

BINATIONAL BORDER TRANSPORTATION PLANNING AND PROGRAMMING STUDY

Task 10 Economic Impacts of U.S.-Mexico Binational Trade Case Study Appendix

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BINATIONAL BORDER TRANSPORTATION PLANNING AND PROGRAMMING STUDY
ECONOMIC IMPACTS OF UNITED STATES-MEXICO BINATIONAL TRADE:
CASE STUDY APPENDIX

The objective of the Task 10 report is to quantify and evaluate the economic impacts of the current volumes of goods transported to, from, and within the border region on the communities within that area. This document is an appendix to the Task 10 report.

The Task 10 report begins with an introduction of the methodological assumptions, techniques, and sources of data used to undertake this analysis. The scope of the investigation is outlined as are the resource constraints pertinent to this study. This introduction sets forth a "top down" analysis methodology for the U.S. assessment, beginning first with an analysis of national, then state, then local economic impacts associated with binational trade. The Mexico methodology, reported separately, follows via a "bottom-up" approach.

There are three chapters which cover the national and state level costs and benefits of Binational trade. Chapter 5 of the Task 10 report presents an economic overview of the six case study border communities that have been selected for detailed investigation. This discussion is formatted to facilitate and emphasize the review of local transportation, land use, and economic issues affecting binational traffic and trade. This appendix contains the detailed data and analysis of the six case study locations. It was originally designed to be Chapter 5 of the Task 10 report, however, only the summary section was included in the Task 10 report.

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Preface

U.S./Mexico Binational Border Transportation Planning and Programming Study implements a significant binational policy making document entitled "Memorandum of Understanding on the Planning Process for Land Transport on Each Side of the Border" signed by the federal governments of Mexico and the United States at the first "NAFTA Transportation Summit" held in Washington, D.C., April 29, 1994.

The purpose of this study is to provide policymakers with information needed to establish a continuous, joint, binational, transportation planning and programming process. A goal of this study is to improve the efficiency of the existing binational policy making planning procedures and funding criteria affecting our Border Land Transportation Systems (BLTS). The BLTS should be seen as a binational transportation system made of international bridges and border crossings and land connections to major urban and/or economic centers, principal seaports, airports and multimodal/transfer stations, and ultimately, to national transportation facilities.

Disclaimer

The purposes of the Binational Planning and Programming Study and all of its reports were: to investigate current state and national transportation planning processes in both the United States and Mexico, to review available data on border transportation infrastructure and goods movement, and to recommend an ongoing, binational planning and programming process. The information contained in these reports was not developed to serve as the basis for making funding allocation or distribution decisions at either the federal or state level in the United States.

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10.5 Border Trade and the Border Economies

Previous sections of this report have examined the impacts of cross border trade on the national economies of the United States and Mexico. This chapter analyzes impacts of trade on the border economies, the regions of both nations where ground transport of goods is concentrated in a limited number of crossing points or ports of entry. The objective is to contribute to the evaluation of the benefits and costs of trade by determining whether border economies have a higher concentration of jobs, payroll and establishments devoted to manufacture, wholesale, and transportation of traded goods, compared to other areas not located at the border.

The analysis is based on 10-year trends (1980 through 1990) as well as more recent data on economic indicators such as personal income, tax base, demographics, educational levels, and the industrial structure of the border economies including the type of commodities and services that form the economic base. Economic impacts on the local economies from trade are estimated from review of trade-related industries located within the border communities including manufacturing, wholesale activity, and transportation. Indicators examined include employment, payroll (as a component of personal income) and number of establishments.

10.5.1 Summary of Findings

Six case study cities were analyzed. The most significant findings of the analysis for the United States are shown in Table 10.36. On the U.S. side, the results suggest that border trade is a major contributor to the economic structure of Nogales, El Paso, Eagle Pass, and Laredo, accounting for more than 10 percent of employment in the total economy of each. Trade supports about two percent of the employment of Brownsville, and less than one percent of San Diego employment. Among the case study cities on the U.S. side, trade creates the largest payroll in El Paso (more than \$330 million) and supports the largest number of firms in Laredo (555).

Chapter 10.3 provided estimates of employment in border states related to trade with Mexico. The 1,767 trade-related jobs in Nogales make up 12.6 percent of Arizona's jobs supported by trade with Mexico, based on the estimates from the Exporter Location data from the U.S. Department of Commerce. The 19,965 El Paso trade jobs account for 11 percent of the jobs created in Texas by trade with Mexico. The 6,675 trade jobs in San Diego, although less than one percent of employment in the metropolitan area, nonetheless account for nine percent of California's jobs supported by trade with Mexico.

While border cities have experienced rapid growth since 1987 in sectors related to trade with Mexico, levels of income remain below the state average in the border communities, and unemployment rates are consistently very high. With the exception of San Diego, the tax base is low in these communities, especially when measured as a per capita figure. Educational levels are lower than the rest of the state, but enrollments in public schools are increasing rapidly as population grows.

Table 10.36
Summary Impact of Trade on Case Study Border Cities

| Indicator | San Diego | Nogales | El Paso | Eagle Pass | Laredo | Brownsville |
|---------------------------------------|-----------------------------------|-----------------------|--------------------|-------------------------|----------------------------------|-----------------------|
| Manufacturing for Export | Optical Equipment, Toys and Games | | Clothing, Plastics | Clothing/Iron and Steel | | Vehicles and Parts |
| Wholesale of Traded Goods | | Fruits and Vegetables | Clothing Plastics | | General Wholesale | Groceries and Cereals |
| Transport of Traded Goods | | Freight Arrangement | General Transport | Freight Arrangement | Trucking and Freight Arrangement | General Transport |
| Trade Jobs | 6,675 | 1,767 | 19,965 | 1,092 | 4,695 | 1,467 |
| Trade Jobs Share of City Economy | 0.8% | 17.0% | 11.1% | 17.1% | 10.8% | 2.1% |
| City Share of State Mexico Trade Jobs | 9.0% | 12.6% | 11.0% | 0.6% | 2.6% | 0.6% |
| Trade Payroll (\$000) | \$178,268 | \$49,776 | \$331,083 | \$20,697 | \$92,965 | \$41,721 |
| Trade Firms | 99 | 142 | 283 | 55 | 555 | 102 |
| Unemployment Rate: 1994 | 7.2% | 19.0% | 10.0% | 27.0% | 9.3% | 12.1% |

Note: Shaded areas show the major source of economics benefits supported by trade for each city

Source: Arizona State University

The major source of economic activity related to trade with Mexico is manufacturing in four of the case study cities: San Diego (optical equipment, toys and games), El Paso (clothing, plastics), Eagle Pass (clothing, iron and steel) and Brownsville (vehicles and parts). In Nogales, the wholesale and transportation sectors are dominant sources of jobs, particularly dealing with trade in fruits and vegetables. In Laredo, the most important category of economic activity supported by trade with Mexico is transportation and freight arrangement.

Summary information for each border city is set out in the paragraphs below, followed by a more complete analysis of economic- and trade-related factors affecting each border community in this appendix.

San Diego

San Diego is the largest of the case study cities examined. The San Diego economy has grown faster than California as a whole, but the economy of San Diego and California weakened significantly in the early 1990s even while U.S. trade with Mexico increased. The San Diego economy has a high concentration of two types of goods that account for a significant volume of trade with Mexico. Eleven percent of California optical and measuring equipment production is located in San Diego and 21 percent of toys and games manufacturing is there. San Diego does

not have a high concentration of wholesale or transportation activity. An estimated 6,675 jobs were supported by border trade in 1994, equivalent to less than one percent of the economy.

Nogales

Nogales, Arizona, has limited manufacturing activity. However, the area has a very high concentration of wholesale fruit and vegetable firms and employment. One out of three Arizona jobs in this sector are in Nogales. An estimated 1,185 jobs in this sector existed to support border trade. The Nogales economy also accounted for one out of three Arizona freight arrangement jobs. Altogether, economic activity in sectors related to trade provided 17 percent of the jobs in the Nogales area and 28 percent of the payroll in 1994.

El Paso

There were 28,000 workers in the El Paso economy employed in the production of the top 10 manufactured products exported through the El Paso Customs District. The largest employment category was clothing manufacturing, followed by wadding and felt products. The El Paso clothing sector accounted for 30 percent of the Texas total of all workers in the industry. Plastic products are also important in El Paso. Although El Paso accounts for 2.8 percent of all Texas jobs, the area provides 7 percent of all plastics jobs in the state. In addition to manufacturing, significant wholesale activity in clothing and plastics is present in El Paso. It was estimated that 19,966 jobs in El Paso were supported by border trade, or 11 percent of total employment in 1994.

Eagle Pass

The Eagle Pass economy, although small, has been characterized by rapid growth since 1990. Employment has grown nearly twice as fast as the rest of Texas and four times faster than the nation as a whole over the period. A key driver of this growth has been the transportation sector, which has seen employment grow by 53 percent between 1990 and 1994. Meanwhile, in the rest of Texas, employment in the transportation sector increased approximately 14 percent during this time. The number of Eagle Pass trucking and warehousing firms increased by 150 percent, rising from 22 in 1990 to 55 in 1994. The largest source of trade-related employment in Eagle Pass is clothing manufacturing, with nearly 700 jobs. Combined local jobs related to trade (1,092) were estimated to account for 17 percent of all Eagle Pass employment (6,398) in 1994.

Laredo

The Laredo economy has been influenced strongly by its border location and trade with Mexico. The population of Webb County increased by one third over the 1980 through 1990 period and grew by more than 20 percent between 1990 and 1994. Although a large amount of traded goods measured by both volume and value passes through the Laredo Customs District, the Webb County area is not a manufacturing center and the proportion of Laredo employment accounted for by manufacturing has been declining in recent years. The most significant trade-related employment sector is transportation. This sector is important due to its size and rate of growth. Between 1980 and 1990, trucking, warehousing and freight arrangement added 3,651 jobs in Laredo, a 269 percent rate of growth. The transportation jobs created in the Laredo area accounted for one out of three such new jobs in the entire state. The sector added an additional 2,000 jobs between 1990 and 1994, growing by 42.5 percent in just four years. The Laredo share of Texas freight arrangement jobs was 35 percent in 1994. The concentration coefficient for freight arrangement is 51. The interpretation is that employment in freight is 50 times greater than necessary to serve the local economy. The estimated magnitude of trade-related activity is 4,695

jobs and payroll of \$93 million in 555 firms, accounting for more than 10 percent of the Laredo economy.

Brownsville

The Brownsville area has a labor force of approximately 70,000 persons and accounts for about one percent of all Texas employment. While employment growth was slow relative to the rest of Texas during the 1980s, job creation accelerated after 1987 as Mexican trade increased. Manufacturing as a source of employment has decreased in importance. Manufacturing employment in goods which are among leading exports to Mexico accounted for 3,985 jobs in 1990 and decreased to 2,679 jobs in 1994. SIC 371, vehicles and parts, was the largest single category, with 873 workers in six firms. The wholesale trade activity most related to international trade is in groceries and cereal products, which had 985 workers in 60 establishments in 1994. Although employment in this sector also fell compared to 1990, the overall share of such employment was approximately double the level necessary to serve the local population. Growth in trucking and warehousing employment between 1994 and 1994 was three times the rate of the rest of the state and more than four times faster than at the national level. In 1990 there were 799 employees in trucking and warehousing, working at 88 establishments. By 1994 employment had increased by 34 percent, to 1,075, and the number of firms had risen to 121, a growth rate of 37 percent. Freight arrangement employed 324 workers in 1990, and increased to 516 in 1994, an increase of nearly 60 percent. Border trade activity supported an estimated 1,467 jobs, equivalent to two percent of all Brownsville employment in 1994.

10.5.2 Trade Flows in the Case Study Border Cities

Trade between Mexico and the United States increased from \$34.9 billion in 1987 to more than \$109 billion in 1995, according to U.S. Department of Commerce data expressed in U.S. dollars. In 1987 Mexico joined the General Agreement on Tariffs and Trade (GATT) and proceeded to liberalize trade restrictions. Between 1987 and 1993, exports from the United States to Mexico increased more than 2.5 times while exports from Mexico to the United States increased nearly two times.

In 1994, the first year of NAFTA, U.S. exports to Mexico increased more than 20 percent while Mexican exports to the United States increased by slightly more than 10 percent. After the peso devaluation in December of 1994, imports of U.S. goods into Mexico declined while Mexican exports to the United States surged by an additional 27 percent (see Table 10.37).

Trade between the United States and Mexico is predominantly by land and concentrated at some 22 specific port of entry crossing locations. Border crossings on the U.S. side are grouped into four U.S. Customs Districts which derive their names from the predominate U.S. port in each District (Laredo, El Paso, Nogales, and San Diego).

Table 10.37
Mexico-U.S. Trade, 1987 through 1995 (\$millions)

| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|-------------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| U.S.-Mexico | 14,600 | 20,600 | 25,000 | 28,300 | 33,300 | 40,600 | 41,600 | 50,800 | 46,300 |
| Mexico-U.S. | 20,300 | 23,300 | 27,200 | 30,200 | 31,100 | 35,200 | 39,900 | 49,500 | 62,800 |
| Total | 34,900 | 43,900 | 52,200 | 58,500 | 64,400 | 75,800 | 81,500 | 100,300 | 109,100 |

Source: U.S. Department of Commerce as compiled by Barton-Aschman and La Empresa

Table 10.38 (adapted from similar tables in Task 8 of this study) shows the percentage shares of southbound and northbound trade activity at the U.S. Customs District and port of entry level. The

case study border communities whose economies are studied in this report are distributed across the four customs districts and accounted for more than 85 percent of all border trade activity in 1994.

The case study communities are San Diego-Tijuana (San Diego Customs District), Nogales-Nogales (Nogales Custom District), El Paso-Juarez (El Paso Customs District), Laredo-Nuevo Laredo (Laredo Customs District), Brownsville-Matamoros (Laredo Customs District), and Eagle Pass-Piedras Negras (Laredo Customs District).

Based on value, 64.4 percent of all trans-surface southbound trade and 45.5 percent of northbound trade moves through the Laredo District. Laredo and Brownsville account for 82 percent of the Laredo District southbound trade flow total and 52 percent of the southbound trade across the entire border. Eagle Pass accounts for a much smaller share, with 3.2 percent of northbound activity and 4.5 percent of southbound trade.

The El Paso District is second in importance, accounting for nearly 17 percent of southbound trade and 26 percent of northbound trade. The El Paso-Juarez crossing alone accounts for almost all (more than 99 percent) of trade in the district.

The San Diego District carries the third highest volume with southbound value accounting for 11.2 percent of the total trans-border crossings and northbound share of 16 percent. In this district, more than 90 percent of all goods pass through the ports of San Ysidro/Otay Mesa and Calexico.

Table 10.38
Border Trade Activity by District and Port

| U.S. Customs District (% of Total Border Trade) | U.S. Customs Port of Entry | Adjacent Mexican Border City | % of Total Northbound | % of Total Southbound |
|---|-------------------------------|---------------------------------|--------------------------|--------------------------|
| Laredo 64.38% of Southbound 45.56% of Northbound | 2304 Laredo, Texas | Nuevo Laredo | 24.67% | 44.24% |
| | 2301 Brownsville, Texas | Matamoros | 9.26% | 8.16% |
| | 2305 Hildago, Texas | Reynosa | 6.06% | 5.26% |
| | 2303 Eagle Pass, Texas | Piedras Negras | 3.24% | 4.53% |
| | 2302 Del Rio, Texas | Ciudad Acuna | 1.81% | 1.52% |
| | 2309 Progreso, Texas | Nuevo Progreso | 0.25% | 0.27% |
| | 2307 Rio Grande City, Texas | Ciudad Carmago | 0.13% | 0.24% |
| | 2310 Roma, Texas | Miguel Aleman | 0.05% | 0.16% |
| El Paso 16.87% of Southbound 26.33% of Northbound | 2402 El Paso, Texas | Ciudad Juarez | 26.15% | 16.75% |
| | 2403 Presidio, Texas | Ojinaga | 0.14% | 0.10% |
| | 2406 Columbus, New Mexico | Palomas | 0.04% | 0.02% |
| | 2404 Fabens, Texas | Caseta | * | * |
| Nogales 7.55% of Southbound 12.15% of Northbound | 2604 Nogales, Arizona | Nogales | 10.34% | 6.40% |
| | 2601 Douglas, Arizona | Agua Prieta | 0.89% | 0.69% |
| | 2608 San Luis, Arizona | San Luis Rio Colorado | 0.85% | 0.34% |
| | 2603 Naco, Arizona | Naco | 0.06% | 0.10% |
| | 2602 Lukeville, Arizona | Sonoyta | * | 0.02% |
| | 2606 Sasabe, Arizona | Sasabe | * | * |
| San Diego 11.20% of Southbound 16.06% of Northbound | 2504 San Ysidro, California | Tijuana | 11.93% | 6.90% |
| | 2503 Calexico, California | Mexicali | 3.53% | 3.63% |
| | 2505 Tecate, California | Tecate | 0.60% | 0.65% |
| | 2502 Andrade, California | Algodones | * | 0.01% |

Data Source: 1994 Trans-Border Surface Freight Data: U.S. Department of Transportation as compiled by Barton-Aschman and La Empresa

The Nogales District carries 7.6 percent of the southbound trade and 12 percent of northbound trade in terms of value. The port at Nogales carries 85 percent of the goods in this district.

As was noted in the Task 8 report, the figures above refer to the value of goods moving through these districts and ports. Value of goods does not necessarily reflect the quantity of goods moved. In the Nogales District, for example, a sizable portion of the trade is in agricultural products which have a relatively low value per ton but represent a large volume of goods and truck traffic.

10.5.3 Data Sources for Economic Indicators

The population, employment, and income statistics used to profile the six case study border cities on the U.S. side were compiled from the U.S. Bureau of Economic Analysis, Regional Economic Information System, a computerized database. This single set of information includes data for all U.S. counties.

The employment figures were based on data reported in *County Business Patterns*, an annual publication of the U.S. Census Bureau. However, the *County Business Patterns* figures are the only source available that provides data on employment, payroll and number of firms at the four-digit SIC level required for the present study. The primary weakness of the annual *County Business Patterns* report is lack of timeliness—the latest county-specific data available relate to 1994.

The U.S. data have been compiled from various sources: building permit statistics are from the U.S. Census Bureau; education data are from the Counties USA computer data file; information relating to property valuations is from the 1982, 1987, and 1992 Censuses of Governments; and the retail sales data are from the Census of Retail Trade. The complete data set used in the U.S. section of the study is available electronically as an Appendix.

10.5.4 Industrial Concentration Methodology and Application to Trade Analysis

The primary objective of the following analysis of the six case study communities is to determine the importance of trade as a source of costs and benefits to the local economy.

Cross-border trade creates employment and income at the various stages of production and distribution. As export goods are manufactured, jobs are created and payments are generated for the factors of production. Manufactured goods are then typically distributed by a network of wholesalers. Physical transfer and movement of goods creates jobs and income in the transportation sector as the goods are sent across the border.

Most local economies will have firms and workers producing goods and services in manufacturing, wholesaling and transportation. However, the number of jobs and amount of income at the local level in these sectors that can be attributed to international trade is not reported in any systematic way by agencies such as the U.S. Census Bureau or U.S. Bureau of Labor Statistics.

The approach taken in this report to estimating the importance of international trade in local communities draws upon work by Paul Krugman (*Geography and Trade*, MIT Press, Cambridge, 1991), Michael Porter (*The Competitive Advantage of Nations*, The Free Press, New York, 1990) and the U.S. Bureau of Labor Statistics (see Robert Shelburne and Robert Bednarzik, "Geographic Concentration of Trade-Sensitive Employment," *Monthly Labor Review*, U.S. Bureau of Labor Statistics, June, 1993). The research question to be examined is whether border communities have higher concentrations of economic activity due to trade, and therefore greater benefits of trade than areas not located at the border.

It has been observed for many years that some types of economic activity tend to concentrate in certain geographic locations. This concentration may be linked to resource availability, labor pools, distribution channels, or some other benefit of location. The concept of "concentration"

refers to the relationship between the amount of sector activity (most often measured by employment) in a particular location as compared to total state activity.

For example, if a particular community accounted for 10 percent of total jobs in a state but had 20 percent of all manufacturing jobs, then there is a concentration of manufacturing in that community. The "Concentration Coefficient" would be greater than one. The concentration coefficient may be defined through the following relationships:

E = total state employment in all combined sectors and communities

E_j = state employment in industrial sector j

A_k = total area k (a city or county) employment in all sectors

A_{kj} = area k employment in industrial sector j

The concentration coefficient CC for sector j in area k is given by the ratio:

$$CC_{kj} = (A_{kj} / A_k) / (E_j / E)$$

If the concentration coefficient exceeds unity, employment in sector j in area k is concentrated in area k , since the proportion of sector j employment is larger than expected given the importance of that sector to total state employment.

The fundamental question to be addressed, using data on employment, payroll, and establishments from *County Business Patterns*, is:

Do border communities have a higher concentration of jobs, payroll and establishments devoted to the manufacture, wholesale or transportation of commodities frequently traded at that border crossing?

The analysis is designed to compare economic variables and measures for border areas and the rest of the state to determine if border communities have a particular advantage in location that results in greater employment, income, and number of establishments, and, therefore, larger benefits from border trade as compared to the state as a whole.

If border cities have a higher concentration coefficient in manufacturing, wholesale trade, or transportation, then it is possible that this higher level of activity is related to border location. High concentration coefficients in transportation sectors such as trucking and warehousing are very likely linked to border trade. For manufacturing and wholesale establishments and employment, it must be shown that the sectors with the higher concentration coefficients are also sectors that are traded across the border.

10.5.5 San Diego-Tijuana Economic Trends

The San Diego MSA is defined as the entire San Diego County, which has a land area of 4,200 square miles. The combined areas of the San Diego MSA (San Diego County in California) and the Tijuana area of Baja California had a total population of more than three million according to the two countries' 1990 census counts. The San Diego economy is recognized as one of the most dynamic within the state of California, primarily as a result of the rapid growth in U.S.-Mexico trade during the past decade and of the growing importance of the maquiladora sector.

California's international trade with Mexico accounted for 15 percent of total U.S.-Mexico trade, and the San Diego-Tijuana area ports of entry are the primary sites for trade flows between California and Baja California. More than \$4 billion in southbound commercial flows, \$5 billion in

northbound flows, 470,000 northbound commercial vehicles, 20 million private vehicles, and 8 million pedestrians used the San Diego-Tijuana ports of entry during 1995.

Trends in economic indicators are shown in Table 10.39 and discussed below.

Table 10.39
Trends in Economic Indicators-San Diego MSA

| Indicator | 1980 | 1990 | 1994 | Percent Change | |
|---|--------|---------|--------|----------------|-----------|
| | | | | 1980-1990 | 1990-1994 |
| Population (1,000s) | 1,888 | 2,513 | 2,632 | 34.0 | 4.7 |
| Personal Income (\$Millions) | 19,912 | 49,587 | 56,923 | 149.0 | 14.8 |
| Per Capita Income (\$) | 10,614 | 19,729 | 21,627 | 85.9 | 9.6 |
| Newly Constructed Housing Units (\$Million) | 726.1 | 1,820.4 | 1032.1 | 150.7 | -43.3 |
| Retail Sales (\$Millions) | 8,203 | 17,750 | 20,968 | 116.3 | 18.1 |
| Percent with High School Education | 78.0 | 81.9 | | 5.0 | |
| Employment (1,000s) | 533.0 | 867.6 | 817.5 | 62.8 | -5.8 |
| Unemployment Rate | 6.8 | 4.7 | 7.2 | | |

Note: Retail Sales are for 1982, 1987, 1992 from Census of Retail Trade, U.S. Census Bureau

Population

According to the 1990 census, the San Diego MSA had a population of 2.5 million. With the negative impacts of the severe recession that has adversely affected the California economy throughout much of the 1990s, the population of the San Diego MSA grew less than five percent during the 1990 to 1994 period.

Population growth experienced during the first half of the 1990s has been much slower than that of the previous decade, when the population of the San Diego MSA increased 34 percent over the 1980 to 1990 period—one third faster than the rate for the state of California and three times as fast as the U.S. population. In contrast, the San Diego MSA grew at a slower rate than California and only slightly faster than the United States as a whole during the 1990 to 1994 period.

Personal Income

In 1994, total personal income for the San Diego MSA was \$57 billion or 8.1 percent of the personal income for the entire state of California. Per capita personal income in the San Diego area was \$21,627—97 percent of the overall per capita income for California, and barely below the \$21,696 figure for the United States.

Total personal income for the San Diego MSA increased by nearly 150 percent over the 1980 to 1990 period, which was 1.2 times the growth for the state of California and 1.4 times the growth experienced nationwide. Income growth in the region slowed dramatically in the 1990s, but the San Diego area economy still managed to post growth rates superior to the overall California economy but was not able to match the national growth rate during the 1990 through 1994 period.

The trends for per capita personal income were similar, with the performance of the San Diego area economy surpassing both the California and U.S. economies during the 1980 to 1990 period. The area's per capita income rose from 91 percent of the state's level in 1980 to 96 percent in 1990 and continued to catch up more slowly after 1990, reaching 97 percent of the overall state figure by 1994.

Construction Activity

Fueled by its employment and population growth, the San Diego MSA experienced high levels of construction activity in the 1980s. With the employment declines of the 1990s, residential construction continued at reduced levels, with smaller decreases in single-family activity relative to much-reduced multi-family construction. Non-residential activity also experienced sharp declines in the 1990s, particularly office and industrial building.

Tax Base

Since the most important taxes within state and local fiscal structures are property taxes, sales taxes, and income taxes, the three most important measures of a local area's tax base are the value of new property subject to taxation, income, and retail sales.

On a per capita basis, the property tax base in the San Diego MSA is equivalent to the statewide level and substantially higher than the national average. The overall level of assessed valuation per person for San Diego County was nearly \$55,000 in 1991—98 percent of the statewide California figure and two times the U.S. average level.

Even with the constraint of California's Proposition 13, the high level of construction activity in the San Diego MSA during the 1980s provided for big increases in the area's assessed valuation. Growth in San Diego County's per capita valuations surpassed the growth in California or the nation as a whole.

The dollar volume of retail trade in the San Diego MSA increased 116 percent over the 1980 to 1990 period, and although sales growth slowed markedly in the early 1990s, aggregate retail sales in San Diego County still rose 18 percent over the 1990 to 1995 period. Almost all of this growth was the result of increases in the number of consumers, as per capita sales levels did not rise relative to those for California and actually fell relative to national figures.

The personal income statistics discussed earlier show that income levels in the San Diego MSA are equivalent to statewide levels in California and substantially above the U.S. average.

Education

The school systems in the San Diego MSA experienced major increases in enrollment during the 1980s, particularly at the pre-school and college levels. Growth in the number of students enrolled at schools in San Diego County was 30 percent over the decade—more than six times the rate of growth in the nation as a whole.

Information on educational attainment compiled by the decennial censuses indicate that persons residing in the San Diego MSA are on average better educated than both the overall California adult population and the U.S. adult population. Furthermore, the average education level improved over the 1980 to 1990 period, particularly in terms of the proportion of residents who were college graduates—remaining above the educational attainment levels for both the California and U.S. adult populations.

Employment

During the 1980s, total employment in the San Diego MSA expanded 62 percent—more than one-third faster than in the state of California as a whole and at two times the national rate. As a result of this rapid growth, employment in the San Diego area represented nine percent of the total number of jobs statewide.

But the economic climate has been much different since 1990. Total employment in the MSA fell by 5.8 percent between 1990 and 1994, and the unemployment rate rose sharply from 4.7 percent in 1990 to 7.7 percent in 1993 before declining to the 7 percent range in 1994 and the 6.5 percent range in 1995.

The performance of the San Diego economy in recent years has been superior to the state as a whole, in that employment losses in most sectors have been less severe than those suffered by those sectors statewide, but worse than national trends, since the U.S. economy has recorded substantial employment increases in most sectors over the 1990 to 1994 period.

Between 1990 and 1994, employment has declined in most sectors, but the hardest hit in the San Diego MSA have been the construction, manufacturing, and FIRE (finance, insurance, and real estate) industries. Employment in the services and local government sectors increased during the 1990 to 1994 period.

Structure of the San Diego Area Economy

The services (32%), government (22%), and the retail trade (12%) sectors are the largest employers in the San Diego MSA (Table 10.40). The concentrations of employment provided by the services and retail sectors are not much different than those found in the California or national economies, but the government share is larger and is dominated by military jobs—five times larger relative to total employment compared to either California or the U.S. economy. This military concentration in the San Diego MSA has declined over the past decade. Its share of total employment fell from 14 percent in 1980 to less than 10 percent in 1990 and less than nine percent by 1994.

Despite the growing importance of international trade to the San Diego area economy, the wholesale trade and transportation sectors accounted for a smaller share of 1994 employment in this area adjacent to the Mexico border than in the California or the U.S. economies. However, the share of employment in the wholesale trade sector grew in the 1980 to 1990 period in the San Diego MSA, which was not the case for either California or the national economy. During the recent period of declining employment, these trade-related sectors shrunk less in the San Diego area than in the overall California economy.

Table 10.40
Basic Structure of the San Diego MSA Economy

| Sector | 1980 | | | 1990 | | | 1994 | | |
|------------------------------|------------|-------------------|------|------------|-------------------|------|------------|-------------------|------|
| | Share of | Share Relative to | | Share of | Share Relative to | | Share of | Share Relative to | |
| | Total Jobs | California | U.S. | Total Jobs | California | U.S. | Total Jobs | California | U.S. |
| Farm | 1.7 | 0.77 | 0.51 | 0.9 | 0.60 | 0.42 | 1.0 | 0.58 | 0.46 |
| Non-Farm | 98.3 | 1.01 | 1.02 | 99.1 | 1.01 | 1.01 | 99.0 | 1.01 | 1.01 |
| Agricultural Services | 1.2 | 0.74 | 1.49 | 1.2 | 0.71 | 1.15 | 1.2 | 0.63 | 1.01 |
| Mining | 0.1 | 0.35 | 0.13 | 0.2 | 0.48 | 0.21 | 0.2 | 0.56 | 0.25 |
| Construction | 4.8 | 1.07 | 0.96 | 5.9 | 1.10 | 1.14 | 4.7 | 1.04 | 0.93 |
| Manufacturing | 11.5 | 0.70 | 0.63 | 10.0 | 0.76 | 0.70 | 9.0 | 0.78 | 0.68 |
| Transportation and Utilities | 3.2 | 0.69 | 0.65 | 3.1 | 0.73 | 0.65 | 3.2 | 0.73 | 0.66 |
| Wholesale Trade | 2.8 | 0.56 | 0.55 | 3.6 | 0.72 | 0.75 | 3.6 | 0.74 | 0.77 |
| Retail Trade | 15.0 | 0.95 | 0.96 | 16.2 | 1.02 | 0.98 | 16.5 | 1.03 | 0.98 |
| FIRE | 8.6 | 0.96 | 1.12 | 8.4 | 0.99 | 1.10 | 7.7 | 0.94 | 1.04 |
| Services | 22.2 | 0.92 | 1.03 | 29.2 | 0.97 | 1.06 | 32.2 | 1.01 | 1.10 |
| Government | 28.9 | 1.75 | 1.75 | 22.2 | 1.55 | 1.45 | 21.8 | 1.48 | 1.45 |
| Federal Civilian | 4.3 | 1.63 | 1.61 | 3.4 | 1.59 | 1.44 | 3.2 | 1.59 | 1.52 |
| Military | 14.0 | 5.21 | 6.48 | 9.3 | 4.35 | 4.86 | 8.6 | 4.88 | 5.26 |
| State and Local | 10.6 | 0.95 | 0.91 | 9.5 | 0.95 | 0.86 | 9.9 | 0.91 | 0.88 |
| Total Employment (thousands) | 979 | | | 1,435 | | | 1,402 | | |

Source: Computed by Arizona State University from data in U.S. Bureau of Economic Analysis, Regional Economic Information System, 1996

10.5.6 The Impact of Trade on Economic Activity—San Diego

Economic activity as measured by jobs, payrolls, and number of establishments in industries related to Mexico trade is examined in this section for the San Diego metropolitan area. The objective is to determine if trade creates economic benefits in a greater proportion for the border area as compared to the state as a whole.

The analysis in this section provides supporting detail, in order to illustrate the various steps of the methodology involved in measuring the impact of trade on employment, payrolls, and establishments. Case studies for the remaining five border cities present only the results of the analysis and the estimated impact of trade on employment, payrolls, and number of establishments. Complete supporting tables are available in the electronic data base.

Preliminary observations can be made from Table 10.40 on the basic structure of the San Diego economy. Manufacturing of all types accounted for 9 percent of 1994 San Diego MSA employment, a proportion only 78 percent as great as in California. Similarly, San Diego transportation sector employment accounted for 3.2 percent of San Diego jobs, a share only 73 percent as great as in the state as a whole. Thus, there is no immediate evidence of a concentration of these activities in San Diego.

Note, of course, that the components of Table 10.40 are highly aggregated and what is of critical importance is traded goods, not all manufactured goods. Similarly, the transportation data in Table 10.39 include such categories as travel agents and utility companies. Therefore, it is necessary to use the disaggregated data from *County Business Patterns*.

Manufactured Goods

The top 15 southbound exports from the United States to Mexico are shown in Table 10.41 for the period 1990 through 1995. "Electrical machinery and parts" dominates the rankings for each year, rising from some \$5 billion in 1990 to exceed \$10 billion in 1995.

The leading exports for each Customs District vary from the rankings for aggregated border trade in Table 10.41. The top 15 exports from the United States to Mexico in the San Diego Customs District for the 1990 to 1994 period ranked by value are shown in Table 10.42. These data were compiled by Barton-Aschman and La Empresa from *U.S. Export History* produced by the U.S. Department of Commerce.

Table 10.41
Southbound U.S.-Mexico Top 15 Commodities by Value, 1990 through 1995

| Commodity Code-Description | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---------------|---------------|---------------|---------------|----------------|----------------|
| 85 Electrical machinery & parts | 5,368,223,142 | 6,119,794,616 | 7,285,912,731 | 8,227,518,229 | 10,024,914,313 | 10,430,089,156 |
| 84 Nuclear reactors, boilers, machinery | 3,628,328,058 | 4,323,107,096 | 5,359,544,931 | 5,254,407,783 | 6,822,660,896 | 5,575,512,709 |
| 87 Non-railway vehicles & parts | 3,352,879,810 | 3,723,092,085 | 4,395,136,811 | 4,689,556,008 | 5,635,864,539 | 4,478,927,597 |
| 39 Plastics and plastic articles | 1,270,362,206 | 1,437,486,021 | 1,892,834,307 | 2,064,541,572 | 2,804,445,576 | 2,771,616,257 |
| 48 Paper and Paperboard | 649,831,962 | 799,500,390 | 1,003,375,108 | 1,089,017,979 | 1,350,525,087 | 1,270,297,089 |
| 90 Optical, photo, measuring equipment | 882,217,693 | 1,163,377,620 | 1,382,090,228 | 1,502,783,910 | 1,575,257,679 | 1,206,442,006 |
| 73 Articles of iron or steel | 424,448,299 | 555,959,503 | 686,253,222 | 707,997,527 | 1,098,528,244 | 1,140,163,757 |
| 62 Non-knitted clothing articles | 252,655,971 | 362,889,642 | 502,109,819 | 545,744,491 | 670,285,758 | 752,957,400 |
| 94 Furniture, bedding, mattresses | 377,114,080 | 619,244,226 | 744,402,420 | 844,012,908 | 911,126,210 | 678,533,381 |
| 72 Iron or steel | 488,453,577 | 781,652,945 | 866,613,224 | 635,434,213 | 616,000,353 | 668,488,061 |
| 76 Aluminum & aluminum articles | 333,284,343 | 385,179,014 | 470,100,737 | 473,902,574 | 605,129,567 | 641,288,562 |
| 27 Mineral fuels & products | 479,595,420 | 430,192,048 | 677,588,620 | 581,239,590 | 563,424,238 | 621,356,254 |
| 83 Misc. articles of base metals | 335,763,737 | 398,650,802 | 466,289,936 | 487,339,214 | 555,562,687 | 602,568,477 |
| 29 Organic chemicals | 480,933,042 | 507,259,971 | 565,688,990 | 518,082,661 | 574,080,748 | 573,728,259 |
| 2 Meat & edible meat | 252,792,183 | 469,845,244 | 528,891,064 | 446,907,204 | 623,376,206 | 350,278,661 |

Source: U.S. Export History; U.S. Department of Commerce

The highest value category for the San Diego Customs District for the five-year period, consistent with the total border rankings, was electronic machinery and parts, followed by other machinery, including industrial machinery such as boilers and nuclear reactors. Three product categories which appear in the San Diego Customs District ranking that are not in the aggregated rankings are wood and wood products; toys, games and sporting equipment; and aircraft, spacecraft and parts.

Table 10.42
San Diego County Share of California Export Manufacturing: 1992

| San Diego Top 15 Exports In 1990 - 1994 | SIC | Employ. | Payroll | Estab. |
|---|------------|----------------|----------------|---------------|
| Electrical Machinery & Parts | 36 | 8.1% | 6.9% | 8.6% |
| Machinery, boilers, nuclear reactors | 35 | 7.7% | 7.3% | 6.1% |
| Plastics and plastic articles | 308 | 4.8% | 4.0% | 8.0% |
| Wood or wood articles | 24 | 2.2% | 1.9% | 4.5% |
| Non-railway vehicles & parts | 371 | 1.7% | 1.3% | 4.8% |
| Optical, photographic, measuring equipment | 38 | 10.9% | 8.9% | 10.7% |
| Paper and paperboard | 26 | 1.6% | 1.3% | 3.1% |
| Misc. articles of base metal | 339 | 6.1% | 7.6% | 3.7% |
| Articles of iron or steel | 34 | 4.5% | 4.3% | 5.6% |
| Iron and steel | 331 | 3.9% | 2.6% | 5.4% |
| Toys, games, sporting equipment | 394 | 20.8% | 20.0% | 16.8% |
| Aluminum and aluminum articles | 335,336 | 2.1% | 7.5% | 4.1% |
| Furniture, bedding, mattresses | 25 | 4.7% | 4.3% | 6.5% |
| Aircraft, spacecraft & parts | 372 | 9.4% | 8.8% | 8.1% |
| Not knitted articles of clothing | 23 | 3.1% | 2.8% | 3.6% |
| Share Analysis | | | | |
| San Diego Export Mfg. Share of California Export Mfg. | | 6.7% | 6.5% | 6.2% |
| San Diego All Industries Share of California All Industries | | 7.7% | 6.9% | 8.1% |
| San Diego Export Mfg. Share of San Diego All Industries | | 10.0% | 13.3% | 3.3% |
| California Export Mfg. Share of California All Industries | | 11.4% | 14.0% | 4.3% |
| Concentration Coefficients | | 0.88 | 0.95 | 0.76 |

Source: County Business Patterns, U.S. Census Bureau

San Diego's share of California economic activity in the top 15 manufactured products for 1994 nearly exceeds the city's share of overall California activity. The San Diego County economy accounted for 7.7 percent of all California jobs, 6.9 percent of payrolls, and 8.1 percent of establishments in that year. The county's share of export manufacturing jobs was smaller, in spite of rapid growth in these sectors. San Diego County export manufacturing accounted for only 6.7 percent of California employment in these industries, yielding a concentration coefficient for employment of 0.88. The concentration coefficient for establishments was smaller, at 0.76, consistent with average firm size in these sectors somewhat larger in San Diego than in the state as a whole.

However, there were particular industries showing evidence of concentration in the San Diego MSA. The most notable example is toys, games and sporting equipment, with a 20.8 percent share of California toy and game manufacturing, followed by optical and measuring equipment with 10.9 percent of statewide employment. Other sectors showing evidence of concentration were aircraft (9.4%) and electrical machinery and parts (8.1%).

Wholesale Trade

Most wholesale export sectors in the San Diego MSA grew rapidly between 1980 and 1990, including electrical machinery and parts (up 106%), plastics (125%), toys and games (100%), not-knitted clothing (157%) and, most notably, optical and measuring equipment (up 550%). However, over this period, 3,437 jobs were lost in non-electric machinery manufacturing. With non-electric machinery excluded, total San Diego export wholesale employment was up by 266 percent between 1980 and 1990.

The wholesale share analysis in Table 10.43 again shows that the San Diego economy accounted for 7.7 percent of all jobs in California, 6.9 percent of payrolls, and 8.1 percent of establishments in that year. The county's share of statewide export wholesale activity, as measured by employment, payroll, and establishments was smaller. San Diego County export wholesale industries accounted for only 5.5 percent of statewide employment in these industries in 1994, producing a concentration coefficient of 0.72 in employment.

Considering individual product wholesalers, there were no wholesale categories with large shares of the statewide total. The largest in 1994 was toys, games and sporting equipment, at 7 percent of statewide employers and 8.3 percent of state establishments.

The evidence is that the San Diego MSA wholesale activity related to the leading export categories for the San Diego Customs District has recorded rapid growth in the past decade, but the overall importance of these sectors to the economy, as measured by shares of employment, payroll, and establishments, is smaller than expected based on the San Diego MSA share of the total California economy.

Transportation Sector

After goods are produced and distribution contracts have been arranged through wholesalers, the transportation industry physically moves products across the border. Nationally, employment in these industries increased by 28.5 percent during the 1980 to 1990 period. California's growth was faster at 44.9 percent. However, in the San Diego MSA, employment in the transportation sector nearly doubled, with growth of 95.1 percent over the decade.

Employment in the freight transportation arrangement sector was up 477 percent in San Diego County, twice as fast as the statewide rate. The number of San Diego area establishments in the industry nearly doubled between 1980 and 1990, growing twice as fast as in the state as a whole.

The share analysis (Table 10.44) shows, that in spite of rapid growth, the transportation sector's importance to the San Diego County economy is less than transportation is to the state as a whole. For example, transportation jobs account for 1.7 percent of all jobs in California, but less than one percent of total employment (0.8%) in San Diego County. Similarly, while the overall San Diego County economy contributes 7.7 percent of all jobs in California, its transportation sector accounts for only 3.7 percent of all transportation jobs in California. These relationships result in very low concentration coefficients, 0.49 for employment, 0.46 for payroll, and 0.74 for number of establishments.

The conclusion for the importance of transportation to the San Diego economy is similar to the results found for wholesale trade in support of export activities. That is, these sectors show strong growth rates, typically stronger than in the state as a whole, but the importance of these sectors to the local economy is smaller than expected based on the overall importance of San Diego in the California economy.

Table 10.43
San Diego County Share of California Wholesale Activity in Export Commodities: 1992

| San Diego Top 15 Exports in 1990 - 1994 | SIC | Employ. | Payroll | Estab. |
|---|----------------|----------------|----------------|---------------|
| Electrical Machinery & Parts | 506 | 6.7% | 6.5% | 8.1% |
| Machinery, boilers, nuclear reactors | 508 | 5.8% | 5.3% | 6.6% |
| Plastics and plastic articles | 5162 | 5.5% | 2.9% | 8.0% |
| Wood or wood articles | 503 | 6.3% | 5.6% | 7.2% |
| Non-railway vehicles & parts | 501 | 5.1% | 4.4% | 8.2% |
| Optical, photographic, measuring equipment | 5043,5048,5049 | 3.2% | 2.4% | 6.8% |
| Paper and paperboard | 511 | 4.0% | 4.3% | 7.1% |
| Misc. articles of base metal | 505 | 2.1% | 1.9% | 5.0% |
| Articles of iron or steel | 505 | | | |
| Iron and steel | 505 | | | |
| Toys, games, sporting equipment | 5091,5092 | 7.0% | 5.2% | 8.3% |
| Aluminum and aluminum articles | 505 | | | |
| Furniture, bedding, mattresses | 502 | 6.5% | 5.6% | 7.1% |
| Aircraft, spacecraft & parts | 5088 | 4.7% | 3.6% | 5.6% |
| Not knitted articles of clothing | 513 | 5.0% | 4.5% | 4.9% |
| San Diego Export Wholesale Share of California Export Wholesale | | 5.5% | 5.0% | 7.0% |
| San Diego All Industries Share of California All Industries | | 7.7% | 6.9% | 8.1% |
| San Diego Export Wholesale Share of San Diego All Industries | | 2.3% | 2.8% | 3.6% |
| California Export Wholesale Share of California All Industries | | 3.2% | 3.9% | 4.1% |
| Concentration Coefficients | | 0.72 | 0.73 | 0.86 |

Source: County Business Patterns, U.S. Census Bureau

Table 10.44
San Diego County Share of California Transportation and Warehousing Services: 1992
(Payroll in \$000)

| Description | SIC Code | Employ. | Payroll | Estab. |
|--|-----------------|----------------|----------------|---------------|
| Trucking, local & long distance | 421 | 3.6% | 3.2% | 5.6% |
| Public warehousing & storage | 422 | 3.8 | 2.3 | 7.5 |
| Freight Transportation Arrangement | 473 | 4.9 | 3.4 | 6.6 |
| San Diego Transportation Share of California Transportation | | 3.7 | 3.2 | 6.0 |
| San Diego All Industries Share of California All Industries | | 7.7 | 6.9 | 8.1 |
| San Diego Transportation Share of San Diego All Industries | | 0.8 | 0.7 | 1.2 |
| California Transportation Share of California All Industries | | 1.7 | 1.6 | 1.7 |
| Concentration Coefficients | | 0.49 | 0.46 | 0.74 |

Source: County Business Patterns, U.S. Census Bureau

Summary

In summary, the sectors of the San Diego County economy that produce, distribute, and transport the leading exports to Mexico are growing rapidly, but are not disproportionately concentrated in or important to the San Diego region. These sectors provide proportionally fewer jobs, less income, and represent a smaller share of establishments than expected based on the size of the overall San Diego MSA economy.

The notable exception is in manufacturing, where toys, games and sporting equipment employment in San Diego represents 20 percent of the state total. Optical and measuring equipment employment is 10 percent of the state total.

With the exception of the manufacture of toys and optical equipment, the evidence seems to indicate that the San Diego MSA does not have a high concentration of jobs, payroll or establishments related to manufacturing, wholesale activity, and transportation of those export goods accounting for the greatest volume of exports (in value terms) at the San Diego Customs District crossings. However, sectors related to trade are growing rapidly, and it is reasonable to postulate that the presence of the border is one factor that contributes to these growth rates.

10.5.7 Estimated Trade Impact—San Diego

The concentration coefficients can be used to estimate the impact of trade activity. The methodology recognizes that, since the concentration coefficient shows the degree to which economic activity is greater than expected based on San Diego's share of the overall economy, the employment, payroll and number of establishments greater than the expected level may be related to factors unique to San Diego, including its location on the border. Results are shown in Table 10.45.

The concentration coefficient for employment in the manufacture of toys and games is 2.72, which indicates that the number of jobs in this area is 2.72 times greater than expected based on the San Diego share of the California economy. The "expected" jobs can be computed by dividing actual employment by the concentration coefficient and the "extra" jobs are equal to actual employment minus expected employment.

In total, there were 2,036 jobs in toy and game manufacturing in San Diego in 1994. Division of 2,036 by 2.72 yields an expected number of jobs of 749. This indicates there are additional or "extra" jobs of 1,287 to achieve the actual total of 2,036.

Similarly, the concentration coefficients suggest that payroll is 2.92 times larger than expected for toys and games manufacturing, and the number of firms is 2.06 times greater.

Computations for optical equipment, a larger industry, show that there are 5,388 jobs due to locational factors in San Diego, and \$148 million payroll, and 55 firms more than expected based on San Diego's share of the overall California economy.

Border trade impacts on the wholesale and transportation sectors are not calculated in the table, since the concentration coefficients are less than one, indicating a lower level of activity for these sectors than is found statewide.

The total impact of border trade using the concentration coefficients to adjust actual values is 6,675 jobs, payroll of \$178 million, and 99 firms. Economic activity due to trade with Mexico account for 9.8 percent of employment, 0.9 percent of payroll, and 0.2 percent of the number of firms in the overall San Diego economy.

Table 10.45
Estimated Trade Impact on Employment, Payroll and Firms—San Diego

| | | Employment | Payroll | Firms |
|---|-------------------|--------------|------------------|-----------|
| San Diego Share of all California Industries | | 7.7% | 6.9% | 8.1% |
| Concentration Coefficients | Wholesale Trade | 0.72 | 0.73 | 0.86 |
| Concentration Coefficients | Transportation | 0.49 | 0.46 | 0.74 |
| Concentration Coefficients | Optical Equipment | 1.43 | 1.31 | 1.32 |
| Concentration Coefficients | Toys and Games | 2.72 | 2.92 | 2.06 |
| Estimated Trade Impact | | | | |
| | Optical Equipment | 5,388 | \$148,432 | 55 |
| Estimated Trade Impact | Toys and Games | 1,287 | \$29,836 | 45 |
| Total Estimated Impact of Border Trade | | 6,675 | \$178,268 | 99 |
| Trade Share of Total San Diego Economy | | 0.8% | 0.9% | 0.2% |
| Total San Diego Economy in 1994 | | \$817,501 | \$20,062,063 | \$59,896 |

Source: Arizona State University estimates based on *County Business Patterns*.

10.5.8 Santa Cruz County (Nogales), Arizona-Sonora Economic Trends

This section profiles the economy of the Nogales area and analyzes the impact of U.S.-Mexico trade upon the local economy. The area's economy is small but has been growing rapidly, primarily as a result of the growth in U.S.-Mexico trade during the past decade and of the growing importance of the maquiladora sector.

Population

For the analysis of the U.S. portion of the Nogales border area, the study area is defined as Santa Cruz County, Arizona. According to the 1990 census, Santa Cruz County had a population of 30,000. The population of Santa Cruz County grew 17 percent during the 1990 to 1994 period.

Population growth experienced during the first half of the 1990s has been somewhat slower than that of the previous decade, when the population of Santa Cruz County increased 45 percent from the 1990 to 1990 period—one-third faster than the rate for the state of Arizona and 4.6 times as fast as the U.S. population (see Table 10.46). Since 1990, the Santa Cruz County population has grown at a rate more than 1.5 times faster than the state of Arizona, which has itself been one of the fastest growing states in the nation.

The overall performance of the Santa Cruz County economy in recent years has been below that of the state as a whole, although it has been able to sustain job growth at nearly two times the national rate.

Employment growth has slowed in most sectors during the first half of the 1990s, but the Santa Cruz County economy did not suffer as much as the metropolitan areas of Arizona from the effects of the last national recession at the beginning of the decade. The recent setbacks experienced by the Mexican economy have had much more severe impacts on Santa Cruz County than on the state as a whole.

Between 1990 and 1994, most sectors of the Nogales area economy experienced positive growth, but the manufacturing and FIRE (finance, insurance, and real estate) industries have lost jobs. The strongest employment increases have occurred in the retail trade and government sectors,

with federal civilian employment up 33 percent over the period compared with job losses in that sector statewide and for the United States as a whole since 1990.

Income

In 1994, total personal income for Santa Cruz County was \$441 million or 0.6 percent of the personal income for the entire state of Arizona. Per capita personal income in the Nogales area was \$12,566—only 66 percent of the overall per capita income for Arizona, and 58 percent of the \$21,696 figure for the U.S. economy.

Total personal income for Santa Cruz County increased by nearly 120 percent over the 1980 to 1990 period, which was only 88 percent of the growth for the state of Arizona but greater than the growth experienced nationwide. Income growth in the region slowed dramatically in the 1990s, but the Nogales area economy still managed to post growth rates similar to the overall Arizona economy and surpassed the national growth rate during the 1990 to 1994 period. The trends for per capita personal income were worse, with the per capita income of the Nogales area falling further behind both the Arizona and U.S. economies during the 1980 to 1990 period.

The area's per capita income fell from 82 percent of the state's level in 1980 to 70 percent in 1990 and continued to slip after 1990, dropping to 66 percent of the overall state figure by 1994.

Construction Activity

In response to population and employment growth, Santa Cruz County experienced healthy levels of construction activity in the 1980s, and this strength continued into the 1990s in the residential and retail sectors.

Given the small size of the area economy, the absolute levels of commercial construction activity were small—about \$4.5 million per year—almost all in retail and office buildings. When measured on a per capita basis, Santa Cruz County's level of residential construction was similar in magnitude to Arizona and overall U.S. activity. The per capita level of building in the retail sector was much greater than either statewide or national levels.

Tax Base

Since the most important taxes within state and local fiscal structures are property taxes, sales taxes, and income taxes, the three most important measures of a local area's tax base are the value of property subject to taxation, income, and retail sales.

Table 10.46
Trends in Economic Indicators—Santa Cruz County (Nogales), Arizona

| Indicator | 1980 | 1990 | 1994 | Percent Change | |
|------------------------------------|-------|--------|--------|----------------|-----------|
| | | | | 1980-1990 | 1990-1994 |
| Population (1,000s) | 20.6 | 29.9 | 35.1 | 45.1 | 17.4 |
| Personal Income (\$Millions) | 156.1 | 342.4 | 441.2 | 119.4 | 28.8 |
| Per Capita Income (\$) | 7,590 | 11,454 | 12,566 | 50.9 | 9.7 |
| Retail Sales (\$Millions) | 132 | 190 | 344 | | |
| Percent with High School Education | 54.0 | 57.1 | | 5.7 | |
| Employment (1,000s) | 6.8 | 9.8 | 10.4 | 43.4 | 6.1 |
| Unemployment Rate | 12.2 | 13.7 | 19.0 | | |

Note: Retail sales are for 1982, 1987, 1992 from *Census of Retail Trade*, U.S. Census Bureau.

The overall level of assessed valuation per person for Santa Cruz County was \$4,800 in 1991. On a per capita basis, the property tax base in Santa Cruz County is 81 percent of the statewide level and substantially less than the national average.

The healthy level of construction activity in Santa Cruz County during the 1980s provided for substantial increases in the area's assessed valuation, but growth in Santa Cruz County's per capital valuations was less than the growth than those of Arizona or the nation as a whole.

The dollar volume of retail trade in Santa Cruz County increased 161 percent over the 1982 to 1992 period, and sales growth was much stronger in the second half of that period—aggregate retail sales in Santa Cruz County rose 81 percent over the 1987 to 1992 period versus 44 percent from 1982 to 1987. Most of this growth was the result of increases in the number of consumers, but per capita sales levels did rise relative to those for Arizona and national figures over the 1982 to 1992 period.

Education

The schools in the Nogales area experienced major increases in enrollment during the 1980s, particularly at the pre-school and college levels. Growth in the number of students enrolled at schools in Santa Cruz County was 34 percent over the decade—more than seven times the rate of growth in the nation as a whole.

Information on educational attainment compiled by the decennial censuses indicate that persons residing in Santa Cruz County are on average less well educated than both the overall Arizona adult population and the U.S. adult population. The average education level improved over the 1980 to 1990 period, particularly in terms of the proportion of residents who were high school graduates, but in general the area's adult population continued to have educational attainment levels substantially below both the Arizona and U.S. adult populations.

Employment

During the 1980s, total employment in Santa Cruz County expanded 43 percent—slightly slower than the state of Arizona as a whole but two times the national rate. Even with rapid growth, employment in Santa Cruz County represented less than one percent of the total number of jobs statewide.

The economic climate in the Nogales area has been mixed in the 1990s. Total employment grew by 6.1 percent between 1990 and 1994, actually declining in 1993, and the unemployment rate rose from 13.7 percent in 1990 to 19 percent in 1994.

Structure of the Santa Cruz County Economy

The largest employers in Santa Cruz County are retail trade (31 percent), services (20 percent), and the government (16%) sectors (Table 10.47). The proportion of employment provided by the retail sector is not much higher than that found in the Arizona or national economies, but the services sector's share is actually lower than for the state or in the U.S. economy. The government share is larger and is dominated by federal civilian jobs—1.7 times larger relative to total employment compared to either Arizona or the U.S. economy. This federal concentration in Santa Cruz County has increased over the past decade. But its share of total employment fell from 4.2 percent in 1980 to 3.6 percent in 1994.

Table 10.47
Basic Structure of the Santa Cruz County Economy

| Sector | 1980 | | | 1990 | | | 1994 | | |
|------------------------------|------------|-------------------|------|------------|-------------------|------|------------|-------------------|------|
| | Share of | Share Relative to | | Share of | Share Relative to | | Share of | Share Relative to | |
| | Total Jobs | Arizona | U.S. | Total Jobs | Arizona | U.S. | Total Jobs | Arizona | U.S. |
| Farm | 2.4 | 1.43 | 0.72 | 1.8 | 1.65 | 0.77 | 1.6 | 1.58 | 0.75 |
| Non-Farm | 97.6 | 0.99 | 1.01 | 98.2 | 0.99 | 1.01 | 98.4 | 0.99 | 1.01 |
| Agricultural Services | 0.7 | 0.56 | 0.93 | 0.7 | 0.48 | 0.65 | 1.1 | 0.69 | 0.97 |
| Mining | 0.1 | 0.09 | 0.13 | 0.3 | 0.35 | 0.39 | 0.3 | 0.40 | 0.44 |
| Construction | 3.3 | 0.47 | 0.67 | 3.7 | 0.65 | 0.71 | 3.9 | 0.61 | 0.76 |
| Manufacturing | 10.2 | 0.83 | 0.56 | 8.6 | 0.84 | 0.61 | 6.2 | 0.67 | 0.47 |
| Transportation and Utilities | 6.1 | 1.42 | 1.22 | 6.2 | 1.40 | 1.32 | 6.5 | 1.47 | 1.35 |
| Wholesale Trade | 9.1 | 1.21 | 1.80 | 12.2 | 2.81 | 2.53 | 10.5 | 2.35 | 2.25 |
| Retail Trade | 28.6 | 1.62 | 0.82 | 28.4 | 1.57 | 1.72 | 30.7 | 1.67 | 1.83 |
| FIRE | 5.7 | 0.62 | 0.75 | 5.3 | 0.58 | 0.68 | 4.5 | 0.53 | 0.61 |
| Services | 17.5 | 0.78 | 0.81 | 20.0 | 0.69 | 0.73 | 20.4 | 0.68 | 0.70 |
| Government | 16.2 | 0.90 | 0.98 | 14.6 | 0.93 | 0.96 | 15.8 | 1.05 | 1.06 |
| Federal Civilian | 4.2 | 1.38 | 1.57 | 2.9 | 1.21 | 1.24 | 3.6 | 1.72 | 1.71 |
| Military | 0.7 | 0.26 | 0.32 | 0.8 | 0.42 | 0.44 | 0.8 | 0.47 | 0.46 |
| State and Local | 11.3 | 0.91 | 0.97 | 10.8 | 0.96 | 0.99 | 11.4 | 1.00 | 1.02 |

Source: Computed by Arizona State University from data in U.S. Bureau of Economic Analysis, Regional Economic Information System, 1996

With the growing importance of international trade to the Nogales area, the wholesale trade and transportation sectors accounted for a larger share of 1994 employment in this area adjacent to the Mexico border than was the case in the Arizona or the U.S. economies. This share of employment in the wholesale trade sector grew substantially in the 1980 to 1990 period in Santa Cruz County, which was not observed in Arizona. During the recent period, these trade-related sectors have continued to grow in the Nogales area but at a slower pace.

10.5.9 Impact of Trade on Economic Activity—Santa Cruz County (Nogales) Arizona

Within the Nogales area, the economy is characterized by higher than average shares of transportation, wholesale trade, retail trade, and federal government employment. The local economy has limited manufacturing activity. In 1994 there were 10 manufacturing employers in export sectors, with a total of 286 employees. Six firms manufactured electrical components and an additional four firms produced optical or measuring equipment. The manufacturing concentration coefficient was below one, indicating that the share of such activity in the Nogales area was less than expected, given the size of the economy compared to the state as a whole.

Two sectors of the Nogales economy stand out with strikingly high concentration coefficients. The 1994 concentration coefficient for freight arrangement was 39.9 for employment, 46.8 for payroll and 16 for number of establishments (Table 10.48). In 1994, nearly 30 percent of all Arizona freight arrangement employment was located in Santa Cruz County. There were 271 freight arrangement jobs in the Nogales area and 926 total in the state. The concentration coefficient for trucking and warehousing was much smaller, at 1.6 for employment, but still greater than one.

The largest concentration coefficient for the Santa Cruz County economy in 1994 was in wholesale activity for fruits and vegetables. The coefficient of 45.4 for employment indicates that there were 45 times more jobs in fruits and vegetables wholesale trade than could be explained on the basis of the size of the Nogales area alone. The clear explanation is that these workers and firms serve much of the state, not just the local area. There were 1,212 workers in fruit and vegetable wholesale trade and 98 firms in this sector in Nogales in 1994. Nogales accounted for one out of three jobs in the state in this sector, and accounted for nearly 60 percent of all firms.

Utilizing the concentration coefficients to compute the estimated impact of location at the border, it can be seen that the combined impacts of trucking, freight, arrangement, electronics, wholesaling, and fruit and vegetable wholesaling accounted for 1,767 jobs in 1994 and nearly \$50 million in payroll. An estimated 142 firms operated in Nogales to support border trade (Table 10.48).

Economic activity in these sectors related to trade accounted for 17 percent of the jobs in the Nogales area, 28 percent of the payroll, and over 13 percent of the firms.

10.5.10 El Paso, Texas-Ciudad Juarez, Chihuahua Economic Trends

The combination of the El Paso, Texas-Ciudad Juarez, Chihuahua border areas had a total population of 1.4 million according to the two countries' 1990 census counts. The combined metropolitan area is the largest urban area along the Texas-Mexico border. It serves as the primary regional economic center for western Texas, southern New Mexico and northern Chihuahua, in addition to being a major port of entry for U.S.-Mexico trade.

Table 10.48
Estimated Trade Impact on Employment, Payroll and Firms-Santa Cruz County (Nogales), Arizona (Payroll in \$000)

| | | Employment | Payroll | Firms |
|--|-----------------------------|-------------------|-----------------|--------------|
| Santa Cruz County Share of all Arizona Industries | | 0.7% | 0.5% | 1.1% |
| Concentration Coefficients | Trucking & Warehousing | 1.6 | 1.5 | 2.8 |
| Concentration Coefficients | Freight Arrangement | 39.9 | 46.8 | 16.4 |
| Concentration Coefficients | Electronics Wholesale | 5.41 | 10.19 | 1.36 |
| Concentration Coefficients | Fruits/Vegetables Wholesale | 45.36 | 87.88 | 54.15 |
| Estimated Impact of Trade | Trucking & Warehousing | 97 | \$1,528 | 27 |
| Estimated Impact of Trade | Freight Arrangement | 231 | 6,484 | 16 |
| Estimated Impact of Trade | Electronics Wholesale | 254 | 13,267 | 3 |
| Estimated Impact of Trade | Fruits/Vegetables Wholesale | 1,185 | 28,497 | 96 |
| Total Estimated Impact of Border Trade | | 1,767 | \$49,776 | 142 |
| Trade Share of Total Santa Cruz County (Nogales) Economy | | 17.0% | 28.7% | 13.4% |
| Total Santa Cruz County Economy 1994 | | 10,383 | \$173,185 | 1,064 |

Source: Arizona State University estimates based on *County Business Patterns*.

This section profiles the economy of the El Paso area and analyzes the impact of U.S.-Mexico trade upon the area's economy.

Population

The U.S. portion of the El Paso border area is defined as El Paso County, Texas. El Paso County is also officially designated by the U.S. Office of Management and Budget as the El Paso MSA. The county has a land area of 1,057 square miles. According to the 1990 census, El Paso County had a population of nearly 600,000. The population of El Paso County grew 12 percent during the 1990 to 1994 period. The metropolitan area represents some 3.6 percent of the total state population.

Population growth experienced during the first half of the 1990s has been faster than that of the previous decade. The population of El Paso County increased 23 percent over the entire 1980 to 1990 period—1.2 times the rate for the state of Texas and 2.4 times as fast as the U.S. population (Table 10.49). With the liberalization of Mexico-U.S. trade in 1986, the pace of growth accelerated in the El Paso area, and the population of El Paso County grew substantially faster than the state over the 1987 to 1990 period. Since 1990, the El Paso County population has grown at a rate more than 1.5 times as fast as the state of Texas and 2.6 times faster than the nation as a whole.

Table 10.49
Trends in Economic Indicators—El Paso, Texas

| Indicator | 1980 | 1990 | 1994 | Percent Change | |
|------------------------------------|-------|--------|--------|----------------|-----------|
| | | | | 1980-1990 | 1990-1994 |
| Population (1,000s)) | 484.4 | 596.3 | 664.8 | 23.1 | 11.5 |
| Personal Income (\$Millions) | 3,089 | 6,863 | 8,195 | 122.2 | 25.4 |
| Per Capita Income (\$) | 6,377 | 11,510 | 12,940 | 80.5 | 12.4 |
| Retail Sales (\$Millions) | 2,121 | 2,899 | 4,378 | | |
| Percent with High School Education | 59.5 | 63.7 | | 7.1 | |
| Employment (1,000s) | 130.8 | 159.0 | 179.2 | 21.6 | 12.7 |
| Unemployment Rate | 9.3 | 10.7 | 10.0 | | |

Note: Retail sales are for 1982, 1987, 1992 from *Census of Retail Trade*, U.S. Census Bureau.

Income

In 1994, total personal income for El Paso County was \$8.6 billion—2.4 percent of the person income of the entire state of Texas. Per capita personal income in the El Paso area was \$12,940—66 percent of the overall per capita income for Texas, and 60 percent of the \$21,696 figure for the U.S. economy.

Total personal income for El Paso County increased by 122 percent over the 1980 to 1990 period, which was 1.2 times the growth for the state of Texas and almost 1.2 times the growth experienced nationwide. Income growth slowed in the region in the 1990s, but the El Paso area economy managed to post growth rates only slightly below Texas and superior to the national economy during the 1990 to 1994 period.

The trend for per capita personal income has been mixed, with the per capita income of the El Paso area rising relative to both the Texas and U.S. economies during the 1980s but slipping during the 1990 to 1994 period. The area's per capita income rose from 65 percent of the state's level in 1980 to 69 percent in 1990 before falling to 66 percent in 1994.

Construction Activity

Given the relatively large size of the area economy, the absolute levels of commercial construction activity in El Paso County are significant—averaging more than \$175 million per year in the 1990s. But when measured on a per capita basis, residential construction activity in El Paso County has generally been less than either statewide or national levels. In terms of the number of units, home building activity in the 1990s has been below that of the previous decade in El Paso County but has experienced a smaller decline than the drop statewide. Per capita activity in the commercial construction sectors has also been below statewide and national levels, except in the case of the retail sector.

Tax Base

Since the most important taxes within state and local fiscal structures are property taxes, sales taxes, and income taxes, the three most important measures of a local area's tax base are the value of property subject to taxation, income, and retail sales.

Total assessed value of property subject to taxation in El Paso County grew by 70 percent over the 1981 to 1991 period and was \$13 billion in 1991. The overall level of assessed valuation per person was \$21,188 in 1991. On a per capita basis, the property tax base in El Paso County is 56 percent of the statewide level and 77 percent of the national average.

The dollar volume of retail trade in El Paso County increased 106 percent over the 1982 to 1992 period—much faster than sales growth statewide or for the nation as a whole. Per capita retail sales in El Paso County was nearly \$7,000 in 1992 but remained below the per capita sales figures for both Texas and the United States.

The personal income statistics discussed earlier show that income levels in El Paso County are much lower than statewide levels in Texas and even farther below the U.S. average.

Education

The schools in the El Paso area experienced increased enrollments during the 1980s, particularly at the pre-school and college levels. Growth in the number of students enrolled at schools in El Paso County was 26 percent over the decade—more than five times the rate of growth in the nation and nearly 1.3 times that experienced statewide.

Census information on educational attainment indicate that persons residing in El Paso County are on average less well educated than either the overall Texas adult population or the U.S. adult population. In 1990, the proportion who were high school graduates was 88 percent of the national average and 85 percent of the statewide figure. The proportion who were college graduates was 75 percent of both the statewide and national norms. The average education levels of the adult population of El Paso County did improve over the 1980 to 1990 period, but did not rise as quickly as they did on either a statewide or national basis, so that the area continued to have educational attainment levels below both the Texas and U.S. adult populations.

Employment

During the 1980s, total employment in El Paso County expanded 21.6 percent—faster than the state of Texas and the national economy. Employment in El Paso County represents about three percent of the total number of jobs statewide.

The overall performance of the El Paso County economy in recent years has more than kept pace with that of Texas as a whole. Total employment grew by 12.7 percent between 1990 and 1994—above the statewide pace and 2.5 times the national rate.

Even with substantial sustained job growth, the level of unemployment in the El Paso area has remained at or above the 10 percent level. Although much higher than the national rate, the incidence of unemployment in El Paso County is substantially below that of most of the U.S. counties adjacent to the Mexican border.

Between 1990 and 1994, most sectors of the El Paso area economy experienced employment increases, but the mining and federal government sectors lost jobs. The strongest employment increases have occurred in the construction, transportation/public utility and manufacturing sectors. State and local government employment also increased 20 percent over the period.

Structure of the El Paso Economy

The largest employment categories in El Paso County are service (23%), government (22%), retail trade (18%), and the manufacturing (16%) sectors (Table 10.50). The proportions of total employment provided by the manufacturing and the government sectors are substantially above those found in the Texas or national economies, but the services sector's share is actually lower than for the state or in the U.S. economy. State and local government jobs constitute the majority of public-sector employment, but the outstanding feature of government-sector employment is the relatively high concentration of the military—more than three times larger

Table 10.50
Basic Structure of the El Paso Economy

| Sector | 1980 | | | 1990 | | | 1994 | | |
|------------------------------|------------|-------------------|------|------------|-------------------|------|------------|-------------------|------|
| | Share of | Share Relative to | | Share of | Share Relative to | | Share of | Share Relative to | |
| | Total Jobs | Texas | U.S. | Total Jobs | Texas | U.S. | Total Jobs | Texas | U.S. |
| Farm | 0.5 | 0.15 | 0.16 | 0.3 | 0.12 | 0.14 | 0.3 | 0.12 | 0.14 |
| Non-Farm | 99.5 | 1.03 | 1.03 | 99.7 | 1.02 | 1.02 | 99.7 | 1.02 | 1.02 |
| Agricultural Services | 0.3 | 0.45 | 0.44 | 0.5 | 0.47 | 0.51 | 0.6 | 0.50 | 0.55 |
| Mining | 0.3 | 0.08 | 0.28 | 0.2 | 0.08 | 0.33 | 0.2 | 0.06 | 0.27 |
| Construction | 4.8 | 0.69 | 0.98 | 4.5 | 0.84 | 0.86 | 4.7 | 0.84 | 0.93 |
| Manufacturing | 17.1 | 1.20 | 0.94 | 15.7 | 1.42 | 1.11 | 16.3 | 1.56 | 1.23 |
| Transportation and Utilities | 5.5 | 1.03 | 1.10 | 4.6 | 0.89 | 0.97 | 4.8 | 0.92 | 1.00 |
| Wholesale Trade | 4.8 | 0.82 | 0.94 | 5.0 | 0.99 | 1.04 | 4.7 | 0.95 | 1.00 |
| Retail Trade | 16.4 | 1.02 | 1.04 | 17.6 | 1.06 | 1.06 | 17.8 | 1.05 | 1.06 |
| FIRE | 7.1 | 0.91 | 0.92 | 5.6 | 0.73 | 0.74 | 5.2 | 0.72 | 0.71 |
| Services | 17.0 | 0.87 | 0.79 | 23.5 | 0.88 | 0.85 | 23.4 | 0.84 | 0.80 |
| Government | 26.2 | 1.69 | 1.59 | 22.8 | 1.48 | 1.49 | 22.4 | 1.45 | 1.50 |
| Federal Civilian | 4.0 | 1.80 | 1.51 | 3.6 | 1.62 | 1.50 | 3.1 | 0.17 | 1.47 |
| Military | 9.8 | 3.99 | 4.55 | 6.5 | 3.27 | 3.40 | 5.4 | 3.10 | 3.28 |
| State and Local | 12.4 | 1.15 | 1.06 | 12.7 | 1.13 | 1.16 | 13.9 | 1.17 | 1.24 |

Source: Computed by Arizona State University from data in U.S. Bureau of Economic Analysis, Regional Economic Information System, 1996

relative to total employment compared to either Texas or the U.S. economy. Military employment's share of jobs in El Paso County has declined over the past decade from 10 percent in 1980 to 5 percent in 1994.

10.5.10 Impact of Trade on Economic Activity—El Paso

The El Paso economy provided employment for some 179,000 workers in 1994. The analysis below shows that more than 10 percent of all jobs and payroll can be attributed to the specialization within the El Paso economy in sectors related to or supported by trade.

There were 28,000 workers in the El Paso economy employed in the production of the top 10 manufactured export commodities passing through the El Paso Customs District. The largest single employment category was not-knitted clothing, SIC 23, with 15,847 workers. The next largest category was production of wadding, felt and yarn products, employing 2952.

The El Paso employment clothing sector accounted for 30 percent of the Texas total of all workers in this industry. The number of firms was only 9 percent of the state total, suggesting the average firm size is much larger in El Paso than in the rest of the state. El Paso clothing firms average 156 employees, while in the rest of the state the average clothing manufacturer employs only about 80 workers. Although employment in wadding and yard products is smaller, the percentage of total Texas production accounted for by El Paso firms is even larger than for clothing. One out of three workers in this industry is in El Paso. Average firm size is again larger than elsewhere in the state. El Paso only has six percent of the firms producing these products.

A third manufacturing product with significant presence in El Paso is plastics products. Although El Paso accounts for only 2.8 percent of all Texas jobs, the area provides 7 percent of all plastics jobs in the state.

The resulting concentration coefficients are shown in Table 10.51. The double-digit coefficients for clothing and wadding/yarn indicate that employment and payroll in these areas is more than 10 times larger than average for a Texas metropolitan area. Since these are among the most heavily exported products to Mexico the conclusion is that the border location supports the disproportionate level of employment, payroll and number of firms in these sectors.

Not surprisingly, wholesale activity in plastics, clothing, and wadding/yarn is also greater in El Paso than in the average Texas region. Concentration coefficients are largest for clothing wholesale. Transportation-related jobs and firms are slightly larger than average in El Paso, with concentration coefficients between one and two.

Using the concentration coefficients to estimate the "extra" employment supported by trade activity due to the proximity of the border, it can be seen that nearly 20,000 jobs in the El Paso area are supported by trade. The greatest number of jobs are in manufacturing, some 19,000. The total annual payroll related to trade in 1994 was \$331,000. The employment and payroll supported by trade account for just over 10 percent of the employment and payroll in the El Paso area. However, because of the large firm size, only 2.5 percent of total firms can be attributed to the border location.

Table 10.51
Estimated Trade Impact on Employment, Payroll and Firms—El Paso (Payroll in \$000)

| | | Employment | Payroll | Firms |
|---|---------------------------|---------------|------------------|------------|
| El Paso Share of all Texas Industries | | 2.8% | 2.0% | 2.6% |
| Concentration Coefficients | Plastics Mfg. | 2.6 | 2.9 | 1.4 |
| Concentration Coefficients | Not Knitted Clothing Mfg. | 11.0 | 14.0 | 3.5 |
| Concentration Coefficients | Wadding, Felt, Yarn Mfg. | 12.2 | 14.7 | 2.6 |
| Concentration Coefficients | Plastics Wholesale | 1.8 | 1.1 | 2.1 |
| Concentration Coefficients | Clothing Wholesale | 3.3 | 4.4 | 3.0 |
| Concentration Coefficients | Wadding/Yarn Wholesale | 2.4 | 2.2 | 1.6 |
| Concentration Coefficients | Trucking & Warehousing | 1.1 | 1.2 | 1.4 |
| Concentration Coefficients | Freight Arrangement | 1.5 | 1.5 | 1.9 |
| <hr/> | | | | |
| Estimated Impact of Trade | Plastics Mfg. | 1,641 | \$35,971 | 8 |
| Estimated Impact of Trade | Not Knitted Clothing Mfg. | 14,408 | 212,590 | 72 |
| Estimated Impact of Trade | Wadding, Felt, Yarn Mfg. | 2,909 | 46,865 | 6 |
| Estimated Impact of Trade | Plastics Wholesale | 59 | 226 | 8 |
| Estimated Impact of Trade | Clothing Wholesale | 539 | 14,786 | 57 |
| Estimated Impact of Trade | Wadding/Yarn Wholesale | 265 | 4,050 | 17 |
| Estimated Impact of Trade | Trucking & Warehousing | 159 | 13,409 | 82 |
| Estimated Impact of Trade | Freight Arrangement | 185 | 3,185 | 33 |
| <hr/> | | | | |
| Total Estimated Impact of Border Trade | | 19,965 | \$331,083 | 283 |
| <hr/> | | | | |
| Trade Share of Total El Paso Economy | | 11.1% | 10.1% | 2.5% |
| Total El Paso Economy 1994 | | 179,197 | \$3,285,076 | 11,179 |

Source: Arizona State University estimates based on *County Business Patterns*.

10.5.11 Maverick County (Eagle Pass), Texas-Piedras Negras, Coahuila Economic Trends

The combination of the Eagle Pass, Texas-Piedras Negras, Coahuila border areas had a total population of 137,000 according to the two countries' 1990 census counts. The area's economy is small but began to grow rapidly as U.S.-Mexico trade expanded in the second half of the past decade. This section profiles the economy of the Eagle Pass area and analyzes the impact of U.S.-Mexico trade upon the area's economy.

Population

For the analysis of the U.S. portion of the Eagle Pass border area, the study area is defined as Maverick County, Texas. According to the 1990 census, Maverick County had a population of 36,000. The population of Maverick County grew 20 percent during the 1990 to 1994 period. The total county population represents only 0.2 percent of the Texas population.

The population of Maverick County increased 16 percent over the entire 1980 to 1990 period—83 percent of the rate for the state of Texas but 1.6 times as fast as the U.S. population (Table 10.52). With the liberalization of Mexico-U.S. trade in 1986, the pace of growth accelerated in the Eagle Pass area, and the population of Maverick County grew substantially faster than the overall state population over the 1987 to 1990 period. Since 1990, the Maverick County population has grown at a rate more than 2.6 times as fast as the state of Texas and 4.6 times faster than the nation as a whole.

Table 10.52
Trends in Economic Indicators-Maverick County (Eagle Pass), Texas

| Indicator | 1980 | 1990 | 1994 | Percent Change | |
|------------------------------------|-------|-------|-------|----------------|-----------|
| | | | | 1980-1990 | 1990-1994 |
| Population (1,000s) | 31.8 | 36.8 | 44.2 | 15.7 | 20.1 |
| Personal Income (\$Millions) | 128.3 | 254.0 | 367.3 | 98.0 | 44.6 |
| Per Capita Income (\$) | 4,037 | 6,903 | 8,306 | 71.0 | 20.3 |
| Retail Sales (\$Millions) | 142.8 | 128.1 | 252.2 | | |
| Percent with High School Education | 32.2 | 35.7 | | 10.9 | |
| Employment (1,000s) | 4,883 | 5,169 | 6,398 | 5.9 | 23.8 |
| Unemployment Rate | 24.9 | 26.9 | 27.0 | | |

Note: Retail sales are for 1982, 1987, 1992 from *Census of Retail Trade*, U.S. Census Bureau.

Income

In 1994, total personal income for Maverick County was \$367 million or 0.1 percent of the personal income of the state of Texas. Per capita personal income in the Eagle Pass area was \$8,306—only 42 percent of the overall per capita income for Texas, and 38 percent of the \$21,696 figure for the U.S. economy.

Personal income for Maverick County increased by nearly 100 percent over the 1980 to 1990 period, which was 96 percent of the growth rate for the state of Texas and 92 percent of the growth experienced nationwide. Income continued to grow at a similar pace in the region in the 1990s, so that the Eagle Pass economy managed to post growth rates superior to the Texas and national economies during the 1990 to 1994 period.

The trend for per capita personal income was not as positive, with the Eagle Pass area falling behind both the Texas and U.S. economies during most of the 1980 to 1990 period. The area's per capita income fell from 41 percent to the state's level in 1980 to 39 percent in 1987 before climbing back to 41 percent in 1990 and rising to 42 percent of the overall state figure by 1994.

Construction Activity

Given the small size of the area economy, the absolute levels of construction activity in Maverick County are small—about \$3 million per year over the 1980s and \$5 million per year in the 1990s. When measured on a per capita basis, Maverick County's residential construction levels are smaller in magnitude than those of Texas and overall U.S. economy.

Tax Base

The overall level of assessed valuation per person for Maverick County was \$15,533 in 1991. On a per capita basis, the property tax base in Maverick County is only 41 percent of the statewide level and 57 percent of the national average.

The dollar volume of retail trade in Maverick County increased 77 percent over the 1982 to 1992 period, but total retail sales actually declined over the 1982 to 1987 period and then nearly doubled between 1987 and 1992. Aggregate retail sales in Maverick County rose 97 percent over the 1987 to 1992 period versus a drop of 10 percent from 1982 to 1987. Per capita retail sales remained below statewide and national levels.

Education

The school system in the Eagle Pass area experienced some increase in enrollment during the 1980s, particularly at the pre-school and college levels. Growth in the number of students enrolled at schools in Maverick County was 17 percent over the decade—more than three times the rate of growth in the nation as a whole, but less than that experienced statewide.

Information on educational attainment compiled by the decennial censuses indicate that persons residing in Maverick County are generally less well educated than either the overall Texas adult population or the U.S. adult population. The proportion of residents who were high school graduates improved over the 1980 to 1990 period, but the proportion of college graduates declined.

Employment

During the 1980s, total employment in Maverick County expanded 5.9 percent—much slower than the state of Texas and the national economy. During the last three years of the decade, however, job growth accelerated, and county employment rose 18 percent between 1987 and 1990. Even with rapid growth, employment in Maverick County represented less than 0.1 percent of the total number of jobs statewide. The overall performance of the Maverick County economy in recent years has been much stronger than that of Texas as a whole. It has been able to sustain job growth at nearly two times the statewide pace and four times the national rate. Employment grew 23.8 percent between 1990 and 1994.

But chronic high unemployment is a serious problem in the Eagle Pass area. Even with rapid job growth, the unemployment rate remains in the 25 percent range in the 1990s.

Between 1990 and 1994, as most sectors of the Eagle pass area economy experienced substantial employment growth, the wholesale trade sector lost jobs. The strongest employment increases have occurred in the transportation/public utility and government sectors, with state and local government employment up 23 percent over the period.

Structure of the Maverick County Economy

The largest employment sectors in Maverick County include government (28%), retail trade (25%), and services (16%). The proportions of total employment provided by the government and retail sectors are not much higher than those found in the Texas national economies (Table 10.53), but the services sector share is actually lower than for the state or in the U.S. economy. The government share is dominated by state and local government jobs—two times larger relative to total employment compared to either Texas or the U.S. economy. This concentration has increased over the past decade. The state/local government share of total employment rose from 19 percent in 1980 to 25 percent in 1994.

With the growing importance of international trade, the transportation sector accounted for a larger share of 1994 employment than in the Texas or the U.S. economies. The share of employment in the transportation sector also grew substantially in the 1980 to 1990 period in Maverick County, which was not the case for either Texas or the national economy. During the recent period, this trade-related sector has continued to grow in the Eagle Pass area at an even faster pace.

Table 10.53
Basic Structure of the Maverick County Economy

| Sector | 1980 | | | 1990 | | | 1994 | | |
|------------------------------|------------|-------------------|------|------------|-------------------|------|------------|-------------------|------|
| | Share of | Share Relative to | | Share of | Share Relative to | | Share of | Share Relative to | |
| | Total Jobs | Texas | U.S. | Total Jobs | Texas | U.S. | Total Jobs | Texas | U.S. |
| Farm | 5.8 | 1.57 | 1.73 | 4.1 | 1.54 | 1.78 | 3.5 | 1.46 | 1.69 |
| Non-Farm | 94.2 | 0.98 | 0.98 | 95.9 | 0.99 | 0.98 | 96.5 | 0.99 | 0.99 |
| Agricultural Services | 0.4 | 0.54 | 0.53 | 4.5 | 4.10 | 4.45 | 3.6 | 2.80 | 3.05 |
| Mining | 1.8 | 0.44 | 1.64 | 1.0 | 0.32 | 1.34 | 0.6 | 0.24 | 1.02 |
| Construction | 2.4 | 0.34 | 0.49 | 2.5 | 0.47 | 0.48 | 2.6 | 0.46 | 0.51 |
| Manufacturing | 18.7 | 1.31 | 1.02 | 12.2 | 1.10 | 0.86 | 11.3 | 1.09 | 0.86 |
| Transportation and Utilities | 3.6 | 0.68 | 0.73 | 5.1 | 0.98 | 1.07 | 6.1 | 1.16 | 1.27 |
| Wholesale Trade | 3.5 | 0.60 | 0.69 | 3.3 | 0.65 | 0.68 | 2.7 | 0.55 | 0.58 |
| Retail Trade | 25.1 | 1.57 | 1.60 | 24.6 | 1.49 | 1.49 | 25.3 | 1.50 | 1.51 |
| FIRE | 3.9 | 0.51 | 0.51 | 3.8 | 0.49 | 0.49 | 3.8 | 0.53 | 0.52 |
| Services | 12.1 | 0.62 | 0.56 | 15.9 | 0.60 | 0.58 | 16.0 | 0.57 | 0.55 |
| Government | 22.5 | 1.45 | 1.36 | 27.1 | 1.76 | 1.78 | 28.0 | 1.81 | 1.87 |
| Federal Civilian | 2.4 | 1.06 | 0.89 | 2.6 | 1.19 | 1.10 | 2.3 | 1.23 | 1.09 |
| Military | 1.1 | 0.43 | 0.50 | 1.4 | 0.68 | 0.71 | 1.2 | 0.68 | 0.72 |
| State and Local | 19.1 | 1.77 | 1.63 | 23.2 | 2.06 | 2.11 | 24.5 | 2.07 | 2.19 |

Source: Computed by Arizona State University from data in U.S. Bureau of Economic Analysis, Regional Economic Information System, 1996

10.5.12 Impact of Trade on Economic Activity—Maverick County (Eagle Pass), Texas

A key source of economic growth in the Maverick County area has been the transportation sector, which has seen employment grow by 53 percent between 1990 and 1994. In the rest of Texas, employment in the transportation sector increased approximately 14 percent in these years. The number of Eagle Pass trucking and warehousing firms increased by 150 percent over this period, rising from 22 in 1990 to 55 in 1994.

The Maverick County area has a slightly higher than expected representation of iron and steel manufacturing, with approximately 250 workers in a single establishment. There is also a large apparel manufacturing establishment, employing approximately 750 workers. These apparel workers account for more than 10 percent of total Eagle Pass employment. In the overall Texas economy, the average plant size for Texas apparel manufacturing is 50 workers. It is reasonable to conclude that the proximity of the border is the primary factor responsible for the presence of a facility in Eagle Pass which is some 15 times larger than average.

The Eagle pass concentration coefficients are largest for apparel and textile manufacturing (14.5 for employment) and freight arrangement (12.0). Additional coefficients greater than one are for iron and steel manufacturing (3.1) and trucking and warehousing (1.8). (Wholesale activity is not significant in the Maverick County area.)

The concentration coefficients methodology for estimating employment supported by trade activity indicates that 1,092 jobs can be attributed to the proximity of the border (Table 10.54). There are 168 additional iron and steel jobs, and 699 apparel manufacturing jobs associated with the location of Eagle Pass. The border location contributes to 82 jobs in trucking and 144 jobs in freight arrangement. Combined, these jobs are equivalent to 17 percent of all Maverick County employment. This same methodology shows that 24 percent of payroll in the area is due to the presence of the border, with a total impact of \$20.6 million in 1994.

Table 10.54
Estimated Trade Impact on Employment, Payroll and Firms—Maverick County (Eagle Pass), Texas (Payroll in \$000)

| | | Employment | Payroll | Firms |
|--|---------------------------|------------|----------|-------|
| Maverick County (Eagle Pass) Share of all Texas Industries | | 0.10% | 0.05% | 0.15% |
| Concentration Coefficients | Iron and Steel Mfg. | 3.1 | 5.7 | 0.3 |
| Concentration Coefficients | Apparel and Textiles Mfg. | 14.6 | 27.2 | 0.6 |
| Concentration Coefficients | Wholesale Trade | 0.5 | 0.4 | 1.0 |
| Concentration Coefficients | Trucking & Warehousing | 1.8 | 2.2 | 4.8 |
| Concentration Coefficients | Freight Arrangement | 12.0 | 11.8 | 8.3 |
| Estimated Impact of Trade | Iron and Steel Mfg. | 168 | \$5,745 | -3 |
| Estimated Impact of Trade | Apparel and Textiles Mfg. | 699 | 11,204 | -1 |
| Estimated Impact of Trade | Wholesale Trade | 82 | 1,774 | 43 |
| Estimated Impact of Trade | Trucking & Warehousing | 144 | 1,973 | 16 |
| Estimated Impact of Trade | Freight Arrangement | | | |
| Total Estimated Impact of Border Trade | | 1,092 | \$20,697 | 55 |
| Trade Share of Total Maverick County (Eagle Pass) Economy | | 17.1% | 24.2% | 8.7% |
| Total Maverick County Economy in 1994 | | 6,398 | \$85,626 | 641 |

Source: Arizona State University estimates based on *County Business Patterns*.

10.5.13 Webb County (Laredo), Texas-Nuevo Laredo, Tamaulipas Economic Trends

The combination of the Laredo, Texas-Nuevo Laredo, Tamaulipas border areas had a total population of 354,000 according to the two countries' 1990 census counts. This section profiles the economy of the Laredo area and analyzes the impact of U.S.-Mexico trade upon the area's economy.

Population

For the analysis of the U.S. portion of the Laredo border, the study area is defined as Webb County, Texas. Webb County is also officially designated by the U.S. Office of Management and Budget as the Laredo MSA. The county has a land area of 3,300 square miles. According to the 1990 census, Webb County had a population of 133,000. The population of Webb County grew 21 percent during the 1990 to 1994 period. The metropolitan area accounts for 0.9 percent of the total state population.

The population of Webb County increased 34 percent over the 1980 to 1990 period—1.8 times the rate for the state of Texas and 3.5 times as fast as the U.S. population (Table 10.55). With the liberalization of Mexico-U.S. trade in 1986, the pace of growth accelerated in the Laredo area, and the population of Webb County grew substantially faster than the overall state population over the 1987 to 1990 period. Since 1990, the Webb County population has grown at a rate more than 2.7 times as fast as the state of Texas and 4.9 times faster than the nation as a whole.

**Table 10.55
Trends in Economic Indicators-Webb County (Laredo), Texas**

| Indicator | 1980 | 1990 | 1994 | Percent Change | |
|------------------------------------|--------|--------|--------|----------------|-----------|
| | | | | 1980-1990 | 1990-1994 |
| Population (1,000s)) | 100.5 | 134.5 | 1,63.1 | 33.8 | 21.3 |
| Personal Income (\$Millions) | 540 | 1,208 | 1,841 | 123.8 | 52.4 |
| Per Capita Income (\$) | 5,371 | 8,977 | 11,289 | 67.1 | 25.8 |
| Retail Sales (\$Millions) | 701 | 708 | 1,601 | | |
| Percent with High School Education | 41.5 | 47.8 | | 15.2 | |
| Employment (1,000s) | 24,363 | 3,2262 | 43,438 | 32.4 | 34.6 |
| Unemployment Rate | 10.6 | 10.9 | 9.3 | | |

Note: Retail sales are for 1982, 1987, 1992 from *Census of Retail Trade*, U.S. Census Bureau.

Income

In 1994, total personal income for Webb County was \$1.8 billion—about 0.5 percent of the personal income for the entire state of Texas. Per capita personal income in the Laredo area was \$11,289—only 57 percent of the overall per capita income for Texas, and 52 percent of the \$21,696 figure for the U.S. economy.

Total personal income for Webb County increased 124 percent over the 1980 to 1990 period, which was 1.2 times the growth for both the Texas and U.S. economies. Income continued to grow at a similar pace in the region in the 1990s, so that the Laredo area economy also managed to post growth rates far superior to the Texas and national economies during the 1990 to 1994 period.

The trend for per capita personal income has not been as outstanding. The per capita income of the Laredo area slipped relative to both the Texas and U.S. economies during most of the 1980 to 1990 period. The area's per capita income fell from 55 percent of the state's level in 1980 to 49 percent in 1987 before climbing back to 54 percent by 1990. Improvement continued after 1990, with per capita income rising to 57 percent of the overall state figure by 1994.

Construction Activity

Construction activity in Webb County surged in the late 1980s—to nearly \$50 million per year during the 1987 to 1990 period and \$100 million per year in the 1990s. When measured on the basis of housing units per person, Webb County's level of residential construction jumped from less than one-half of the Texas figure and three quarters of the national level to above the U.S. level and twice the statewide levels after 1987. Most commercial construction in Webb County has been concentrated in the retail sector—averaging \$17 million per year in the 1987 to 1990 period and \$44 million per year during the 1990 to 1994 period (more than six times both the state and national levels).

Tax Base

The total assessed value of property subject to taxation for Webb County was \$3.5 billion in 1991. The level of assessed valuation per person was \$24,538 in 1991. On a per capita basis, the property tax base in Webb County is only 65 percent of the statewide level and 89 percent of the national average. Measured on a per capita basis, assessed value actually declined during the last half of the 1980s in Webb County.

The dollar volume of retail trade in Webb County increased 128 percent over the 1982 to 1992 period, but total retail sales were essentially flat during the 1982 to 1987 period and then more than doubled between 1978 and 1992. Per capita retail sales in Webb County were \$10,780 in 1992—more than 1.4 times both the statewide and national levels.

Education

The schools in the Laredo area experienced significant enrollment increases during the 1980s, particularly at the pre-school and college levels. Growth in the number of students enrolled at schools in Webb County was 43 percent over the decade—more than nine times the rate of growth in the nation as a whole and twice the statewide rate.

Information on educational attainment compiled the decennial censuses indicate that persons residing in Webb County are on average less well educated than either the overall Texas adult population or the U.S. adult population. Both the proportion of residents who were high school graduates and the proportion of college graduates improved over the 1980 to 1990 period but not as much as occurred at the statewide and national levels. Thus, the area continued to have educational attainment levels far below both Texas and the U.S. as a whole.

Employment

During the 1980s, total employment in Webb County expanded 32 percent—much faster than both the Texas and the national economies. During the last three years of the decade, job growth accelerated, and county employment rose 24 percent between 1987 and 1990. Rapid job growth in the Laredo area has continued in the 1990s. Total employment grew by 34 percent between 1990 and 1994—three times the rate for Texas and seven times the national rate.

Unemployment has remained well above both statewide and national levels in Webb County. The unemployment rate rose from 10.6 percent in 1980 to 15.4 percent in 1987. With the acceleration in job growth in the late 1980s, the rate fell to 10.9 in 1990 and has continued to decline slowly in recent years.

Between 1990 and 1994, most sectors of the Laredo area economy experienced substantial employment growth, but the manufacturing sector lost jobs. The strongest employment increases

have occurred in the construction and transportation/public utility sectors. Within the government sector federal civilian employment in Webb County more than doubled over the period.

Structure of the Webb County Economy

The retail trade (24%), service (21%), and the government (18%) sectors account for the greatest employment shares in Webb County (Table 10.56). The proportions of total employment provided by the retail and government sectors are larger than those found in the Texas or national economies, but the services sector share is actually smaller than for the state or in the U.S. economy. The government sector is dominated by state and local government jobs—one-third larger relative to total employment compared to either Texas or the U.S. economy. This concentration in Webb County has declined over the past decade, falling from 17 percent in 1980 to 14.4 percent in 1994.

With the growing importance of international trade, the transportation sector accounted for a much larger share of 1994 employment than in the Texas or the U.S. economies. The share of employment in the transportation sector also grew substantially in the 1980 to 1990 period in Webb County, which was not the case for either Texas or the national economy.

Table 10.56
Basic Structure of the Webb County Economy

| Sector | 1980 | | | 1990 | | | 1994 | | |
|------------------------------|------------|-------------------|------|------------|-------------------|------|------------|-------------------|------|
| | Share of | Share Relative to | | Share of | Share Relative to | | Share of | Share Relative to | |
| | Total Jobs | Texas | U.S. | Total Jobs | Texas | U.S. | Total Jobs | Texas | U.S. |
| Farm | 2.9 | 0.78 | 0.86 | 1.6 | 0.63 | 0.72 | 1.3 | 0.54 | 0.63 |
| Non-Farm | 97.1 | 1.01 | 1.01 | 98.4 | 1.01 | 1.01 | 98.7 | 1.01 | 1.01 |
| Agricultural Services | 0.3 | 0.41 | 0.40 | 0.6 | 0.51 | 0.55 | 0.6 | 0.47 | 0.51 |
| Mining | 4.4 | 1.05 | 3.91 | 3.7 | 1.20 | 5.02 | 4.6 | 1.70 | 7.21 |
| Construction | 4.7 | 0.67 | 0.95 | 3.8 | 0.71 | 0.73 | 4.3 | 0.76 | 0.84 |
| Manufacturing | 5.5 | 0.38 | 0.30 | 3.5 | 0.31 | 0.24 | 2.5 | 0.25 | 0.19 |
| Transportation and Utilities | 9.4 | 1.76 | 1.88 | 13.0 | 2.50 | 2.73 | 14.8 | 2.83 | 3.09 |
| Wholesale Trade | 5.2 | 0.89 | 1.03 | 5.2 | 1.04 | 1.08 | 4.8 | 0.97 | 1.02 |
| Retail Trade | 27.1 | 1.69 | 1.73 | 24.9 | 1.50 | 1.51 | 24.1 | 1.43 | 1.43 |
| FIRE | 4.4 | 0.56 | 0.57 | 5.6 | 0.72 | 0.73 | 5.4 | 0.75 | 0.74 |
| Services | 16.8 | 0.86 | 0.78 | 21.7 | 0.81 | 0.79 | 20.9 | 0.75 | 0.71 |
| Government | 19.4 | 1.25 | 1.17 | 18.1 | 1.17 | 1.19 | 18.0 | 1.16 | 1.20 |
| Federal Civilian | 1.7 | 0.76 | 0.64 | 1.1 | 0.50 | 0.46 | 1.7 | 0.92 | 0.81 |
| Military | 0.8 | 0.32 | 0.36 | 0.9 | 0.46 | 0.47 | 0.7 | 0.42 | 0.45 |
| State and Local | 16.9 | 1.57 | 1.45 | 16.1 | 1.43 | 1.47 | 15.5 | 1.31 | 1.39 |

Source: Computed by Arizona State University from data in U.S. Bureau of Economic Analysis, Regional Economic Information System, 1996

10.5.14 Impact of Trade on Economic Activity-Webb County (Laredo), Texas

The Webb County economy has been influenced strongly by its border location and trade with Mexico. The population of the county increased by one third over the 1980 to 1990 period and grew by more than 20 percent between 1990 and 1994. Since 1990, the area has grown twice as fast each year as the state of Texas and up to five times as fast as the nation as a whole.

Similarly, as Mexican trade has expanded, employment has increased sharply. During the first few months of 1987, the Laredo area ranked 240 among 280 metropolitan areas nationally in job growth. By the end of 1988 the economy ranked 27. During several months of 1991, the Laredo economy ranked #1 among all metropolitan areas in the rate of job creation, with employment growing at an annual rate exceeding 8 percent in some months. But in mid-1995, as the Mexican economy has weakened, job growth in the Laredo area has slowed and in some months has been negative.

Although a large amount of traded goods measured by both volume and value passes through the Laredo Customs District, the Webb County area is not a manufacturing center and the proportion of Laredo employment accounted for by manufacturing has been declining in recent years.

The most significant trade-related employment sector is transportation. This sector is important due to its size and rate of growth.

Between 1980 and 1990, trucking, warehousing, and freight arrangement added 3,651 jobs in Laredo, a 260 percent rate of growth. Statewide, this sector grew by only 9.4 percent. Importantly, the jobs created in the Laredo area accounted for one out of three such new jobs in the entire state.

The transportation sector added an additional 2,000 jobs between 1990 and 1994, growing by 42.5 percent in just four years. Meanwhile statewide employment in transportation grew just 13.9 percent. The number of establishments nearly doubled in Laredo, growing from 354 in 1990 to 678 in 1994.

The Webb County share of Texas freight arrangement jobs was 35 percent in 1994, indicating that one out of three freight arrangement jobs are found in the Laredo area. The concentration coefficient for freight arrangement in Webb County is 51. The interpretation is that employment in freight is 50 times greater than necessary to serve the local economy. Therefore, a likely conclusion is that the Laredo transportation sector serves the rest of the state and the nation as a whole.

The estimated magnitude of trade-related activity is 4,694 jobs and payroll of \$92 million in 555 firms. Of the 7,207 workers in the transportation industry, an estimated 4,506 are required to support trade with Mexico which takes place due to the location of Laredo at the border. The remaining 189 trade-related jobs are in the wholesale trade sector, which has a concentration coefficient just greater than one (Table 10.57).

The presence of the border has a significant impact on the Laredo economy. One out of 10 jobs (10.8% of employment) is due to the border location. The impact is larger on payroll (13.5%) and number of firms (14.7%).

Table 10.57
Estimated Trade Impact on Employment, Payroll and Firms-Webb County (Laredo), Texas
(Payroll in \$000)

| | | Employment | Payroll | Firms |
|--|--------------------------|-------------------|-----------------|--------------|
| Webb County (Laredo) Share of all Texas Industries | | 0.67% | 0.43% | 0.88% |
| Concentration Coefficients | Trucking and Warehousing | 3.6 | 4.4 | 3.9 |
| Concentration Coefficients | Freight Arrangement | 51.5 | 56.5 | 32.4 |
| Concentration Coefficients | Wholesale Trade | 1.06 | 0.96 | 1.30 |
| Concentration Coefficients | | | | |
| Estimated Impact of Trade | Trucking and Warehousing | 1,886 | \$41,574 | 195 |
| Estimated Impact of Trade | Freight Arrangement | 2,620 | \$53,691 | 261 |
| Estimated Impact of Trade | Wholesale Trade | 189 | | 99 |
| Total Estimated Impact of Border Trade | | 4,695 | \$92,965 | 555 |
| Trade Share of Total Webb County (Laredo) Economy | | 10.8% | 13.5% | 14.7% |
| Total Laredo Economy 1994 | | 43,438 | \$688,735 | 3,777 |

Source: Arizona State University estimates based on *County Business Patterns*.

10.5.15 Cameron County (Brownsville), Texas-Matamoros, Tamaulipas Economic Trends

The census counts for the Brownsville, Texas-Matamoros, Tamaulipas border areas reported a combined total population of 565,000 in 1990. This section profiles the economy of the Brownsville area and analyzes the impact of U.S.-Mexico trade upon the area's economy.

Population

For the analysis of the U.S. portion of the Brownsville border area, the study area is defined as Cameron County, Texas. Cameron County is also officially designated by the U.S. Office of Management and Budget as the Brownsville-Harlingen MSA. The county has a land area of 900 square miles and, according to the 1990 census, Cameron County had a population of 262,000. The population of Cameron County grew 14 percent during the 1990 to 1994 period. The county represents 1.6 percent of the total state population.

Population growth experienced during the first half of the 1990s has been faster than that of the previous decade, when the population of Cameron County increased 23 percent over the entire 1980 to 1990 period—1.2 times the rate for the state of Texas and 2.4 times as fast as the U.S. population (Table 10.58). With the liberalization of Mexico-U.S. trade in 1986, growth accelerated in the Brownsville area, and the population of Cameron County grew 1.6 times as fast as the overall state population over the 1987 to 1990 period. Since 1990, the Cameron County population has grown at a rate more than 1.8 times as fast as the state of Texas and 3.3 times faster than the nation as a whole.

Table 10.58
Trends in Economic Indicators-Cameron County (Brownsville), Texas

| Indicator | 1980 | 1990 | 1994 | Percent Change | |
|------------------------------------|--------|--------|--------|----------------|-----------|
| | | | | 1980-1990 | 1990-1994 |
| Population (1,000s)) | 212.2 | 261.9 | 299.6 | 23.4 | 14.1 |
| Personal Income (\$Millions) | 1,208 | 2,512 | 3,399 | 107.9 | 35.3 |
| Per Capita Income (\$) | 5,693 | 9,592 | 11,346 | 68.5 | 18.3 |
| Retail Sales (\$Millions) | 1,026 | 1,133 | 1,777 | | |
| Percent with High School Education | 43.8 | 50.0 | | 14.2 | |
| Employment (1,000s) | 47,866 | 59,500 | 71,283 | 24.3 | 19.8 |
| Unemployment Rate | 9.7 | 12.0 | 12.1 | | |

Note: Retail sales are for 1982, 1987, 1992 from *Census of Retail Trade*, U.S. Census Bureau.

Income

In 1994, total personal income for Cameron County was \$3.4 billion—about 1 percent of the personal income for the entire state of Texas. Per capita personal income in the Brownsville area was \$11,346—only 58 percent of the overall per capita income for Texas, and 52 percent of the \$21,696 figure for the U.S. economy.

Personal income for Cameron County increased 108 percent over the 1980 to 1990 period, which was marginally faster for Texas and U.S. economies over the decade. Income continued to expand at only a slightly slower pace in the 1990s, so that the Brownsville area economy managed to post growth rates superior to both the Texas and national economies during the 1990 to 1994 period.

The trend for per capita personal income was not as positive, with the per capita income of the Brownsville area at about 58 percent of the Texas level during most of the 1980 to 1994 period. The area's per capita income fell from 58 percent of the state's level in 1980 to 55 percent in 1987 before climbing back to 57 percent in 1990 and has remained at approximately the same relative position during the 1990s.

Construction Activity

The absolute levels of commercial construction activity in Cameron County are relatively modest when compared with larger metro areas in the state—about \$75 million per year in the 1990s. When measured on a per capita basis Cameron County's level of residential construction is similar in magnitude to Texas and overall U.S. economy in terms of the number of housing units but substantially less in terms of dollar value. In the commercial construction sectors, the rapid growth of the area has caused a doubling in the 1990s of construction in the office and retail segments of the market.

Tax Base

The overall level of assessed valuation per person for Cameron County was \$16,054 in 1991. On a per capita basis, the property tax base in Cameron County is only 42 percent of the statewide level and 58 percent of the national average.

The dollar volume of retail trade in Cameron County increased 73 percent over the 1982 to 1992 period, with total retail sales rising slowly over the 1982 to 1987 period and then growing by 57 percent between 1987 and 1992. Per capita sales in Cameron County were \$6,369 in 1992—slightly more than 80 percent of statewide and national levels.

Education

The school system in the Brownsville area experienced substantial increases in enrollment during the 1980s, particularly at the pre-school and college levels. Growth in the number of students enrolled at schools in Cameron County was 31 percent over the decade—more than six times the rate of growth in the nation as a whole and 1.5 times that experienced statewide.

Information on educational attainment compiled by the decennial censuses indicate that persons residing in Cameron County are on average less well educated than either the overall Texas adult population or the U.S. adult population. Both the proportion of residents who were high school graduates and the proportion of college graduates improved over the 1980 to 1990 period, but not as much as occurred in both the statewide and national adult populations. Thus, the Brownsville area continued to have educational attainment levels far below both Texas and the United States as a whole.

Employment

During the 1980s, total employment in Cameron County expanded 24 percent—slower than the state of Texas and about the same pace as the national economy. During the last three years of the decade, however, job growth accelerated, and county employment rose 16 percent between 1987 and 1990. Employment in Cameron County represented less than 1 percent of the total number of jobs statewide. Despite strong job growth, unemployment in the area has remained in double-digit levels for the past decade.

Rapid job growth in the Brownsville area has continued in the 1990s. Total employment grew by nearly 20 percent between 1990 and 1994—much faster than either Texas or national growth rates for the same period.

Between 1990 and 1994, most sectors of the Brownsville area economy experienced substantial employment growth; only the farm sector and the military portion of the government sector suffered job losses. The strongest employment increases have occurred in the transportation/public utility, services, and government sectors, with transportation/public utility employment up 21 percent over the period.

Structure of the Brownsville Area Economy

The sectors providing the greatest proportion of employment in Cameron County are services (28%), retail trade (20%), and government (19%) sectors. The proportion of total employment provided by the service sector is not much different than that found in the Texas or national economies, but the retail and government sector shares are higher than the state or in the U.S. shares. The government sector is dominated by state and local government jobs—1.5 times larger relative to total employment compared to either Texas or the U.S. economy. This concentration in Cameron County has increased slightly over the past decade, rising from 16 percent in 1980 to 17 percent in 1994 (Table 10.59).

Table 10.59
Basic Structure of the Cameron County Economy

| Sector | 1980 | | | 1990 | | | 1994 | | |
|------------------------------|------------|-------------------|------|------------|-------------------|------|------------|-------------------|------|
| | Share of | Share Relative to | | Share of | Share Relative to | | Share of | Share Relative to | |
| | Total Jobs | Texas | U.S. | Total Jobs | Texas | U.S. | Total Jobs | Texas | U.S. |
| Farm | 4.1 | 1.10 | 1.22 | 2.1 | 0.81 | 0.93 | 1.8 | 0.76 | 0.88 |
| Non-Farm | 95.9 | 1.00 | 0.99 | 97.9 | 1.01 | 1.00 | 98.2 | 1.01 | 1.00 |
| Agricultural Services | 3.8 | 4.80 | 4.74 | 2.8 | 2.55 | 2.76 | 2.8 | 2.21 | 2.40 |
| Mining | 0.5 | 0.11 | 0.42 | 0.2 | 0.07 | 0.29 | 0.2 | 0.07 | 0.31 |
| Construction | 5.7 | 0.80 | 1.14 | 3.9 | 0.72 | 0.74 | 3.8 | 0.67 | 0.75 |
| Manufacturing | 14.4 | 1.01 | 0.79 | 12.4 | 1.12 | 0.87 | 12.3 | 1.18 | 0.93 |
| Transportation and Utilities | 4.3 | 0.80 | 0.86 | 4.1 | 0.79 | 0.86 | 4.2 | 0.80 | 0.88 |
| Wholesale Trade | 5.2 | 0.89 | 1.03 | 3.8 | 0.78 | 0.82 | 4.0 | 0.81 | 0.85 |
| Retail Trade | 19.2 | 1.20 | 1.23 | 20.6 | 1.24 | 1.24 | 20.4 | 1.21 | 1.21 |
| FIRE | 6.5 | 0.83 | 0.84 | 6.1 | 0.79 | 0.79 | 5.4 | 0.75 | 0.73 |
| Services | 18.4 | 0.94 | 0.85 | 27.1 | 1.01 | 0.99 | 27.7 | 1.00 | 0.95 |
| Government | 18.1 | 1.17 | 1.09 | 19.0 | 1.23 | 1.24 | 19.2 | 1.24 | 1.28 |
| Federal Civilian | 1.3 | 0.58 | 0.49 | 1.3 | 0.59 | 0.55 | 1.2 | 0.65 | 0.58 |
| Military | 1.0 | 0.39 | 0.45 | 1.0 | 0.52 | 0.54 | 0.9 | 0.49 | 0.52 |
| State and Local | 15.8 | 1.46 | 1.35 | 16.6 | 1.48 | 1.52 | 17.1 | 1.45 | 1.53 |

Source: Computed by Arizona State University from data in U.S. Bureau of Economic Analysis, Regional Economic Information System, 1996

10.5.16 Impact of Trade on Economic Activity-Cameron County (Brownsville) Texas

The Brownsville area has a labor force of approximately 71,000 persons and accounts for about one percent of all Texas employment. While employment growth was slow relative to the rest of Texas during the 1980s, job creation accelerated after 1978 as Mexican trade increased.

Manufacturing as a source of employment has decreased in importance. Manufacturing employment in goods which are among leading exports to Mexico accounted for 3985 jobs in Cameron County in 1990 and decreased to 2,679 jobs in 1994. Vehicles and parts, SIC 371, was the largest single category, with 873 workers in six firms.

The wholesale trade activity most related to international trade is in groceries and cereal products, which had 985 workers in 60 establishments in 1994. Although employment in this sector also fell compared to 1990, the overall share of such employment was approximately double the level necessary to serve the local population.

Growth in trucking and warehousing employment between 1990 and 1994 was three times the rate of the rest of the state and more than four times faster than at the national level.

In 1990, there were 799 employees in trucking and warehousing, working at 88 establishments. By 1994 employment had increased by 34 percent, to 1,075 and the number of firms had risen to 121, a growth rate of 37 percent. Freight arrangement employed 324 workers in 1990, and increased to 516 in 1994, an increase of nearly 60 percent.

The concentration coefficient methodology for estimating employment supported by trade activity indicates that 1,467 jobs can be attributed to the proximity of the border (Table 10.60). These jobs are equivalent to 2.1 percent of all Cameron County employment.

**Table 10.60
Estimated 1994 Trade Impact on Employment, Payroll and Firms-Cameron County (Brownsville), Texas (Payroll in \$000)**

| | | Employment | Payroll | Firms |
|---|-------------------------|-------------------|-----------------|--------------|
| Cameron County Share of all Texas Industries | | 1.1% | 0.7% | 1.3% |
| Concentration Coefficients | Vehicles and Parts Mfg. | 5.2 | 6.8 | 1.7 |
| Concentration Coefficients | Wholesale Trade Cereal | 1.7 | 2.0 | 2.1 |
| Concentration Coefficients | Trucking & Warehousing | 0.9 | 1.2 | 1.2 |
| Concentration Coefficients | Freight Arrangement | 3.5 | 3.8 | 3.4 |
| <hr/> | | | | |
| Estimated Impact of Trade | Vehicles and Parts Mfg. | 707 | \$21,091 | 3 |
| Estimated Impact of Trade | Wholesale Trade Cereal | 390 | 10,453 | 31 |
| Estimated Impact of Trade | Trucking & Warehousing | 370 | 3,500 | 23 |
| Estimated Impact of Trade | Freight Arrangement | 370 | 6,677 | 45 |
| <hr/> | | | | |
| Total Estimated Impact of Border Trade | | 1,467 | \$41,721 | 102 |
| <hr/> | | | | |
| Trade Share of Total Cameron County (Brownsville) Economy | | 2.1% | 3.7% | 1.9% |
| Total Brownsville Economy 1994 | | 71,283 | \$1,124,515 | 5,417 |

Source: Arizona State University estimates based on *County Business Patterns*.