5%	
13	Trucking and Warehousing	9,813	10,466	653	1.3%	
14	Federal Civilian	9,009	9,622	613	1.3%	
15	Residential care	1,581	2,108	527	5.9%	
16	Miscellaneous Plastics Products	4,033	4,541	508	2.4%	
17	Hotels and Other Lodging Places	3,380	3,869	489	2.7%	
18	Educational Services	2,173	2,612	439	3.7%	
19	Child Day Care Services	2,546	2,957	411	3.0%	
20	Insurance Agents, Brokers, and Services	1,808	2,216	408	4.2%	
21	Services to Buildings	2,553	2,912	359	2.7%	
22	Air Transportation	1,695	2,009	314	3.5%	
23	Nursing and Personal Care Facilities	1,193	1,482	289	4.4%	
24	Individual and Miscellaneous Social Services	1,228	1,474	246	3.7%	
25	Insurance Carriers	1,044	1,282	238	4.2%	

that local government is a significant employer in the region already, this will likely generate more than 5,600 new jobs over the next few years.

Also fueling strong overall growth will be services provided to business, including personnel supply services, building services and miscellaneous business services. This will serve to aid businesses involved in trade with Mexico and will help existing firms continue outsourcing jobs, a strong trend seen in the business community over the past 20 years. Increased trade with Mexico will also fuel growth in trucking and warehousing activity.

A ranking of industries by their likely growth rate from 2000 to 2005, detailed in Table

6, reveals some of the forces driving changes in the Upper Rio Grande region. More technical, higher skilled workers are needed in these industries. Topping this list of high-growth industries is computer and data processing services, followed by health services, communications, health practioners and nursing, educational services, research and testing services, management and public relations, and hospital employment all industries relying on a well-trained, highly educated work force.

The importance of education and the need for work force training is most apparent when looking at how projected industrial growth translates into occupational change. Table 7 presents the forecast for the 25 occupations expected to

TABLE 6 25 Fastest Growing Industries in the Upper Rio Grande Region 2000 to 2005 (Projected)						
Regional Employment Jobs Percentage 2000 2005 Gained Growth						
1 Computer and Data Processing Services	1,529	2,327	798	8.8%		
2 Health Services	3,889	5,746	1,857	8.1%		
3 Residential Care	1,581	2,108	527	5.9%		
4 Communications	2,596	3,390	794	5.5%		
5 Offices of Health Practitioners	5,056	6,503	1,447	5.2%		
6 Video Tape Rental	421	538	117	5.0%		
7 Automobile Parking, Repair, and Services	3,457	4,417	960	5.0%		
8 Nursing and Personal Care Facilities	1,193	1,482	289	4.4%		
9 Water and Sanitation	208	258	50	4.4%		
10 Insurance Carriers	1,044	1,282	238	4.2%		
11 Insurance Agents, Brokers, and Services	1,808	2,216	408	4.2%		
12 Educational Services	2,173	2,612	439	3.7%		
13 Miscellaneous Business Services	7,729	9,286	1,557	3.7%		
14 Individual and Miscellaneous Social Services	1,228	1,474	246	3.7%		
15 Personnel Supply Services	11,784	14,133	2,349	3.7%		
16 Miscellaneous Equipment Rental and Leasing	752	894	142	3.5%		
17 Air Transportation	1,695	2,009	314	3.5%		
18 Motion Pictures	722	854	132	3.4%		
19 Research and Testing Services	988	1,167	179	3.4%		
20 Automotive Rentals, Without Drivers	729	847	118	3.0%		
21 Child Day Care Services	2,546	2,957	411	3.0%		
22 Commercial Printing and Business Forms	614	713	99	3.0%		
23 Miscellaneous Transportation Services	1,237	1,435	198	3.0%		
24 Management and Public Relations	1,089	1,261	172	3.0%		
25 Hospitals	10,115	11,643	1,528	2.9%		





add the most positions over the next five years. As in the case of the 25 industries adding the most jobs, this table tends to be dominated by occupations that employ a lot of people at the start of the forecast period, and grow moderately thereafter.

For example, the 13-region model breaks regional employment into 94 occupations. In the case of the Upper Rio Grande region, this would mean each occupational category would contain an average of about 3,600 people. The 25 occupational categories generating the most jobs in the region through 2005 typically have at least twice that number of jobs. Most of these large occupational categories will see moderate growth rates over the next few years, but because of their size generate a large number of new positions. But in some cases expected rapid growth rates in smaller occupational categories will drive large occupational growth, as is the case with computer scientists.

Table 8 presents the 25 occupations expected to grow at the fastest rates though 2005. In this list the importance of future training and

TABLE 7 Occupations in the Upper Rio Grande Region Adding the Most Positions 2000-2005 (Projected)

		<u>Occu</u> 2000	pations 2005	Occupation Job Gain	Average Annual % Growth
1 1	Food preparation and service	21,909	24,215	2,306	2.0%
2 1	Protective service	11,328	13,257	1,929	3.2%
3 (Other Clerical and Administrative Support Workers	19,616	21,461	1,845	1.8%
4 (Computer Scientists, Mathematicians and				
	Operations Researchers	4,032	5,776	1,744	7.5%
5 I	Managerial and Administrative	21,546	23,167	1,621	1.5%
6 -	Teachers, Librarians, Counselors	9,864	11,321	1,457	2.8%
7 9	Salespersons, Retail	10,446	11,728	1,282	2.3%
8 1	Motor Vehicle Operators	11,697	12,938	1,241	2.0%
9 1	Health Assessment and Treating	5,730	6,956	1,226	4.0%
10 I	Health Service	4,876	6,033	1,157	4.4%
11 (Cashiers	8,563	9,704	1,141	2.5%
12	Health Technicians and Technologists	5,228	6,327	1,099	3.9%
13 9	Social, Recreational and Religious Workers	4,297	5,252	955	4.1%
14 1	Management Support	10,329	11,279	950	1.8%
15 I	Helpers, Laborers and Material Movers, hand	14,261	15,078	817	1.1%
16 I	Personal Service	5,809	6,492	683	2.2%
17	All Other Sales and Related Workers	7,993	8,671	678	1.6%
18 \ 19	Vehicle and Mobile Equipment Mechanics and Repairers Material Receivers, Schedulers, Dispatchers	4,001	4,537	536	2.5%
	and Distributors	11,062	11,597	535	0.9%
20 I	Marketing and Sales Worker Supervisors	4,506	5,017	511	2.2%
21 I	nformation Clerks	4,345	4,811	466	2.1%
22 /	Adjusters, Investigators and Collectors	2,686	3,116	430	3.0%
23 (Cleaning and Building Servicing, Except Private	0.550	0.005		
	Household	8,553	8,966	413	0.9%
24	Technicians, Except Health, Engineering and Scientific	2,785	3,161	376	2.6%
25 I	Health Diagnosing	1,334	1,659	325	4.5%

education is evident. The list is led by the need for additional computer scientists, health diagnosing and health service workers, and includes health assessment workers, health technicians, life scientists, social scientists, other technicians as well as teachers, librarians and counselors. At least ten of the top 25 occupations are expected to growth the fastest during the next five years will require some advanced training beyond high school, and most of these will require either an associate's degree, a bachelor's degree or other advanced degrees.

Endnote



- State and Local government sectors were not defined separately until 1979.
- ² Federal Reserve Bank of Dallas, El Paso Branch, "A Decade of Change: El Paso's Economic Transition of the 1990s," *El Paso Business Frontier*, (Federal Reserve Bank of Dallas, El Paso, Texas), Issue 1, 2002.

TABLE 8 25 Fastest Growing Occupations in the Upper Rio Grande Region 2000-2005 (Projected)

		Occupations		Occupational	Average Annual
		2000	2005	Gain	Percent Gain
1	Computer Scientists, Mathematicians and				1
	Operations Researchers	4,032	5,776	1,744	7.5%
2	Health Diagnosing	1,334	1,659	325	4.5%
3	Health Service	4,876	6,033	1,157	4.4%
4	Social, Recreational and Religious Workers	4,297	5,252	955	4.1%
5	Health Assessment and Treating	5,730	6,956	1,226	4.0%
6	Health Technicians and Technologists	5,228	6,327	1,099	3.9%
7	Communication Equipment Mechanics,		State State Million		
	Installers and Repairers	241	286	45	3.5%
8	Protective Service	11,328	13,257	1,929	3.2%
9	Life Scientists	462	537	75	3.1%
10	Adjusters, Investigators and Collectors	2,686	3,116	430	3.0%
11	Insurance Sales Workers	378	438	60	3.0%
12	Teachers, Librarians, Counselors	9,864	11,321	1,457	2.8%
13	Water and Liquid Waste Treatment Plant				
	and Systems Operators	440	502	62	2.7%
14	Social Scientists	596	677	81	2.6%
15	Post Clerks and Mail Carriers	1,394	1,583	189	2.6%
16	Technicians, Except Health, Engineering and Scientific	2,785	3,161	376	2.6%
17	Vehicle and Mobile Equipment Mechanics and Repairers	4,001	4,537	536	2.5%
18	Cashiers	8,563	9,704	1,141	2.5%
19	Travel Agents	287	325	38	2.5%
20	Printing Workers, Precision	159	180	21	2.5%
21	All Other Professional Workers	1,956	2,210	254	2.5%
22	Numerical Control Machine Tool Operators,				
	Metal and Plastic	103	116	13	2.4%
23	Salespersons, Retail	10,446	11,728	1,282	2.3%
24	Personal Service	5,809	6,492	683	2.2%
25	All Other Transportation and				
1.45	Material Moving Equipment Operators	520	580	60	2.2%





Directions for Growth in the Upper Rio Grande Region

The preceding analysis of statewide and regional economic trends attests to a couple of concerns about the future direction of the region and the state. First, growth seems likely to slow in Texas and in the Upper Rio Grande region for the next few years. Second, although the region will experience a continuation of the level of growth seen in the last decade, future growth will focus in areas requiring a highly trained work force.

To help promote a brighter economic future, this section of the report will examine the likely growth prospects for various industries in the Upper Rio Grande region. In particular, this section examines both the traditional approach to seeking industries that have a *comparative* advantage in the region and the newer approach to identifying industry clusters as the driving force of economic development—industries that display a *competitive* advantage. Using both approaches and the advanced geographical concepts embedded in the Comptroller's new 13region economic model, this section identifies industries likely to be the cornerstones of future economic development in the region.

Comparative Advantage, Industry Clusters and Competitive Advantage

The traditional model of industrial development held that a region would tend to specialize in industries for which it held a comparative advantage. The source of this advantage was usually access to some key raw material, transportation mode or a labor supply with particularly scarce skills. Because the presence of this advantage allowed producers in the region to underbid other producers, the industry flourished.

More recently, in a much more interconnected world in which transportation costs are a much smaller component of production and workers and their skills are more mobile, industrial development experts have come to note another trend in the location of jobs. The economic growth of regions now involves "clusters" of interrelated industries that reinforce each other and foster the development of competitive advantage rather than basing development targets on the older and less dynamic theory of comparative advantage.

Economic clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries and associated institutions such as universities and trade associations, that compete but also cooperate.¹

Today's economic landscape is littered with industry clusters, some with household names such as Silicon Valley, Hollywood or Wall Street. Other clusters may be more anonymous or more geographically diffuse—mutual fund companies in Boston, the California wine industry, textile companies in North Carolina, fashion in northern Italy, insurance companies in Hartford, and recreation in Florida.

Oddly, clusters are becoming more prevalent just when geographical location seems to be less important because of worldwide outsourcing, just-in-time inventory and commerce over the Internet. In some important ways, however, things have changed.

In the old economy, in which production costs were heavily based on input costs, locations



with some key attribute or endowment—a raw material, a natural harbor, cheap labor—often enjoyed a comparative advantage over other sites. This advantage persisted for long periods of time and encouraged the growth of industry which could capitalize on the particular attribute.

For example, the development of the steel industry along the Great Lakes was the result of cheap transportation bringing together iron ore from the upper Great Lakes with the coal of Western Pennsylvania, Ohio and New York. Later, the low cost of labor led to the migration of New England's textile industry to the South, and ultimately, overseas.

In the modern economy, competition is global, not local or regional. Transportation modes are more efficient and faster. And competitive advantage based on making more productive use of inputs through continual innovation many times outweighs comparative advantage based on costs of production. This has not led to the death of geography as a factor in business success, but it has certainly changed how geography affects profitability. Harvard Business School professor Michael Porter notes, "The enduring competitive advantages in a global economy lie increasingly in local things, such as knowledge, relationships, motivation—things that distant rivals cannot match."²

Competitive and Comparative Advantage

The idea that economic clusters support economic growth and development is best presented by Porter in his book, *The Competitive Advantage of Nations*.³ Porter argues what has long been appreciated by economists, that a region's economic vitality is a direct product of the competitiveness of local industries. Porter's contribution is to document that conditions affecting competitiveness are not always simply cost-related or attributable to the availability of natural resources, particularly in "new economy" firms in which input costs are a small component of total costs. Instead, he notes that other conditions affecting a firm's ability to compete in the international marketplace are related in the degree to which it has successfully faced competition locally, and the degree to which the local economic environment supports the firm.

Porter says that any intense competition a firm faces in its local market is desirable because companies that survive a tough local market become stronger international competitors. This thinking is contrary to older, conventional wisdom that geographic isolation shields a producer from the unhealthy competition of a major rival, thus allowing the company to survive. Porter sees the geographic concentration of competitors as a positive for long-term economic growth and innovation in the region instead of negative competition between major employers that undermines the region's economy.

Porter's contention—that local linkages among suppliers, purchasers and other organizations supporting an industry's competitiveness can also be a source of increasing economic strength—is largely a recasting of the older economic concept of agglomerative economies of scale or the reductions in costs enjoyed by firms that locate near suppliers, purchasers or labor markets. Clusters of competing and cooperative firms together strengthen the competitive abilities of the affected industries. And in strengthening the competitive advantage of local firms, these same forces strengthen the local economy.

Measuring Comparative and Competitive Advantage

Balancing of both competitive and cooperative factors when defining a healthy local business environment has greatly complicated efforts to use simplistic tools to identify industry clusters. Tools such as the location quotient or shift-share analysis discussed in the previous chapter help identify industries that have flourished in the region in the past or at least are showing signs of relative strength. But such measures, while useful, are incomplete. Instead, a more unified approach is needed, taking into account not only what industries are found in the local area and in what concentrations, but also what industries are found in all other regions, in what concentrations, and how these concentrations interact.

One of the best tools available is the framework offered by Regional Economic Modules Inc. (REMI) in constructing their composite cost indexes for industries across the nation.⁴ These indexes summarize the relative cost of production for an industry located in a region based on access to material inputs, labor market conditions, labor productivity and other important cost components such as the local cost of construction, electricity and other fuels. If a region contains an abundant supply of materials critical to production or occupational types used by the industry, then the industry's composite cost index in the region should be low.

In addition, REMI has an index that rates the various industries in the region relative to the national average based solely on labor costs. This index incorporates the agglomerative effects of having a readily available labor supply of key occupational needs. As such, it is a crucial rating of how the region compares to a national norm based on labor costs.

Unfortunately, neither a low composite cost index, a high location quotient or a strong upward trend in shift-share measures can assure

TABLE 9 Top 25 Potential Employment Growth Targets for the Upper Rio Grande Region 2000-2005 (Projected)						
	Average Regional Applicability Rank (1)	Average Employment Growth Potential Rank During 2000 to 2005	Total Rank			
1 Computer and Data Processing Services	121	166	287			
2 Health Services	114	165	279			
3 Automobile Parking, Repair, and Services	116	155	271			
4 Miscellaneous Business Services	138	132	270			
5 Personnel Supply Services	141	127	268			
6 Miscellaneous Equipment Rental and Leasing	134	134	268			
7 Amusement and Recreation Services	132	135	267			
8 Research and Testing Services	97	163	260			
9 Offices of Health Practitioners	102	153	255			
10 Trucking and Warehousing	139	115	253			
11 Management and Public Relations	93	160	253			
12 Luggage, Handbags, and Leather Products	125	123	248			
13 Communications	102	147	248			
14 Books	108	137	245			
15 Legal Services	104	141	245			
16 Commercial Sports	122	121	242			
17 Miscellaneous Plastics Products	129	111	240			
18 Miscellaneous Transportation Services	83	156	239			
19 Accounting, Auditing, and Other Services	98	139	237			
20 Educational Services	101	135	236			
21 Video Tape Rental	121	114	235			
22 Nursing and Personal Care Facilities	96	140	235			
23 Residential Care	110	125	235			
24 Services to Buildings	134	101	234			
25 Automotive Rentals, Without Drivers	119	115	234			

(1) Based on rankings on location quotient, regional industry growth differential, composite total production costs and composite labor costs.

Note: Ranks may not add exactly due to rounding.





that an industry is a good growth prospect for the future. Some industries, because of international pressures, shifting consumer tastes or technological change simply are not in a growth mode. While it is possible for a region to gain an increasing share of a declining industry, as good public policy, pursuing such "hospice" industries is probably not an effective tool for economic development.

Accordingly, any analysis of industries purporting to rate prospects for future development must combine both comparative and competitive strength in a region with likely growth prospects for the industry as a whole either in the nation or in an area much larger than the region. Table 9 brings these considerations together to define a ranking for each industry in the region based on its location quotient, regional industry growth differential, composite price index, labor cost index and likely national and state growth potential from 2000 to 2005.

The first column of Table 9 is regional advantage index in which the industry's average ranking in the region among all industries based on the location quotient in the region, shift-share competitive trends, the composite price index and the labor cost index.⁵ The second column is a growth potential ranking based on the projected national growth trends for the industry and the state growth trends for the industry.⁶ The third column is the overall ranking of the industries for future development potential based on adding together the regional advantage ranking and the growth potential ranking.

Using this methodology, Table 9 presents the top 25 ranked industries for the Upper Rio Grande region based on both their display of some advantage within the region relative to the rest of the country and the likely growth potential. Several health care industries appear on this list underscoring that the Upper Rio Grande region is well-suited for these industries and that these will likely be national and statewide growth industries in the next few years. These sectors have been good job generators for the region in the recent past, have shown some affinity for the region and will likely continue to be good growth targets. These include miscellaneous health services (such as audiologists, nurses, paramedics, physician assistants, psychologists), general health practitioners, nursing and personal care facilities and residential care.

High-technology and evolving technology industries such as computer programming, research and testing services and communications appear high on this list. Also included are a number of business service sectors including personnel supply services, management and public relations, auditing and accounting services and services to buildings.

Endnotes

- ¹ Massachusetts Technology Collaborative, "The New Economy-What's a Cluster?" (http://www.mtpc.org/cluster/clustermore.htm).
- ² Michael E. Porter, "Clusters and the New Economics of Competition," *Harvard Business Review* (November-December 1998), p. 77.
- ³ Michael Porter, *The Competitive Advantage of Nations* (New York: Free Press, 1990).
- ⁴ The composite price indexes in REMI's modules which reflect new economic geography concepts of agglomeration have just been released in a new beta version of REMI. For further information contact REMI in Amhearst, Mass. At 413-549-1169 or <info@remi.com>.
- ⁵ The industries with a higher rank indicated a better fit for the region.
- ⁶ As in the regional advantage index, this growth index was scaled so that the industry with the best growth prospects was given a higher ranking.

Brewster County

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	VIII .

Population	Census 2000	Percent Change 1990-2000	Percent of County Population
Total	8,866	2.1	
Under age 5	482	(14.2)	5.4
Under 18	1,964	(4.3)	22.2
65 and over	1,297	6.6	14.6
85 and over	124	2.5	1.4
Male	4,411	0.7	49.8
Female	4,455	3.6	50.2
White	7,189	(13.4)	81.1
Black	108	27.1	1.2
Asian	33	(36.5)	0.4
Hispanic	3,867	4.5	43.6

Employment	2001	Percent Change 2000-2001	Average Annual Growth 1996-2001	Percent of County Employment	Firms in 2001
Total	4,287	2.3	4.4		422
Agricultural Services, Forestry, Fishing	111	0.0	4.5	2.6	22
Mining	13	(13.3)	(2.8)	0.3	5
Construction	128	(3.8)	2.9	3.0	37
Manufacturing	102	1.0	18.9	2.4	15
Transportation/Public Utilities/Communications	258	(3.0)	9.2	6.0	33
Wholesale Trade	241	16.4	23.8	5.6	49
Retail Trade	905	0.8	5.2	21.1	78
Services	1,067	6.3	9.0	24.9	118
Financial, Insurance,					
Real Estate	106	27.7	4.8	2.5	19
Government	1,348	(0.7)	(1.8)	31.4	42

Unemployment		Cha	inge Cha	inge	er e a 11
		2001 2000	-2001 1996	-2001 2001	State Kanking
Unemployment Rat	e	2.2 % (0).1) (0	.6)	228 th

Income	2000	Percent Change 2000-2001	Avg. Annual Percent Change 1995-2000	2000 State Ranking
Personal Income (Thousands)	\$198,022	8.6	7.9	172 nd
Average Per Capita Income	\$22,327	8.2	8.3	93 r d

Poverty		Change	Change	
	1999	1998-1999	1993-1999	1999 State Ranking
Poverty Rate	18.2 %	(2.2)	(3.6)	89 th
Ages 0-17	20.8 %	(8.1)	(6.4)	150 th
Ages 5-17 in Families	18.1 %	(13.0)	(7.5)	157 th

Property Values		Percent Change	Avg. Annual Percent		
	2000	1999-2000	Change 1995-2000	2000 State Ranking	
January 1st Total Property Value	\$515,167,515	5.2	5.9	182 nd	
Property Value Per Capita	\$58,106	4.3	6.2	115 th	

Sales Activity		Percent Change	Avg. Annual Percent
	2001	2000-2001	Change 1996-2001
Taxable Sales	\$60,060,996	12.3	5.9
Sales Tax Outlets	382	(2.6)	(0.3)

Education		Number of	Number of		Percent Enrollment Growth
		Districts	Schools	Enrollment	from Prior Year
Public Educatio	n 2001-02	4	7	1,435	(2.4)
Higher Educatio	on Fall 2001		1	1,992	(0.9)

unty	Population	Census 2000	Percent Change 1990-2000	Percent of County Population
	Total	2,975	(12.7)	
	Under age 5	224	(31.7)	7.5
	Under 18	957	(19.4)	32.2
- ATTMAT	65 and over	334	12.5	11.2
	85 and over	22	22.2	0.7
	Male	1,507	(12.8)	50.7
人子甘田谷和田子	Female	1,468	(12.5)	49.3
	White	2,051	(14.5)	68.9
- Contraction	Black	21	950.0	0.7
THE	Asian	17	(37.0)	0.6
KE I	Hispanic	2,149	(11.2)	72.2

Employment 2001		Percent Change 2000-2001	Average Annual Growth 1996-2001	Percent of County Employment	Firms in 2001
Total	985	2.8	(3.0)		91
Agricultural Services,					
Forestry, Fishing	56	(1.8)	(0.7)	5.7	7
Mining	44	63.0	(26.2)	4.5	5
Construction	1		(53.9)	0.1	1
Manufacturing	27	(10.0)	(12.6)	2.7	2
Transportation/Public Utilities/Communications	6	(14.3)	(11.4)	0.6	2
Wholesale Trade	7	(70.8)	(26.2)	0.7	1
Retail Trade	358	9.1	9.0	36.3	25
Services	102	12.1	(7.8)	10.4	16
Financial, Insurance,					
Real Estate	16	6.7	(1.2)	1.6	3
Government	365	(2.4)	1.3	37.1	27

Unemployment	/	2001	Cha	nge	Change	2001 State Panking
		2001	2000	-2001	1996-2001	2001 State Kanking
Unemployment Rat	te	7.5 %	(2	.6)	(1.6)	21 st

Income		Percent Change	Avg. Annual Percent	
	2000	2000-2001	Change 1995-2000	2000 State Ranking
Personal Income (Thousands)	\$43,708	(1.8)	4.9	233 r d
Average Per Capita Income	\$14,877	2.4	6.9	242 nd

Poverty		Change	Change	
	1999	1998-1999	1993-1999	1999 State Ranking
Poverty Rate	25.1 %	(5.2)	(6.2)	27 th
Ages 0-17	31.3 %	(7.4)	(5.3)	36 th
Ages 5-17 in Families	25.8 %	(16.9)	(10.4)	59 th

Property Values	2000	Percent Change 1999-2000	Avg. Annual Percent Change 1995-2000	2000 State Ranking
January 1st Total Property Value	\$259,753,250	8.1	2.6	235 th
Property Value Per Capita	\$87,312	9.6	4.2	54 th

Sales Activity	2001	Percent Change 2000-2001	Avg. Annual Percent Change 1996-2001
Taxable Sales	\$16,845,852	2.8	6.7
Sales Tax Outlets	86	(11.3)	(3.5)

Education		Number of Districts	Number of Schools	Enrollment	Percent Enrollment Growth from Prior Year
Public Educatio	on 2001-02	1	3	700	0.3
Higher Education	on Fall 2001				

Population	Census 2000	Percent Change 1990-2000	Percent of County Population
Total	679,622	14.9	
Under age 5	58,989	11.2	8.7
Under 18	217,423	12.8	32.0
65 and over	66,073	36.9	9.7
85 and over	6,185	54.9	0.9
A Male	327,771	14.0	48.2
- Hite Female - Fem	351,851	15.7	51.8
White	502,579	11.1	73.9
Black	20,809	(5.9)	3.1
Asian	6,633	2.3	1.0
Hispanic	531,654	29.2	78.2

Employment	2001	Percent Change 2000-2001	Average Annual Growth 1996-2001	Percent of County Employment	Firms in 2001
Total	248,532	(1.2)	1.3		10,831
Agricultural Services, Forestry, Fishing	1,894	(2.8)	(6.7)	0.8	222
Mining	254	647.1	47.8	0.1	8
Construction	11,617	(7.5)	1.6	4.7	939
Manufacturing	35.515	(6.9)	(4.4)	14.3	670
Transportation/Public Utilities/Communications	14,578	(1.5)	3.9	5.9	781
Wholesale Trade	11,715	(9.9)	(1.6)	4.7	1,183
Retail Trade	49,014	1.3	2.4	19.7	1,946
Services	57,488	(0.6)	3.6	23.1	3,910
Financial, Insurance,					
Real Estate	9,315	0.1	2.6	3.7	901
Government	56,901	3.3	2.7	22.9	167

Unemployment	Change Change 2001 2000-2001 1996-2001 2001 State Ranking
Unemployment Rate	8.2 % 0.0 (3.4) 16 th

Income	2000	Percent Change 2000-2001	Avg. Annual Percent Change 1995-2000	2000 State Ranking
Personal Income (Thousands)	\$12,642,892	5.5	5.2	8th
Average Per Capita Income	\$18,535	4.4	4.3	192 nd

Poverty		Change	Change	
	1999	1998-1999	1993-1999	1999 State Ranking
Poverty Rate	23.8 %	(3.0)	(6.4)	32 nd
Ages 0-17	31.7 %	(3.9)	(10.0)	34 th
Ages 5-17 in Families	31.2 %	(0.6)	(8.4)	31 st

Property Values	2000	Percent Change 1999-2000	Avg. Annual Percent Change 1995-2000	2000 State Ranking
January 1st Total Property Value	\$20,271,011,438	3.4	3.9	8th
Property Value Per Capita	\$29,827	6.8	3.5	242 nd

Sales Activity		Percent Change	Avg. Annual Percent
Taxable Sales	\$4,233,546,428	2000-2001	Change 1996-2001 3.5
Sales Tax Outlets	12,022	(4.4)	(0.5)

Education	Number of	Number of		Percent Enrollment Growth
	Districts	Schools	Enrollment	from Prior Year
Public Education 2001-02	9	201	158,469	1.7
Higher Education Fall 2001		2	34,576	4.9

unty	Population	Census 2000	Percent Change 1990-2000	Percent of County Population
	Total	3,344	14.7	
	Under age 5	288	33.3	8.6
	Under 18	1,141	23.0	34.1
HI TIMAT	65 and over	331	13.4	9.9
	85 and over	30	7.1	0.9
	Male	1,696	12.7	50.7
	Female	1,648	16.9	49.3
	White	2,917	24.4	87.2
C Salar	Black	11	(26.7)	0.3
ATT A	Asian	6	200.0	0.2
LE E	Hispanic	2,509	29.7	75.0

Employment	2001	Percent Change 2000-2001	Average Annual Growth 1996-2001	Percent of County Employment	Firms in 2001
Total	781	(2.4)	(0,3)		85
Agricultural Services, Forestry, Fishing	158	(1.3)	(5.8)	20.2	22
Mining	15	(11.8)		1.9	1
Construction	9	800.0	(5.6)	1.2	2
Manufacturing	24	0.0	(4.4)	31	1
Transportation/Public Utilities/Communications	67	(16.3)	(0.9)	86	5
Wholesale Trade	3	(72.7)	(19.7)	0.4	1
Retail Trade	87	(8.4)	3.9	11.1	16
Services	21	50.0	8.4	2.7	9
Financial, Insurance, Real Estate	10	(28.6)	(5.1)	1.3	3
Government	386	0.5	1.5	49.4	24

Unemployment		2001	Change 2000-200	Chango 1 1996-20	2 01 2001 Stat	te Ranking
Unemployment Rat	e	4.3 %	0.8	2.6	11()th

Income		Percent Change	Avg. Annual Percent	
	2000	2000-2001	Change 1995-2000	2000 State Ranking
Personal Income (Thousands)	\$51,059	11.7	10.9	229 th
Average Per Capita Income	\$15,219	10.6	9.3	236 th

Poverty		Change	Change	
	1999	1998-1999	1993-1999	1999 State Ranking
Poverty Rate	35.8 %	1.7	7.4	7th
Ages 0-17	41.4 %	(5.2)	8.2	10 th
Ages 5-17 in Families	41.0 %	(5.4)	7.4	11 th

Property Values		Percent Cha	inge Avg. Annual F	Percent
	20	00 1999-200	0 Change 1995	-2000 2000 State Ranking
January 1st lotal Prop	erty Value \$324,652,4	81 1.0	2.6	222 nd
Property Value Per Cap	oita \$97,0	85 (2.2)	1.0	43 r d

Sales Activity		Percent Change	Avg. Annual Percent
Taxable Sales	2001 \$3,683,463	2000-2001 (8.1)	Change 1996-2001
Sales Tax Outlets	56	(11.1)	0.0

Education		Number of	Number of		Percent Enrollment Growth
		Districts	Schools	Enrollment	from Prior Year
Public Education	n 2001-02	3	3	878	0.8
Higher Educatio	n Fall 2001				and the state of the second

Jeff Davis County

Population	Census 2000	Percent Change 1990-2000	Percent of County Population
Total	2,207	13.4	
Under age 5	90	(18.2)	4.1
Under 18	539	5.1	24.4
65 and over	359	(2.7)	16.3
85 and over	34	0.0	1.5
Male	1,128	12.7	51.1
Female	1,079	14.2	48.9
White	1,998	19.6	90.5
Black	20	185.7	0.9
Asian	2	(50.0)	0.1
Hispanic	783	1.7	35.5

Employment	2001	Percent Change 2000-2001	Average Annual Growth 1996-2001	Percent of County Employment	Firms in 2001
Total	927	3.6	6.3		83
Agricultural Services, Forestry, Fishing	234	9.9	21.6	25.2	12
Mining	0			0.0	0
Construction	23	(8.0)	0.9	2.5	7
Manufacturing	5	(37.5)	20.1	0.5	2
Transportation/Public Utilities/Communications	8	(11.1)	0.0	0.9	3
Wholesale Trade	1	(50.0)	0.0	0.1	1
Retail Trade	87	0.0	(1.1)	9.4	13
Services	271	13.4	5.9	29.2	20
Financial, Insurance, Real Estate	22	(45.0)	3.0	2.4	5
Government	276	1.1	2.5	29.8	20

Unemployment		2001	Change 2000-20	e Cha 01 1996	inge -2001 2001	State Ranking
Unemployment Rat	te	1.8 %	(0.3)	(1	.0)	239 th

Income		Percent Change	Avg. Annual Percent	
	2000	2000-2001	Change 1995-2000	2000 State Ranking
Personal Income (Thousands)	\$37,208	4.5	6.7	238 th
Average Per Capita Income	\$16,723	1.9	3.9	219 th

Poverty		Change	Change	
	1999	1998-1999	1993-1999	1999 State Ranking
Poverty Rate	15.0 %	(0.9)	(0.9)	159 th
Ages 0-17	17.6 %	(3.8)	(5.0)	184 th
Ages 5-17 in Families	16.6 %	(9.0)	(3.8)	177 th

Property Values	2000	Percent Change 1999-2000	Avg. Annual Percent Change 1995-2000	2000 State Ranking
January 1st Total Property Value	\$301,493,516	2.7	5.9	228 th
Property Value Per Capita	\$136,608	12.4	4.6	25 th

Sales Activity		Percent Change	Avg. Annual Percent
	2001	2000-2001	Change 1996-2001
Taxable Sales	\$5,799,984	0.4	3.0
Sales Tax Outlets	84	(7.7)	0.2

Education		Number o Districts	f	Number of Schools	Enrollment	Percent Enrollment Growth from Prior Year
Public Education	n 2001-02	2		3	392	(3,7)
Higher Educatio	n Fall 2001					, /

unty	Population	Census 2000	Percent Change 1990-2000	Percent of County Population
	Total	7,304	10.0	
	Under age 5	569	7.8	7.8
	Under 18	2,389	11.5	32.7
HIT THE	65 and over	1,017	10.5	13.9
	85 and over	107	23.0	1.5
	Male	3,545	10.3	48.5
	Female	3,759	9.8	51.5
	White	6,205	10.3	85.0
A Contraction	Black	20	233.3	0.3
VIII I	Asian	6	(62.5)	0.1
KB .	Hispanic	6,162	13.8	84.4

Employment	2001	Percent Change 2000-2001	Average Annual Growth 1996-2001	Percent of County Employment	Firms in 2001
Total	1,939	1.4	6.3		155
Agricultural Services, Forestry, Fishing	455	(8.8)	11.3	23.5	22
Mining	0			0.0	0
Construction	16	33.3	7.8	0.8	8
Manufacturing	19	(5.0)	3.5	1.0	3
Transportation/Public Utilities/Communications	57	1.8	(0.7)	2.9	8
Wholesale Trade	38	(32.1)	14.9	2.0	3
Retail Trade	315	12.1	8.6	16.2	36
Services	220	23.6	9.0	11.3	35
Financial, Insurance, Real Estate	67	24.1	7.8	3.5	10
Government	752	(0.3)	2.8	38.8	29

Unemployment	Change Change 2001 2000-2001 1996-2001 2001 State Ranking
Unemployment Rat	ie 23.4 % (4.0) (11.4) 1st

Income		2000	Percent Change 2000-2001	Avg. Annual Percent Change 1995-2000	2000 State Ranking
Personal Income (Thou	isands)	\$102,771	6.3	6.7	203 rd
Average Per Capita Inc	come	\$13,973	5.8	5.2	246 th

Poverty	1999	Chang 1998-19	e Chang 199 1993-19	e 1999 1999 State Ranking
Poverty Rate	36.4 %	3.5	(1,2)	4th
Ages 0-17	43.4 %	(0.3)	0.3	7th
Ages 5-17 in Families	43.0 %	0.9	(0.0)	7 th

Property Values		Percent Change	Avg. Annual Percent	
	2000	1999-2000	Change 1995-2000	2000 State Ranking
January 1st Total Property Value	\$303,482,075	5.3	3.1	227 th
Property Value Per Capita	\$41,550	29.0	4.3	192 nd

Sales Activity		Percent Change	Avg. Annual Percent
Taxable Sales	\$18,778,371	2000-2001	Change 1996-2001 8.4
Sales Tax Outlets	170	(7.6)	(1.1)

Education		Number of	Number of		Percent Enrollment Growth
		Districts	Schools	Enrollment	from Prior Year
Public Education	2001-02	2	6	1,957	0.2
Higher Education	Fall 2001				
Same -					The second s

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