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**NAFTA and the Lower Rio Grande Valley of Texas:
Measuring Impacts**

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Before its passage, the North American Free Trade Agreement (NAFTA) was the subject of extensive debate in the United States. In the northern states the debate concerned the impact on US farmers of competition with Canadian farmers. In the Southern and Western States debate centered on the impact on US farmers of competition with Mexican farmers. But the larger and more contentious debate was the impact on US workers. Opponents of NAFTA argued that US workers would be displaced as companies moved jobs to Mexico. Proponents argued that while some jobs would be lost to Mexico, this was a trend that had been happening for some time. In addition, proponents argued that the US economy would gain more jobs at higher wage rates.

Texas, sharing an extensive border with Mexico, saw itself as the trade crossroads between Mexico and the rest of the United States. The Pre-NAFTA expectations for Texas were mixed. The optimistic point of view was that South Texas was positioned to gain from increasing trade between the two countries. As then Governor Ann Richards stated: the NAFTA will put "us in the geographic center of a trade zone and make South Texas the front door to a \$6 trillion market, which is 25 percent larger than the European Economic Community" (UPI, 1992). The LBJ School of Public Policy reported that in Texas the NAFTA would create a total of 182,000 jobs between 1994 and 2003. Particularly in South Texas the percentage of the total jobs gained was estimated at 7.7%, third after Dallas-Fort Worth (41.4%) and Houston (21.3%) (Houston Chronicle, 1993b).

On the other hand there was a rather successful movement of environmentalists, (as proof of the inclusion of the environmental accord in the NAFTA) that was against the NAFTA. Environmentalists argued that increased trade would increase dumping and releasing of hazardous chemicals into the ground, water and air. The Houston Chronicle wrote in an editorial piece, "[T]here is little doubt that, without environmental safeguards, corporate outlaws would continue to abuse Mexico's--and our own--hunger for economic development. The environmental problem is exacerbated by population growth in border areas and inadequate pollution control and water supply facilities on both sides of the Rio Grande" (Houston Chronicle, 1993a). In addition to environmentalists, labor unions and other groups opposed the agreement arguing that it created the potential to lose many manufacturing firms to Mexico, a scenario that was expected to have devastating consequences on jobs. Particularly in Texas, moving plants a few hundred, or even a few miles, would put them across the border.

The Lower Rio Grande Valley (LRGV) is composed of four counties—Willacy, Cameron, Starr, and Hidalgo—in the Southern most tip of the State of Texas. The area has several major bridges between the two countries. Willacy is not directly on the land border, but does have access to the gulf. The four counties form a commuting zone, that is there is extensive commuting between the counties, and as such they form an economic region (Killian and Tolbert). The area is perceived as a distinct economic and social area within Texas. The LRGV is commonly referred to as “The Valley” and a person from “The Valley” is commonly referred to as a “Valley-ite”.

The Lower Rio Grande Valley region is already closely integrated, culturally, socially and economically with Mexico. The NAFTA was expected to further deepen the integration of the two. Given the debate in the US about the possible effects of NAFTA, proponents suggested that it may be the cure-all of the region, bringing abundant employment opportunities and increasing wages. Opponents predicted it would worsen the economic situation by simply moving jobs a few miles across the border. While it is too early for the full effects of the NAFTA to be in place, this paper attempts to determine preliminary directions of change in the Lower Rio Grande Valley of Texas. Given the region’s proximity to Mexico, positive or negative impacts of NAFTA might logically be expected to appear in this area more rapidly than in other areas. In addition, given the low per capita income of the region, positive impacts might more easily be detected than in other regions.

In this preliminary analysis, we begin with a description of the region. We then use US census data and the Regional Economic Information System data to show trends and growth rates in each major sector and to derive earnings and employment location quotients as well as shift-share analysis for the region. In particular growth has been expected in trucking and warehousing, wholesale trade and business services as goods move from the United States to Mexico and vice versa. Because the elapsed time that NAFTA has been in effect is short, our analysis may not be definitive, but it may be possible to at least see the direction of impacts.

We do the analysis based on decades for a consistent data series because US census are available every ten years. Our final period is only seven years, 1990-1997, because it is the most recent data available. NAFTA came into affect during this period. Because NAFTA was anticipated, some firms may have started investments and gearing-up prior to passage. Using 1990 as the starting date will include this anticipation build-up as an impact of NAFTA. Overall, using the longer period may give us a somewhat conservative view of the impact of NAFTA.

Description of the Lower Rio Grande Valley

Cameron and Hidalgo are metropolitan counties, while Willacy and Starr are non-metropolitan. The cities of Harlingen and Brownsville lie in Cameron County and the city of McAllen in Hidalgo. In addition, both counties have numerous smaller towns, many with large numbers of retiree in-migrants from northern states, particularly during

the winter months. Cameron and Hidalgo have major border crossings between the US and Mexico. In all four counties population has grown 15% or more since 1990 (Table 1). Willacy and Starr have no major towns. The major industry in Willacy (the smallest of the four) is farming, while in Starr it is government employment (Cook and Mizer).

In addition, these four counties have low per capita incomes and in recent years have lost ground, compared with the state of Texas and the nation (Figure 1). Willacy and Starr are labeled persistent poverty counties, making them among the poorest counties in the nation. This means they had a poverty rate of over 20% every census year since 1960 (Cook and Mizer). While Cameron and Hidalgo are not included in this category, because they are metropolitan counties, the data suggest that they are not substantially different on these measures from Willacy and Starr. Transfer payments, including social security, were 43.3% of 1997 total personal income in Starr County, 37.1% in Willacy, 29.2% in Hidalgo, and 29.0% in Cameron (BEA)

Demographics

In addition to growing rapidly, the ethnic composition of the population of LRGV of Texas is becoming more homogeneous. In 1980 Hispanics were approximately 80% of the population (Table 2). By 1997 Hispanics were 87% of the population. According to conservative estimates from the Texas State Data Center, Hispanics will be 92% of the LRGV population by the year 2010.

The age distribution indicates that the area's population is relatively young. According to the U.S. Census Bureau, 38% of the population is between the ages of 1 and 18; 52%, 19 and 64; and 10%, 65 and older (Table 3). Therefore, the age makeup in the LRGV of Texas is very young and will continue to be young. This is important to note because it indicates the need for large education expenditures for many years.

Currently, the annual dropout rate in the LRGV is higher than the Texas average. During the 1994-95 school year the Texas Education Agency reported the dropout rate for the LRGV of Texas was 1.9 compared to the state rate of 1.8. The dropout rate for 1997-98 shows a small improvement. The dropout rate for 1997-98 in the LRGV was 1.7 while the state rate dropped to 1.6.

Educational attainment of the adult population is also low. Sixty-two percent of adults over 25 have a high school degree or more in Cameron county, 58% in Hidalgo, 52% in Willacy, and only 38% in Starr. Education is becoming more important in the "new economy" composed of high tech manufacturing and high tech skills.

Per capita income in the LRGV is disproportionately lower than the per capita income of the state and that of the nation (Figure 1). Per capita income in 1997 for the LRGV of Texas was 11,853 dollars. During the same year the Texas per capita income

Table 1: Lower Rio Grande Valley Population, 1970 - 2010

Population by County	1970	1980	1990	1997	2010
Cameron	140368	209727	260120	322220	390735
Hidalgo	181535	283229	383545	513366	645664
Willacy	15570	17495	17705	19716	61659
Starr	17707	27266	40518	55705	23358
Total	355108	537717	701888	911007	1121416

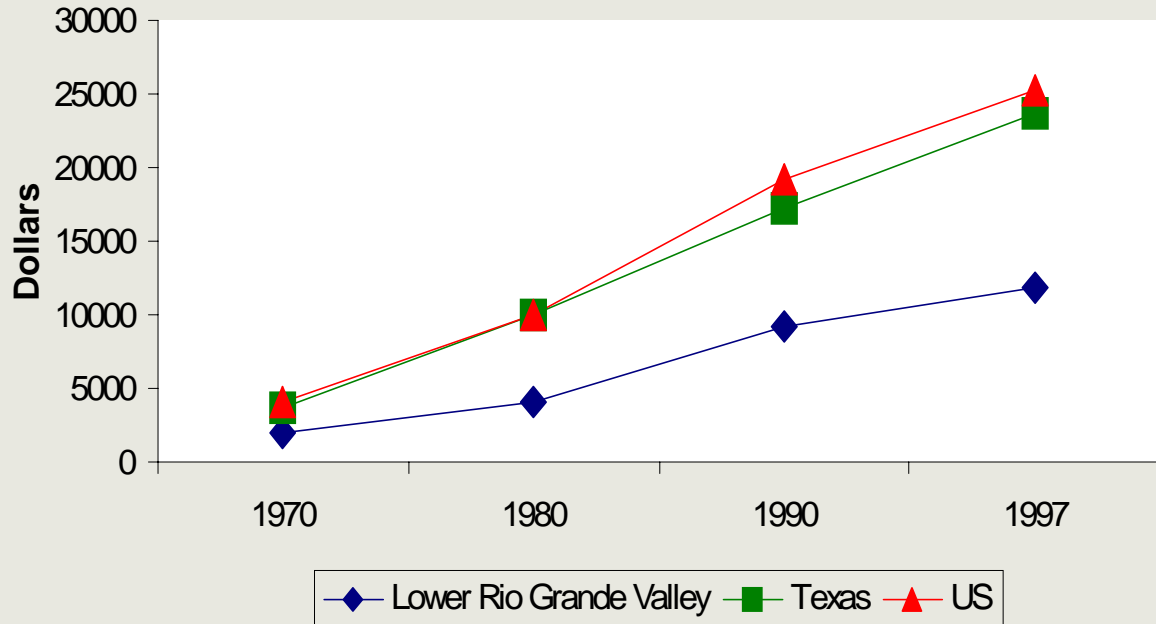
Table 2: Lower Rio Grande Valley Population Break-Down by Race, 1980 - 2010

Population by Race	1980	1990	1997	2010
Hispanics, all races	432446	594294	792799	1031318
White, non-hispanic	102314	103262	109841	83328
Black, non-hispanic	1294	1167	2964	1674
Other, non-hispanic	1869	3165	5403	5096
Total	537923	701888	911007	1121416

Table 3: Lower Rio Grande Valley Population Break-Down by Age, 1990

Population by Age	Lower Rio Grande Valley
Ages 1 - 18	268612
Ages 19 - 64	362489
Ages 65+	70787
Total	701888

Figure 1: Comparison of Per Capita Incomes, 1970 - 1997



was \$23,707, twice as high as per capita in the LRGV, and that of the nation was \$25,288

Economic Analysis

The paper uses basic economic analysis of the LRGV region. We will show trends in employment and earnings from 1970 to 1997. We will also calculate and analyze location quotients for the LRGV, as well as shift-share analysis. In general the analysis will place more emphasis on earnings than on employment because earnings are a better indicator of economic growth than is employment.

Location quotients compare the percentage of local earnings (or employment) in a sector with the percentage for that same sector in the national economy. Local sectors with an earnings (or employment) percentage higher than that of the United States are exporting sectors, that is they are bringing income into the local economy by producing more than is needed locally (Hustedde, Shaffer and Pulver). For purposes of this paper, an exporting sector will be defined as a sector with a location quotient above 1.25. Self sufficiency will be defined as a sector with a location quotient between .75 and 1.25. Local importing sectors are defined as those with location quotients below .75. The location quotient is a net concept, it does not mean that everything produced locally is consumed locally.

Also of interest is the change in location quotients over the time period of analysis. A declining location quotient indicates that the local sector is lowering its percentage contribution to the local economy as compared with the national sector's contribution to the national economy; an increasing quotient indicates that the local sector's contribution to the local economy is growing more rapidly than the national sector's contribution to the national economy. Positive impacts of NAFTA would be expected to result in increasing location quotients, and negative impacts in declining location quotients, since 1990. Not all growth and decline can be attributed to NAFTA and we will point out additional factors that may have had an impact on the regional economy.

A third use of location quotients is to compare the earnings and employment location quotients for the same sector. An earnings location quotient higher than the employment one indicates that returns to labor are higher in the local than in the national sector. This may suggest that local labor has particular skills, that the local resource is of high quality, that the local firms are well managed, or that the local firms use particular technology that gives them an edge. The opposite relationship would suggest opposite forces at work in the local economy.

Shift-share analysis allocates local growth or decline in each sector to three components (Hustedde, Shaffer and Pulver):

- 1) Some of the local growth or decline is caused by the growth or decline of the national economy. The sector is expected to grow at least as fast as the national

economy. If the national economy has grown over the period this component will be positive for all sectors of the local economy.

2) Some of the local growth or decline is caused by the mix of growing and declining sectors in the local economy. The local sector is expected to follow the growth or declining trend of the national sector. This component can be positive or negative, depending on whether the sector is a growing or declining sector in the national economy.

3) Some of the local growth or decline is caused by local factors that make the region more or less competitive for firms in the sector. If the local component is positive it may be due to a unique local resource, skilled labor, agglomeration economies, etc. To be able to pinpoint the reason more local investigation is needed. Negative local factors could be depletion of a resource, unskilled labor, outdated technology, etc.

The national growth component is calculated first, then the sector component. The remainder shows the competitiveness of the local sector. The net of the three factors is the actual growth or decline in earnings or employment in the local sector.

For presentation we have converted the numbers for each shift-share component into percentages. To do this we summed the absolute values of all three components. We then divided each component by this sum and multiplied by 100 to get the percentage contribution of each component to the local change in earnings or employment. If all the components of the shift-share are positive the percentage will add to 100. If one or more components is negative, they will add to less than 100. If there has been an earnings or employment loss they will add to less than 0. The larger the absolute value of the percentage the larger the impact of that component on the local sector.

Agriculture

Earnings from agriculture fluctuate in the LRGV; a common pattern in agriculture. From 1970 to 1980, earnings declined, increased in the next decade, and declined again from 1990 to 1997 (Table 4). Employment in the sector showed similar, but less dramatic, fluctuations: an increase, 1970-1980; a decline, 1980-1990; and an increase, 1990-1997.

The earnings location quotient shows fluctuation around a declining trend in agriculture, while the location quotient for employment in the sector appears relatively stable but declining. The 1997 earnings location quotient for agriculture is 1.19, suggesting net self-sufficiency in the local sector. The employment location quotient is 1.46, higher than the earnings location quotient. This suggests a lower wage rate in the region than the national average. It should be pointed out that the type of agriculture in the area, vegetables and fruits, primarily citrus, requires a larger amount of labor than other types of crops.

Table 4: Agricultural Sector Earnings and Employment Trends, Location Quotients and Shift-Share Analysis

Trends	Rate of Change			1997
	1970-1980	1980-1990	1990-1997	
Earnings (\$1000s)	-0.28	2.74	-0.3	\$73009
Employment	0.7	-0.32	0.00	8956
Location Quotient	1970	1980	1990	1997
Earnings	3.09	1.33	2.02	1.19
Employment	1.59	2.06	1.58	1.46
Shift-Share Analysis	Percentage of Local Change			
Earnings	National Component	Sector Component	Local Component	Local Change
1990-1997	36.72	-35.31	-27.97	\$-31,076,000
1980-1990	37.39	1.74	60.87	\$ 76,248,000
1970-1980	45.93	-41.66	-12.42	\$-10,689,000
Employment				
1990-1997	33.01	-49.37	17.62	42
1980-1990	28.67	-51.17	-20.15	-4291
1970-1980	19.53	-22.73	57.74	5447

The earnings shift-share analysis separates the local change into three components to determine the general areas of contribution to the change in the local economy. Part of the decline in local earnings in agriculture from 1990 to 1997 can be attributed to the fact that the agricultural sector is a declining sector in the United States. In addition, the negative local component indicates that the local agricultural sector is declining even more rapidly than the agricultural sector in the rest of the nation. This indicates that the current structure of agriculture in the region is not competitive and continued decline can be expected unless major changes are made in the local sector. The shift-share analysis for 1980-1990 shows all positive components, the 1970-1980 pattern is similar to that of 1990-1997. This suggests fluctuations around a long-term trend, as suggested by the location quotients. The employment shift-share analysis for the agriculture sector differs slightly from that of earnings (Table 10). The local component is positive, suggesting a local advantage. It may be that the local sector added jobs mainly because cheap labor allows it to substitute labor for capital and because of labor-intensive crops in the area.

There was concern that NAFTA would negatively affect the agricultural sector. Agriculture is a declining share of the national economy. In addition the above analysis suggests that the decline in the agricultural sector in the region began before NAFTA. It is possible that NAFTA has slightly accelerated the trend.

Forestry, Fishing and Agricultural Services

Closely related to agriculture is the sector of forestry, fishing and agricultural services. In the LRGV this sector is composed mainly of agricultural services and some fishing. The earnings trend in this sector does not closely follow the pattern of agricultural earnings, in fact the decades show growth, decline and growth--the opposite pattern of earnings in the agricultural sector (Table 5). Employment shows a pattern of growth followed by two decades of decline.

The location quotients show a declining trend, with a major decline between 1980 and 1990. Currently the employment location quotient is higher than the earnings, suggesting that local wages are lower than wages in this sector nationally. The relation between the two location quotients fluctuates from year-to-year. The sector has gone from being an exporting sector to only self-sufficiency.

The 1990-1997 earnings shift-share analysis for agricultural services shows that all local growth is due to growth in the national economy. Slow local growth is caused mainly by local factors. The local component has been negative since the 1980s. This suggests continued decline can be expected unless major changes are made in the local sector. For employment in the agricultural services sector, the sector component is positive, suggesting that this sector is adding labor more rapidly than other sectors in the national economy. Given that much of the national growth in this sector is in horticulture and landscaping, both labor-intensive, this finding is not surprising. The local component has been negative since the 1970s and overwhelms the positive

Table 5: Agricultural Services, Forestry, and Fishing Sector Earnings and Employment Trends, Location Quotients, and Shift-Share Analysis

Trends	Rate of Change			1997
	1970-1980	1980-1990	1990-1997	
Earnings (\$1000s)	2.36	-0.26	0.09	\$51526
Employment	0.72	-0.01	-0.15	6325
Location Quotient	1970	1980	1990	1997
Earnings	9.50	8.49	1.82	1.24
Employment	6.74	4.89	2.85	1.55
Shift-Share Analysis	Percentage of Local Change			
Earnings	National Component	Sector Component	Local Component	Local Change
1990-1997	56.49	-5.74	-37.77	\$4,463,000
1980-1990	25.61	21.08	-53.31	\$-16,942,000
1970-1980	66.40	0.36	33.24	\$44,933,000
Employment				
1990-1997	14.29	27.06	-58.65	-1114
1980-1990	18.14	31.49	-50.37	-67
1970-1980	34.13	65.04	-0.83	3153

impacts of national economic growth and the national sector growth. The negative local component suggests that the local industry is not adding labor as rapidly as the rest of the sector, perhaps because the mix of sub-sectors locally is different from the national mix, with less emphasis on horticulture and landscaping.

The forestry, fishing and agricultural services sector is related to the agricultural sector. Given declines in the agricultural sector it is not surprising to also find slowing of growth and an uncompetitive local sector. In addition, the above analysis suggests that the decline in the agricultural sector in the region began before NAFTA. It is possible that NAFTA has slightly accelerated the trend.

Mining

Earnings in mining have fluctuated around a declining trend (Table 6) as does employment. The earnings and employment location quotients are nearly identical, suggesting that wages in this sector are similar to the national sector wages. Both the earnings and employment location quotients show a declining trend in the region, that is the sector is declining in its contribution to the local economy relative to the national sector's contribution to the national economy. There is a small upturn from 1990 to 1997.

The shift-share analysis of both earnings and employment in the mining sector show the same pattern. While mining is a declining sector nationally (the sector component is negative in both cases), since 1990. The local sector is currently competitive. Part of the increase in the local sector earnings and employment can be attributed to positive local competitive factors, most likely because the particular local sub-sectors are oil and gas. During the 1980s, known as the oil bust in Texas, the local component was negative, but recovered in the 1990s. In the 1990s the local component had the largest impact on local earnings in the sector, but national growth also had an important impact.

It was not anticipated that this sector would be affected by NAFTA and the trends in the industry appear to be closely related to global forces in the industry.

Construction

Both earnings and employment in construction show increasing trends in the region (Table 7), although the rate of increase has slowed. The earnings and employment location quotients for 1997 are similar, suggesting that the wages in the sector are similar to those nationally. The earnings location quotients show a declining trend, with an upturn since 1990. The trend in employment has fluctuated, but also moved upward since 1990. Even with growth in the sector, it is still only self-sufficient.

The shift-share analyses both show that the local sector is competitive and local factors are the most important in local growth in the sector. Over time the local sector

Table 6: Mining Sector Earnings and Employment Trends, Location Quotients and Shift-Share Analysis

Trends	Rate of Change			1997
	1970-1980	1980-1990	1990-1997	
Earnings (\$1000s)	4.77	-0.40	0.69	\$54929
Employment	0.82	-0.33	0.06	1703
Location Quotient	1970	1980	1990	1997
Earnings	1.99	1.51	0.80	0.94
Employment	1.43	1.10	0.86	0.99
Shift-Share Analysis	Percentage of Local Change			
Earnings	National Component	Sector Component	Local Component	Local Change
1990-1997	38.99	-17.43	43.58	\$22,425,000
1980-1990	41.86	-43.80	-14.34	\$-21,493,000
1970-1980	32.78	55.27	11.95	\$44,642,000
Employment				
1990-1997	17.35	-45.63	37.02	100
1980-1990	28.64	-52.72	-18.64	-775
1970-1980	30.63	56.77	12.60	1072

Table 7: Construction Sector Earnings and Employment Trends, Location Quotients and Shift-Share Analysis

Trends	Rate of Change			1997
	1970-1980	1980-1990	1990-1997	
Earnings (\$1000s)	1.49	1.23	0.94	\$346256
Employment	1.18	0.09	0.55	17938
Location Quotient	1970	1980	1990	1997
Earnings	1.12	0.77	0.74	0.92
Employment	0.91	1.12	0.89	1.03
Shift-Share Analysis	Percentage of Local Change			
Earnings	National Component	Sector Component	Local Component	Local Change
1990-1997	38.27	-6.35	55.38	\$167,945,000
1980-1990	71.24	-7.34	21.42	\$98,220,000
1970-1980	95.14	-4.77	0.09	\$47,894,000
Employment				
1990-1997	22.68	5.11	72.21	6333
1980-1990	45.15	13.70	-41.15	915
1970-1980	21.28	2.88	75.85	5790

has remained competitive even though the national sector is declining in terms of earnings. The importance of local factors in the growth of the sector is increasing.

The rapid population growth noted in the section on demographics above may contribute to the increased demand for construction. It is not clear that the population growth is directly NAFTA-related. The increase in heavy construction projects, including public infrastructure, such as roads and bridges, likely is due to NAFTA. Even with growth in the sector, it is still only self-sufficient, suggesting that the impact from NAFTA has not been large.

Manufacturing

Both earnings and employment in manufacturing show growth in the region (Table 8), although the rate of increase has slowed. The employment location quotient is higher than the earnings location quotient in the region. This suggests lower wages than the national, perhaps due to the high percentage of unskilled labor in the region. Trends in both the earnings and employment location quotients are relatively steady, suggesting that the region is maintaining its share of the local economy relative to the national manufacturing sector. The region is a net importer of manufactured goods.

The shift-share analyses show that manufacturing has been a declining sector nationally for many years. The local sector has grown more rapidly than the national sector over the period of the study. National economic growth is the most important factor in the growth of the local sector and its importance is increasing.

It was anticipated that manufacturing would be negatively affected by NAFTA, but trends in the sector existed before NAFTA, and there is no obvious change in the trends since NAFTA. Manufacturing in the region has been competing with the maquiladora industries for many years. The study does not support the expectation that manufacturing would be negatively affected by NAFTA.

Transportation, Communications, and Public Utilities

Both earnings and employment in the transportation, communications and public utilities sector show fluctuations in growth rates in the region, with an upturn in the rates of growth since 1990 (Table 9). The earnings and employment location quotients for 1997 are similar, suggesting that the wages in the sector are similar to those nationally. Both the earnings and employment location quotients show a declining trend, with an upturn since 1990. The region is barely self-sufficient in this sector.

Transportation, communications and public utilities currently is a growing sector nationally; a turn-around for the sector, most likely because of the increased importance of electronic communication. The shift-share analyses show that the local sector currently is competitive. Local factors are the most important in the growth of the local sector.

Table 8: Manufacturing Sector Earnings and Employment Trends, Location Quotients and Shift-Share Analysis

Trends	Rate of Change			1997
	1970-1980	1980-1990	1990-1997	
Earnings (\$1000s)	5.01	0.71	0.38	\$631677
Employment	1.51	0.20	0.09	28270
Location Quotient	1970	1980	1990	1997
Earnings	0.38	0.65	0.59	0.54
Employment	0.36	0.62	0.74	0.70
Shift-Share Analysis	Percentage of Local Change			
Earnings	National Component	Sector Component	Local Component	Local Change
1990-1997	65.06	-19.68	15.26	\$175,548,000
1980-1990	64.40	-27.55	8.06	\$190,029,000
1970-1980	29.20	-3.23	67.57	\$221,834,000
Employment				
1990-1997	34.87	-38.01	27.12	2217
1980-1990	29.37	-36.78	33.85	4281
1970-1980	13.20	-10.28	76.52	13110

Table 9: Transportation Sector Earnings and Employment Trends, Location Quotients and Shift-Share Analysis

Trends	Rate of Change			1997
	1970-1980	1980-1990	1990-1997	
Earnings (\$1000s)	2.60	-0.00	1.84	\$363813
Employment	0.51	0.18	0.51	13235
Location Quotient	1970	1980	1990	1997
Earnings	1.12	1.02	0.48	0.80
Employment	0.82	0.77	0.74	0.84
Shift-Share Analysis	Percentage of Local Change			
Earnings	National Component	Sector Component	Local Component	Local Change
1990-1997	22.42	1.96	75.63	\$235,795,000
1980-1990	49.95	-12.17	-37.88	\$-246,000
1970-1980	60.25	5.30	34.45	\$92,602,000
Employment				
1990-1997	24.34	5.33	70.33	4461
1980-1990	71.52	-20.23	8.25	1350
1970-1980	36.79	-12.53	50.67	2514

It was anticipated that the region would benefit from growth in this sector as a result of NAFTA. The uptrend in earnings and employment growth since 1990, the upturn in the location quotients, and the positive local component in the shift-share analysis suggest that the region has experienced some positive impacts from NAFTA in this sector. The fact that the sector is only self-sufficient suggests that the NAFTA impacts have not been large.

Wholesale Trade

Both earnings and employment in wholesale trade show fluctuations in growth rates in the region (Table 10), with a small upturn since 1990. The earnings and employment location quotients for 1997 are similar, suggesting that the wages in the sector are similar to those nationally. Both the earnings and employment location quotients show a continually declining trend, suggesting that the wholesale trade is a declining share of the local economy relative to the nation. The region is only self-sufficient in wholesale trade. With NAFTA it was expected that this would be an exporting sector.

Wholesale trade is a declining sector nationally—it is growing more slowly than the national economy. The shift-share analyses show that the local sector is growing more rapidly than the national sector. The negative local component in the 1980s is likely associated with the downturn in the Texas economy. National economic growth, rather than local factors, is the major cause of local growth in this sector.

It was anticipated that the region would benefit from growth in this sector as a result of NAFTA, and that the local sector would be an exporting sector. While there is a small upturn in earnings and employment growth since 1990, the location quotients are declining. The shift-share analysis suggests that the major contributor to local growth in this sector is national economic growth rather than local factors. In addition, the sector is only self-sufficient. The combination of these factors suggest that the local region has not experienced positive impacts from NAFTA in this sector.

Retail Trade

The rate of growth in both earnings and employment in retail trade has slowed since 1990 (Table 11). The employment location quotient is lower than the earnings location quotient in the region. This suggests higher wages than the national sector, perhaps due to higher purchases by consumers who then transport the goods to Mexico. Trends in both the earnings and employment location quotients have fluctuated with employment being more stable than earnings (Table 16). Both declined slightly from 1990 to 1997. The decline in growth trends and location quotients may have been due to the devaluation of the peso, which negatively affected retail sales to Mexico.

Table 10: Wholesale Trade Sector Earnings and Employment Trends, Location Quotients and Shift-Share Analysis

	Rate of Change			
Trends	1970-1980	1980-1990	1990-1997	1997
Earnings (\$1000s)	2.88	0.30	0.42	\$320755
Employment	0.73	-0.03	0.12	12342
Location Quotient	1970	1980	1990	1997
Earnings	1.68	1.56	0.87	0.77
Employment	1.29	1.18	0.93	0.83
Shift-Share Analysis	Percentage of Local Change			
Earnings	National Component	Sector Component	Local Component	Local Change
1990-1997	86.14	-6.43	7.44	\$94,509,000
1980-1990	58.52	-4.73	-36.75	\$51,969,000
1970-1980	54.30	10.46	35.24	\$129,372,000
Employment				
1990-1997	60.46	-21.84	17.71	1276
1980-1990	46.31	-12.70	-40.99	-399
1970-1980	34.61	17.15	48.24	4824

Table 11: Retail Trade Sector Earnings and Employment Trends, Location Quotients and Shift-Share Analysis

	Rate of Change			
Trends	1970-1980	1980-1990	1990-1997	1997
Earnings (\$1000s)	2.01	3.03	0.48	\$932503
Employment	0.70	0.41	0.24	63222
Location Quotient	1970	1980	1990	1997
Earnings	1.08	0.94	1.67	1.55
Employment	1.26	1.19	1.24	1.16
Shift-Share Analysis	Percentage of Local Change			
Earnings	National Component	Sector Component	Local Component	Local Change
1990-1997	72.33	-7.97	19.71	\$302,402,000
1980-1990	31.18	-3.87	64.96	\$473,770,000
1970-1980	64.58	-8.41	27.01	\$104,478,000
Employment				
1990-1997	50.84	12.38	36.78	12377
1980-1990	53.32	14.33	32.34	14776
1970-1980	35.97	7.74	56.30	14840

The shift-share analyses show that the local sector is growing more rapidly than the national sector, that is the local sector is competitive. But the major source of growth in the local sector is national economic growth, not local factors. This is a reversal from the 1980s.

The retail sector of the area was trading with Mexico before NAFTA. It was anticipated that retail trade would increase after NAFTA. The devaluation of the peso, however, decreased retail sales for a time. Although the year-to-year sales are not shown in this paper, recent data suggest that retail sales are again increasing. At this time the region has not felt a positive impact from NAFTA, perhaps because of the peso devaluation during the same period.

Finance, Insurance and Real Estate

The rate of growth of both earnings and employment in the finance, insurance and real estate sector has been decreasing since 1970 (Table 12). The employment location quotient is higher than the earnings location quotient in the region. This suggests lower wages than the national average. The earnings location quotient shows a declining trend overtime and the region has lost self-sufficiency. The employment location quotients have also declined, but not as rapidly.

The earnings shift-share analysis shows that the sector is growing nationally, but local factors are negatively affecting the growth of the sector. The employment shift-share analysis shows the opposite pattern, with the sector declining nationally and growing locally. The differences in the national components between the two analysis suggests that nationally the employment in the sector has not increased as rapidly as earnings. The opposite appears to be happening locally—employment growth has not slowed as much as earnings growth. The growth of the national economy is the major factor in local growth in this sector.

This is also a sector that expected to benefit from NAFTA. The data do not show a benefit to the region from NAFTA. At the same time it is difficult to suggest how NAFTA could have harmed the local sector. Perhaps the decline is due to non-NAFTA factors, such as consolidation in the industry that moved earnings to other areas of the state or nation. On the other hand the negative local component on earnings indicates that the local firms are not competitive. Perhaps they do not have the skills to offer the range and complexity of services needed with increased trade.

Services

Both earnings and employment in services are growing, but the rate of growth for both has slowed since 1990 (Table 13). The employment location quotient is lower than the earnings location quotient in the region. This suggests higher wages than the national, perhaps because with NAFTA demand for some services has increased more rapidly than supply given the low levels of education in the region. Trends in both the

Table 12: Finance Sector Earnings and Employment Trends, Location Quotients and Shift-Share Analysis

	Rate of Change			
Trends	1970-1980	1980-1990	1990-1997	1997
Earnings (\$1000s)	3.32	0.84	0.59	\$270781
Employment	0.78	0.25	0.29	17377
Location Quotient	1970	1980	1990	1997
Earnings	0.91	0.93	0.61	0.48
Employment	0.80	0.73	0.70	0.71
Shift-Share Analysis	Percentage of Local Change			
Earnings	National Component	Sector Component	Local Component	Local Change
1990-1997	47.78	36.15	-16.07	\$100,093,000
1980-1990	56.12	16.88	-27.00	\$77,896,000
1970-1980	47.13	10.09	42.78	\$71,308,000
Employment				
1990-1997	36.89	-6.72	56.39	3911
1980-1990	87.43	1.23	11.34	2692
1970-1980	32.19	22.79	45.02	4725

Table 13: Services Sector Earnings and Employment Trends, Location Quotients and Shift-Share Analysis

	Rate of Change			
Trends	1970-1980	1980-1990	1990-1997	1997
Earnings (\$1000s)	1.26	3.90	0.90	\$1812533
Employment	0.68	0.80	0.49	87369
Location Quotient	1970	1980	1990	1997
Earnings	1.23	0.63	0.92	0.96
Employment	0.93	0.77	0.84	0.87
Shift-Share Analysis	Percentage of Local Change			
Earnings	National Component	Sector Component	Local Component	Local Change
1990-1997	45.80	14.79	39.40	\$859,318,000
1980-1990	26.27	19.97	53.76	\$758,619,000
1970-1980	55.57	16.77	-27.66	\$108,399,000
Employment				
1990-1997	25.30	25.27	49.43	28701
1980-1990	27.33	41.05	31.62	26061
1970-1980	37.00	31.87	31.13	13193

earnings and employment location quotients have fluctuated with employment being more stable than earnings. Location quotients have been stable since 1990. The region is only self-sufficient in this sector.

The shift-share analyses show that the sector is a national growth sector and that the local sector is growing more rapidly than the national sector. Both national economic growth and local factors are contributing to the local growth in this sector.

This is a sector that anticipated growth due to NAFTA, especially in the area of business services to both U.S. and Mexican firms who wished to increase their trade. The data suggest that NAFTA has had a positive impact on the region in this sector.

Government

The rate of growth in both earnings and employment in government has slowed since 1970 (Table 14). The employment location quotient is lower than the earnings location quotient in the region. This suggests higher wages than the national average for the sector. Trends in both the earnings and employment location quotients are increasing since 1970, suggesting that government is increasing as a percentage of the local economy in the region faster than in the nation. The size of the location quotients suggests that the region is exporting government services. It is more likely that demand for government services is higher than normal in the region. The border requires more state and federal employees. In addition a rapidly-growing young population increases the need for education and other public services.

The shift-share analyses show that the sector is a declining sector nationally and that the local sector is growing more rapidly than the national sector. Both growth of the national economy and local factors contribute to the growth of this sector locally.

It was anticipated that NAFTA would increase government employment in the area, as increased trade would require more border employees. At the same time the rapid increase in population, noted above, would increase local government employment, particularly in education, given the young age of the population. Growth in the sector has slowed and the growth appears to be a combination of factors, including NAFTA.

Summary

NAFTA went into effect in 1994. We anticipated that it would be too soon to fully evaluate the impacts of NAFTA on the Lower Rio Grande Valley Region of Texas. In addition, the treaty is being implemented in stages so that impacts cannot fully materialize until the treaty is completely implemented. At the same time our analysis does suggest the direction of impact in some sectors. In general the impacts of NAFTA on the region have not been as pronounced, either positively or negatively, as the proponents and opponents suggested prior to passage. In many cases, NAFTA

Table 14: Government Sector Earnings and Employment Trends, Location Quotients and Shift-Share Analysis

	Rate of Change			
Trends	1970-80	1980-1990	1990-1997	1997
Earnings (\$1000s)	6.16	1.59	0.64	\$1760658
Employment	0.79	0.33	0.28	66192
Location Quotient	1970	1980	1990	1997
Earnings	0.77	1.60	1.68	1.79
Employment	1.10	1.23	1.36	1.46
Shift-Share Analysis	Percentage of Local Change			
Earnings	National Component	Sector Component	Local Component	Local Change
1990-1997	48.49	-12.44	39.08	\$686,953,000
1980-1990	64.59	2.62	32.79	\$658,409,000
1970-1980	23.78	-3.17	73.05	\$357,300,000
Employment				
1990-1997	26.05	-20.62	53.34	14449
1980-1990	43.22	-17.13	39.65	12906
1970-1980	26.36	-8.85	64.79	17080

appears to have accelerated a trend already in place. The unanticipated devaluation of the peso most likely retarded positive impacts and may have increased negative impacts.

Prior to NAFTA the region did not appear to have benefitted much from its proximity to Mexico, as evidenced by few exporting sectors in the local economy in the 1970s and 1980s. Thus the area was not in position—it had not developed the capacity—to take advantage of new opportunities from NAFTA. The low educational levels in LRGV may be an important obstacle in the ability of the area to develop the capacity needed to take advantage of new opportunities.

The feeling of many residents of the LRGV is that the benefits of NAFTA have by-passed them. This study suggests that their perception is accurate. The large cities of Texas appear to be the major beneficiaries of NAFTA, rather than the border regions.

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