Economic Role of the El Paso Border Crossings

Technical Memorandum

prepared for

Texas Department of Transportation

prepared by

Cambridge Systematics, Inc.

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Executive Summary

Understanding the economic importance of the U.S.-Mexico border to the El Paso region is important in honing policy decisions to improve cross-border mobility, promote economic development, and enhance regional quality of life. This report, the first in a series of economic analysis reports conducted as part of the El Paso Port of Entry Operations Plan, documents the economic significance of the region's existing border crossings and analyzes the total economic impact of a reduction in border dependent business activity. Key findings are presented below.

- The region's manufacturing, service, and retail sectors are closely linked and contribute significantly to the economic vitality. Juarez-based maquiladora factories demand distribution facilities, administrative offices and legal, accounting, and financial services. In addition, hotels and restaurants cater to off-site maquiladora management and other visitors. This linkage stimulates a broad range of employment sectors and provides employment for area residents.
- For the 10 largest maquiladora industries in Juárez, almost all of the top twenty suppliers are located in El Paso. Businesses on both sides of the border depend on the crossings to efficiently link these firms.
- Per capita retail sales tax income in El Paso is five times higher than the state average, due in large part to Mexican nationals crossing the border into El Paso to shop.
- Border dependent businesses account for nearly 115,000 direct jobs in El Paso County, 559,000 direct jobs in Chihuahua, and 19,000 direct jobs in Dona Ana County.
- The transportation and warehousing sector in El Paso is resilient, growing even in the midst of national and global economic recessions in the early 2000s and today. Between 2001 and 2008, employment in transportation and warehousing sector averaged nearly 17,000 and total output was estimated to be $6.7 billion, almost all of which is dependent on the region's border crossings.
- Decreases in employment at border dependent business- regardless of the cause- would have devastating effects on the regional economy. A 50 percent decrease in direct employment at border dependent businesses would result in a total loss of nearly 450,000 jobs for the bi-national region. An 80 percent decline in direct employment at border dependent businesses would result in a total loss of nearly 808,000 jobs (see Table E1). This includes direct, indirect and induced jobs.

Table E1: Total Employment Impact of Losing Border Dependent Businesses

	50% Decrease in Border Dependent Business Employment		80% Decrease in Border Dependent Business Employment	
Region	**Direct**	**Total**	**Direct**	**Total**
El Paso	57,331	83,100	91,729	137,955
Dona Ana	9,352	12,135	14,963	20,710
Chihuahua	279,340	392,807	446,943	649,120
Total	356,022	448,042	553,636	807,970

Source: Cambridge Systematics analysis using REMI model

1.0 Introduction

The objective of the El Paso Regional Ports of Entry (POE) Operations Plan (POE Plan) is to review all existing ports of entry within the El Paso region, assess the current efficiency of the ports, and make recommendations to improve cross-border mobility in the region. These recommendations will lead to formal adoption of POE Operations Plan for the border region. The Plan will include prioritized recommendations for infrastructure, operational, and institutional improvements, to be phased in over the short-term (less than 5 years), medium-term (5 to 10 years), and long-term (more than 10 years).

To attain the above objective, it is critical to understand the economic importance of efficient and safe border crossings to economic vitality of the bi-national region. Our overall economic analysis approach consists of three components:

- Economic role of the existing border crossings;
- Economic impact of border crossing delay; and
- Economic benefits of alternative improvement scenarios.

This technical memorandum is the first in the series – the economic role of the border – and it provides information on the border's impact on businesses and related jobs in the region.

It is important to note that this report is intended to provide readers with an understanding of broad economic impact of cross-border movements of people and goods in the El Paso/Juárez region. Subsequent reports will support other tasks by providing detailed estimates of economic impact of border wait time on the region and describing economic benefits of potential project, policy, and management scenarios. Our overall economic analysis approach is closely linked to the operational model being developed and applied as part of the Plan, which is designed to provide more detailed estimates of POE operational characteristics such as automobile/truck volumes and border wait times. The data and information included within this technical memorandum will be used as a reference during model development, calibration, and application.

The following sections provide an overview of the El Paso/Juárez regional economy, a description of the "border-dependent" businesses in the region, and a summary of the overall economic impact of these businesses.

2.0 Regional Economic Overview

Texas leads all U.S. states in trade with Mexico with over $130 billion in goods and services exchanged in 2008. This represents three times more trade than California, which ranks number two in trade with Mexico. A major reason for the significantly higher volumes of trade is the maquiladora industry which is concentrated at the Texas border, in particular in the El Paso-Ciudad Juárez region.

Table 2.1 Top 10 States Trading with Mexico, All Modes of Transportation
By Value, 2008

Rank	State	Total All Modes
1	Texas	$130.8
2	California	$54.3
3	Michigan	$30.2
4	Louisiana	$12.9
5	Illinois	$11.6
6	Arizona	$11.2
7	Ohio	$8.6
8	Mississippi	$6.6
9	North Carolina	$6.5
10	Tennessee	$6.1

Source: U.S. Department of Transportation TransBorder Freight Data. Figures in billions U.S.$.

As noted in the Commodity Flow and Socioeconomic Profile and depicted in Table 2.1, El Paso is the second busiest land port in the U.S. by value representing 17 percent of total trade between the U.S. and Mexico by surface modes in 2008. El Paso is followed by ports at Otay Mesa-San Diego, California, the Hidalgo-Pharr-McAllen region in Texas, and Nogales, Arizona. El Paso's share of U.S. trade with Mexico, by value, has declined steadily since 2000. Laredo also has lost share over the past 10 years, while Otay Mesa has increased moderately. However, from 2008 to 2009, all ports experienced significant declines due to the global economic downturn.

Table 2.2 Top Five Ports By Percent Share of U.S.-Mexico Trade by Value
Millions of U.S. Dollars

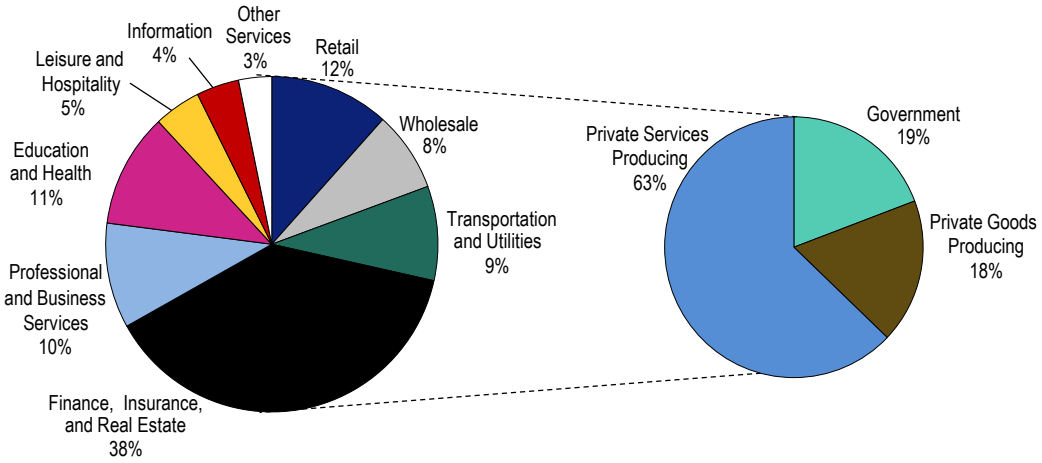
Port	2001	2002	2003	2004	2005	2006	2007	2008
Laredo, Texas	41.2%	41.1%	40.5%	41.0%	40.2%	39.4%	39.7%	40.8%
El Paso, Texas	18.8%	19.3%	19.8%	19.5%	18.5%	17.7%	17.6%	16.9%
Otay Mesa, California	10.0%	10.6%	10.1%	10.2%	10.5%	10.8%	11.0%	11.2%
Hildalgo, Texas	6.4%	6.6%	7.4%	7.3%	7.8%	7.6%	7.9%	7.8%
Nogales, Arizona	6.5%	5.6%	5.3%	5.5%	6.0%	7.2%	6.5%	6.7%

Source: U.S. Department of Transportation TransBorder Freight Data.

Gross Regional Product

Gross regional product (GRP) is one of several measures of the size of a region's economy. GRP is defined as the market value of all final goods and services produced within a region in a given period of time. Figure 2.1 displays of the composition of the El Paso's GRP in 2007. Service-oriented business output represents nearly two-thirds of the El Paso GRP. The service sectors in El Paso are dominated by the financial and real estate sectors, which contributed over a third of the regional GRP. Manufacturing was responsible for $2.5 billion in El Paso economic output, or approximately 18 percent of El Paso's GRP and government services account for about 19 percent of GRP.

Figure 2.1 El Paso Regional GDP Distribution
2007



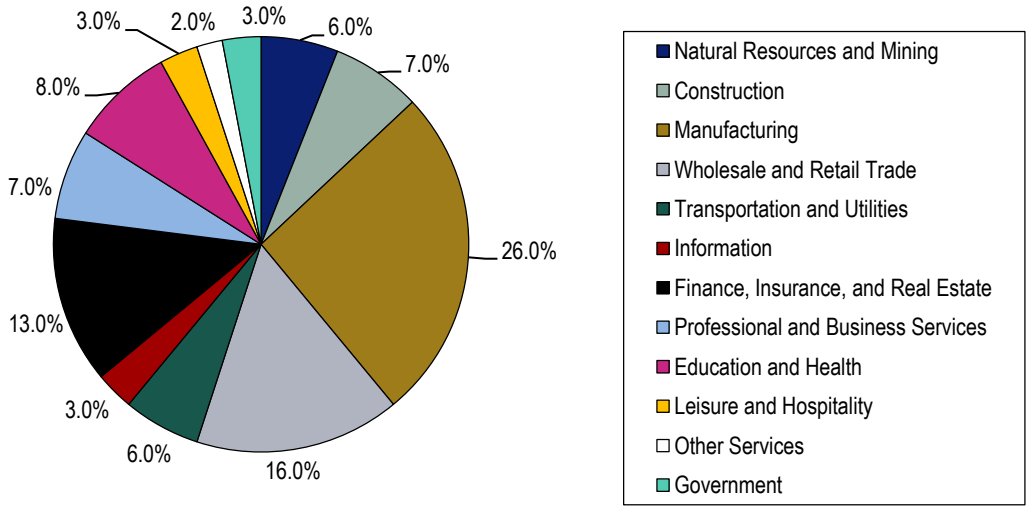
Source: U.S. Bureau of Economic Analysis.

Note: GDP data available through 2007 only. The difference between 2007 and 2008, the year used for analysis in this analysis, is not expected to impact the conclusions in this report.

Figure 2.2 displays GRP data for Ciudad Juárez. GRP in Ciudad Juárez is dependent on service-providing industries. However, manufacturing, natural

resources, and construction (goods-producing industries) have a much larger share than in El Paso. As noted in the draft Commodity Flow and Socioeconomic Profile, maquiladora activity has moved toward service-oriented activities in recent years, including back-office functions such as coupon sorting.

Figure 2.2 2008 Gross Regional Product Ciudad Juárez



Source: University of Texas at El Paso.

Comparison of Employment and GRP: El Paso and Cuidad Juarez

Comparisons of key industries by GRP and by employment show that some industries, such as retail and hospitality (food services), employ relatively high number of people with comparatively lower economic output. This may suggest two trends common with shifts to services. One, the area attracted high-skill, high-income positions in finance, real estate and technical manufacturing fields. Two, service jobs (retail, food services, health care) related to direct consumer services created high numbers of low-skill, low-income jobs that also boost the economy and maintain customer bases. This is reflected in median earnings for selected service occupations, which are displayed in Table 2.3. Some positions related to retail, healthcare, and transportation have low annual earnings. However, the management and administration occupations, another large sector in the El Paso region, show strong median earnings.

Table 2.3 Median Earnings For Selected Service Sector Occupations in El Paso MSA
2008

Service Occupations	Average Wage
Building Cleaning and Maintenance	$10,874
Construction, Maintenance, Repair	$20,820
Fire Fighting and Prevention, Other Protective Service	$21,301
Food Preparation and Serving	$9,605
Healthcare Practitioner and Technical Occupations	$50,294
Healthcare Support Occupations	$16,329
Law Enforcement	$55,795
Management, Business, and Financial Occupations:	$43,582
Personal Care and Services	$10,999
Professional and Related Occupations:	$40,213
Sales and Office	$17,506
Transportation and Material Moving	$22,340

Source: U.S. Census Bureau; all figures in 2008 inflation-adjusted dollars for civilian population aged 16 and over.

Manufacturing jobs in El Paso tend to be high-paying jobs (see Table 2.4). Even though the employment numbers in this sector have declined, the remaining industries employ high-skilled workers with greater earnings than occupations in areas such as apparel production. Manufacturing jobs in El Paso pay on average $41,000-$86,000. This compares favorably to the average wage per job of $33,310 reported by the Bureau of Economic Analysis (BEA).

Table 2.4 Average Wage of Selected Sectors
2007

High-Paying and Technological/Technical Jobs	Average Wage
Valve and Fittings (Except Plumbing)	$86,000
Scientific R&D Services	$57,000
Semiconductor and Related Device Manufacturing	$44,000
Printed Circuit Assembly Manufacturing	$68,000
Copper Rolling, Drawing, Extruding, and Alloy	$51,000
Motor and Generator Manufacturing	$73,000
Surgical and Medical Instrument	$71,000
Software Publishers	$74,000
Synthetic Dye and Pigment Manufacturing	$47,000
Architectural and Engineering-Related Services	$46,000
Wiring Device Manufacturing	$41,000

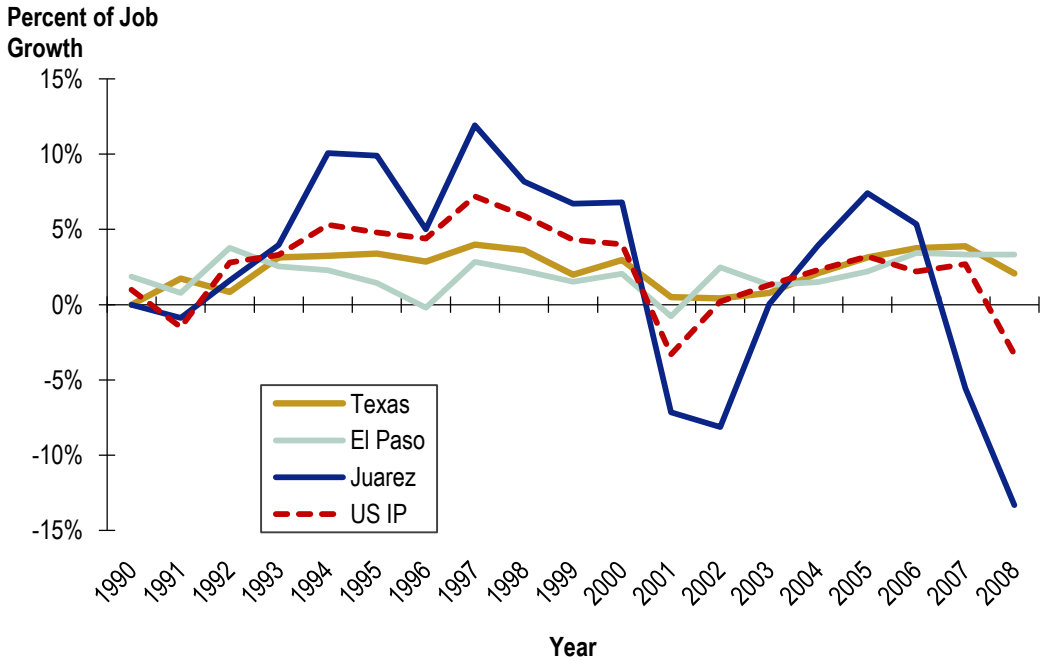
Source: University of Texas at El Paso, *Cuidad Juárez Manufacturing and El Paso Industry Linkages*, 2008.

Economic development in El Paso has been heavily influenced by activities at the border. Prior to Mexico joining the General Agreement on Tariffs and Trade (GATT) in 1986, job growth in El Paso lagged that of the State as a whole. Following GATT, job growth in El Paso accelerated and outpaced the State two years later. In 1994, the North American Free Trade Agreement (NAFTA) gave a boost to job growth in Mexico, although the rate of growth declined slightly in El Paso due to general economic decline experienced in the U.S. during the late 1990s and early 2000s. Job growth accelerated in 2003 and continued until the current economic recession started in 2008.

Changes in employment have been more stark in Juárez than in El Paso, as manufacturing jobs react more strongly to changes in economic and industry production cycles. Figure 2.4 shows the relationship between the industrial production (IP) index[1] and regional employment. While Juárez sees volatile changes in jobs, employment in El Paso generally tracks the IP Index. One exception appears to be a recent decline of the IP Index as El Paso's employment growth leveled out at approximately four percent. At the same time, Juárez experienced a decline of over 10 percent. These changes also affected Texas employment growth, which has performed slightly better in terms of job growth than El Paso, and exhibited steady growth until the 2008 economic decline.

[1] The IP index is released monthly by the Federal Reserve Board and measures the relative amount of output from the manufacturing, mining, electric and gas industries.

Figure 2.2 Employment and U.S. IP Index



Source: U.S. BEA, U.S. Federal Reserve (IP Index Total Industry, seasonally adjusted, year-over-year).

To summarize, job and industry growth in El Paso is underpinned by:

- Growing local facilities and firms such as Fort Bliss Army Base, Texas Tech Medical School, Tenet Healthcare, University of Texas at El Paso, and local services to meet consumer demand.
- Companies operating twin plants in Juárez, which often require transportation and customs services from firms based in El Paso.
- Maquiladora operators, who often use distribution facilities, administrative offices and temporary employment services located in El Paso. This stimulates the industrial real estate sector and provides employment for area residents.
- Maquiladora suppliers located or expanding in El Paso to be close to their customers across the border, which stimulates domestic manufacturing and provides high-skill, high-wage jobs to residents of El Paso.
- The need for legal, accounting, and financial services for the maquiladora industry, which are often provided in El Paso.

- Hotels, car rental agencies, and restaurants in El Paso that serve business travelers visiting the maquiladoras.[2]
- A large government sector that supports border crossing, security, and the Fort Bliss Army Base.

[2] Vargas, L. (2001), *Maquiladoras: Impact on Texas Border Cities*. Federal Reserve Bank of Dallas.

3.0 Border Dependent Businesses

Location quotient (LQ) analysis was employed to estimate the concentration of the dominant sectors in El Paso and to identify border dependent industries. LQ is a measure the concentration of an industry in a local economy relative to the national concentration of that industrial sector. In general, sectors with LQ greater than 1.0 have an advantage compared to the U.S. and is typically either exporting goods and services or responding to significantly higher local demand. If the LQ is less than 1.0, it means the local economy may have a comparative disadvantage in that sector compared to the U.S., and it is a net importer of goods and services.

In the El Paso region, the comparative advantage is often the system of border crossings, which creates exceptional export opportunities as well as unusually high demand for certain goods and services. We classify industries having location quotients greater than 1.0 and engaging in or supporting significant cross border activities as "border dependent."

Based on the LQ displayed in Table 3.1, manufacturing, retail, and transportation and warehousing sectors were identified as dominant sectors in El Paso's economy and primary border dependent industries. Other sectors such as real estate, financial, and professional services were also identified as border dependent because a large part of their activities is in support of industries that are directly engaged in border crossing activities.

Table 3.1 Location Quotients of El Paso Employment in Selected Sectors

Industry Sector	2001	2007
Retail and Wholesale	1.6	1.7
Government	1.5	1.6
Federal	1.6	1.8
Military	2.9	3.8
State/Local Government	1.4	1.3
Transportation and Warehousing	1.3	1.5
Manufacturing	1.1	0.8

Source: U.S. Bureau of Economic Analysis. Analysis by Cambridge Systematics, Inc.

3.1 MANUFACTURING

The expansion of U.S.-Mexico trade has attracted various manufacturers to El Paso to take advantage of the proximity to their markets, particularly the maquiladoras in Ciudad Juárez. This has contributed significantly to the region's economic growth over the last decade. However, the LQs for manufacturing in 2000 and 2007 (see Table 3.1) indicate that the manufacturing sector in the region is mature and its future performance will be less dependent on continued attraction of manufacturers and more dependent on the health of broader national and global economies. For instance, the decline in concentration of manufacturing sector in El Paso from 2000 to 2007 (LQs declining from 1.0 to 0.8) may be attributed to the sharp response of the manufacturing sector in Cuidad Juarez to the off-shoring of manufacturing activities to Asia. The decline in Cuidad Juarez's economy led to a decline in demand for input material from El Paso. However, the narrowing wage gap between Chinese and Mexican laborers, combined with other international trade and transportation trends, may cause this trend to reverse in the mid- to long-term.[3]

Table 3.2 shows that most of the inputs demanded by the maquiladoras are supplied from El Paso. Of the top 20 suppliers of inputs material to each of the 10 most significant maquiladoras industries, 14 to 18 of them are located in El Paso. This confirms the integration of the manufacturing sector in El Paso and the maquiladoras in Ciudad Juárez. Therefore, expansions of maquila operations in Cuidad Juárez will result in the expansion of the manufacturing sector in El Paso and vice versa, hence the dependency of the manufacturing sector on the border.

[3] While Mexican workers made double the wages of their Chinese counterparts in 2003, today that gap has shrunk to only 15 percent.

Table 3.2 Input Demand and Supply Relationship Between Ciudad Juárez Maquiladora and El Paso Suppliers[a]

Juárez Demand for Inputs	Supply of Inputs to Juárez from El Paso	Top Two Supplies
Motor Vehicle Parts Manufacturing	17 of the top 20 suppliers operate in El Paso	Motor vehicle parts; iron and steel mills and ferroalloy
Semiconductor and Other Electric Parts Manufacturing	17 of the top 20 suppliers operate in El Paso	Semiconductor and related device, printed circuit (electronic) assembly
Electrical Equipment Manufacturing	16 of the top 20 suppliers operate in El Paso	Relay and industrial control, iron and steel mills and ferroalloy
Medical Equipment and Supplies Manufacturing	15 of the top 20 suppliers operate in El Paso	Surgical and medical instrument, surgical appliance and supplies, and advertising and related services
Communications Equipment Manufacturing	17 of the top 20 suppliers operate in El Paso	Broadcast and wireless communication equipment, semiconductor and related services, software publishers
Printing Ink Manufacturing	14 of the top 20 suppliers operate in El Paso	Synthetic dye and pigment, paint and coating manufacturing
Navigational, Measuring, Electromedical, and Control Instruments	16 of the top 20 suppliers operate in El Paso	Software publishers, scientific R&D services
Audio and Video Equipment Manufacturing	18 of the top 20 suppliers operate in El Paso	Electron tube manufacturing, printed circuit (electronic) assembly manufacturing
Plastics and Product Manufacturing	15 of the top 20 suppliers operate in El Paso	Plastics material and resin manufacturing, plastics packaging materials, and unlaminated film and sheet
Household Appliances Manufacturing	18 of the top 20 suppliers operate in El Paso	Plastics packaging materials and unlaminated film and sheet, other plastics product manufacturing

Source: C. Juárez Manufacturing and El Paso Industry Linkages.

[a] Cuidad Juárez Manufacturing and El Paso Industry Linkages, Institute for Policy and Economic Development.

3.2 RETAIL SERVICES

Retail sales provide a strong tax base for a region and can often be exported to nonresidents. Because retail sales data were not available, we used per capita sales tax as a proxy. Per capita sales tax is highly correlated with retail sales in Texas, since ad-valorem is the mode of sales tax collections.

As seen in Table 3.3, per capita sales tax income in El Paso exceeded that of Texas as a whole and grew between 2001 and 2008. Although El Paso's personal income rates were lower than Texas overall, per capita sales tax is about five times the state average and the border is a primary reason. The retail sector is

more highly concentrated in the El Paso region than in other parts of the State as measured using the location quotient. It is estimated that El Paso's retail activity is approximately 60 percent and 70 percent greater than in Texas overall in 2001 and 2007, respectively. Regional retail activity is bolstered primarily by sales to shoppers from Mexico, and by visiting professionals on work trips to the area.

Table 3.3 Sales Tax in Texas and El Paso

	Texas			El Paso		
Year	Sales Tax ($Million)	Population (Million)	Per Capita Sales Tax	Sales Tax ($Million)	Population (Million)	Per Capita Sales Tax
2001	27,230	21	1,277	4,230	0.68	6,177
2002	26,276	22	1,209	4,370	0.69	6,345
2003	26,127	22	1,185	4,500	0.69	6,478
2004	27,913	22	1,245	4,700	0.70	6,691
2005	29,838	23	1,307	5,100	0.71	7,196
2006	33,544	23	1,432	5,500	0.72	7,631
2007	36,956	24	1,554	5,800	0.73	7,969
2008	41,358	24	1,702	5,900	0.74	7,901

Source: State of Texas Annual Cash Budget, Cambridge Systematics, Inc. analysis, UTEP.

3.3 TRANSPORTATION AND WAREHOUSING

Due to the presence of the maquila industry, truck operations are of particular importance to the El Paso borderplex. Truck fleets in the El Paso region generally fall into one of two operational categories, described below:

- **Drayage trucks** provide short-haul transportation of goods (usually in intermodal containers) across the border, for example between a maquiladora in Mexico and truck terminals in the U.S.
- **Long-haul** trucks are over-the-road haulers that transport goods to their final destination, usually on a contract basis. A long-haul truck may pick up a container dropped off by a drayage operator and transport it to a consignee.

Operations

Within each category, some trucks are owner-operated, others are company owned, and still others are offered for hire by third-party logistics firms. Regardless of ownership, the operational characteristics of trucks in the borderplex have important implications for port of entry operations.

When NAFTA went into effect in 1994, one of its key provisions was the establishment of a 25-mile commercial zone along the U.S.-Mexico border by

1995. Mexican trucks are permitted to operate within this zone to facilitate efficient cross-border freight movement, while U.S. trucks are afforded the same ability to operate on the Mexican side.[4]

The effect of this is that cross-border truck moves between Juárez and El Paso are typically accomplished using drayage operators. Long-haul moves from Mexico's interior may involve up to three trucks – a Mexican long-haul truck to bring a load to the border, a Mexican drayage truck to haul it across, and finally a U.S. truck to pick it up for final delivery. Maquiladora operators, meanwhile, require constant back-and-forth deliveries across the border for supplies and finished product.

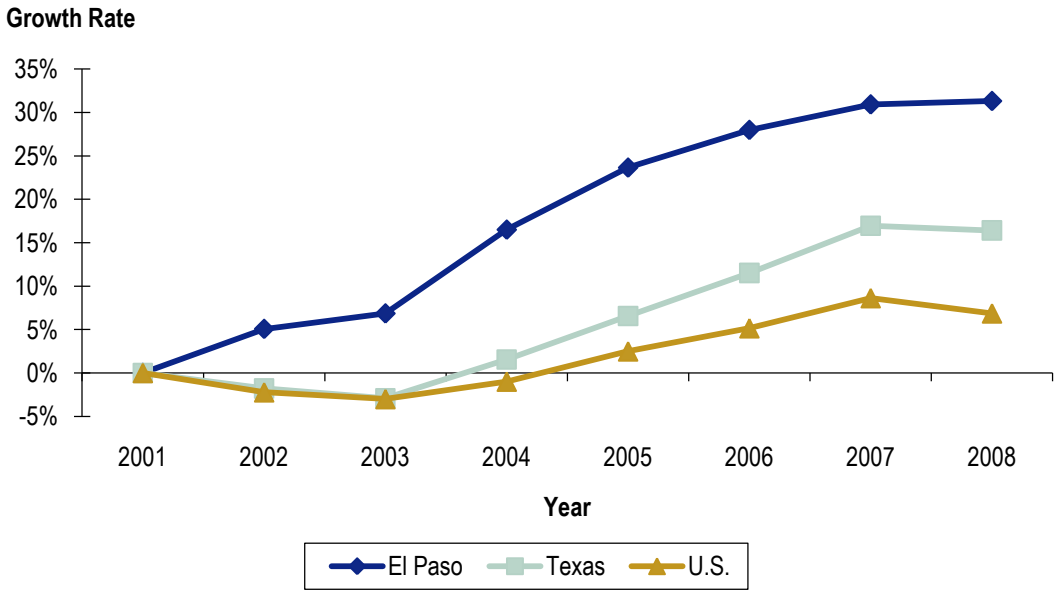
Economic Effects

The transportation and warehousing sector in El Paso has benefitted enormously from cross-border trade. From Table 3.1, the location quotient for the transportation and warehousing sector was 1.3 in 2001 and 1.5 in 2007. This means the El Paso has a significantly higher demand in this sector compared to the U.S. Its high concentration stems from its unique location as a border city with Cuidad Juárez.

The transportation and warehousing sector in El Paso is resilient. As shown in Figure 3.1, El Paso posted strong growth at 6.8 percent between 2001 and 2003 while Texas and the U.S. both declined by approximately 3.0 percent each. Additionally, in the midst of the current recession, El Paso grew 0.4 percent between 2007 and 2008 while Texas and the U.S. declined 0.5 percent and 1.8 percent respectively. Between 2001 and 2008, employment in transportation and warehousing sector averaged 16,714 and total output was estimated to be $6.73 billion, almost all of which is dependent on the border crossing.

[4] NAFTA called for access to all U.S. states for Mexican trucks by 2000, but this was never implemented due to opposition from organizations in the U.S. A pilot program involving 100 Mexican trucks was established, but funding for the program was cut in early 2009, leading Mexico to add tariffs to some U.S. exports. As of January 2011 the USDOT is assisting efforts to restart negotiations with Mexico. For more information see comments by USDOT Secretary Ray LaHood at the CMC3 2001 Jump Start Conference: http://www.dot.gov/affairs/2011/lahood01182011.html, accessed February 4, 2011.

Figure 3.1 Transportation and Warehousing Services Growth Rates



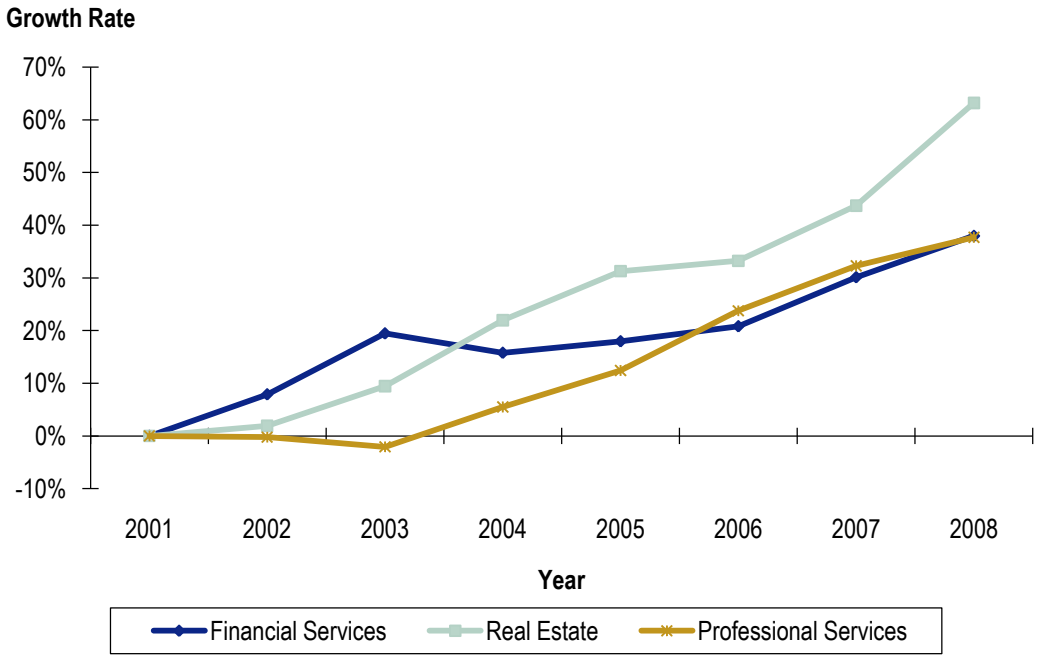
Source: U.S. Bureau of Economic Analysis, Cambridge Systematics, Inc. analysis.

3.4 FINANCIAL, REAL ESTATE, AND PROFESSIONAL SERVICES

The financial, real estate, and professional services sectors together accounted for 19 percent of El Paso's regional employment in 2008, with 42,277 jobs, up from approximately 29,000 in 2001. Over the same period, the sectors combined contributed $1.17 billion to El Paso's economy.

Between 2001 and 2008, the real estate sector grew over 60 percent followed by 37 percent growth in financial and professional services. The growth in these sectors was primarily due to the expansion of the maquiladora industry in Juárez. These services are vertically integrated with maquila operations. As the maquila operations expand, so does the demand for financial and real estate services. Financial services include subsectors such as insurance, taxes, management consulting (accountants, financial advisors, human resources, marketing), and legal services. The growth of the real estate sector is a direct response to the growing demand for industrial facilities and land as well as office and retail space for businesses supporting the maquiladora industry.

Figure 3.2 Growth of Financial, Real Estate, and Professional Services



Source: U.S. Bureau of Economic Analysis, Cambridge Systematics, Inc. analysis.

3.5 FEDERAL GOVERNMENT SERVICES

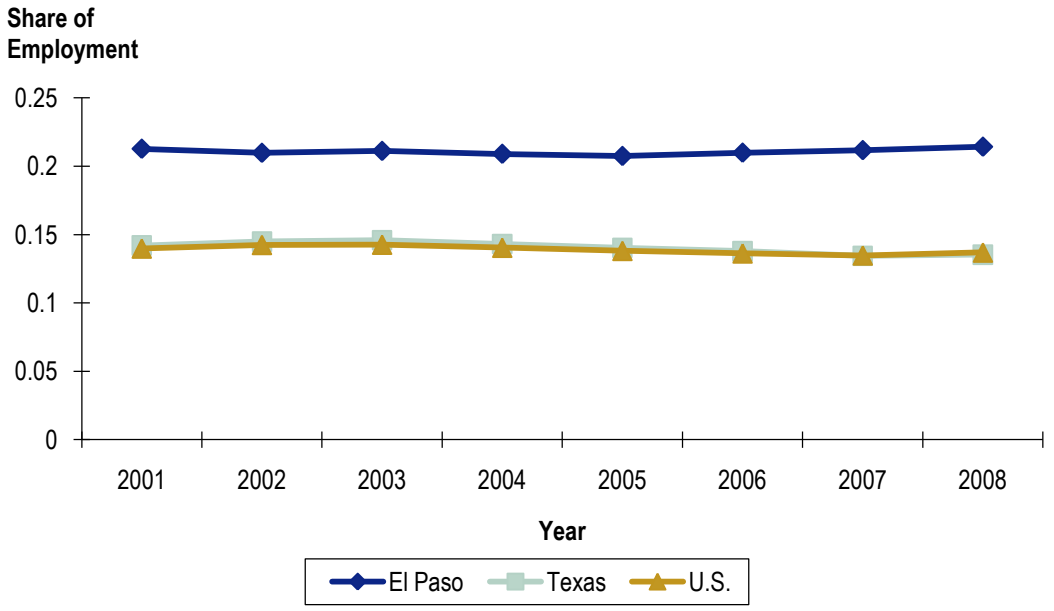
The U.S. government contributes to the regional economy through the operation of a number of law enforcement and military installations. The U.S. Customs Services, the Immigration and Naturalization Service and various Federal law enforcement agencies are directly related to border activity, ensuring the safe and efficient operation of international trade and travel. El Paso also is home to Fort Bliss, the second largest military installation in the U.S., which had an estimated employment of over 18,500 in 2008, growing from 11,740 in 2001.[5] Fort Bliss houses the U.S. Army Air Defense Artillery School, the William Beaumont Army Medical Center, The U.S. Army Sergeants Major Academy and the Joint Task Force North. The U.S. Senate approved over $1.5 billion in funding to expand the base by 20,000 soldiers and their families by 2011.

These institutions explain the high concentration of government services in El Paso. The location quotient for government jobs is 1.6 in 2007, marginally up from 1.5 in 2001. This means that government jobs accounts for a greater share of jobs in El Paso than the U.S. average, as shown in Figure 3.3. The location

[5] Bureau of Economic Analysis.

quotients for Federal governments and military for 2007 are 1.8 and 3.8 respectively.

Figure 3.3 Government Jobs as Share of Employment



Source: U.S. Bureau of Economic Analysis, Cambridge Systematics, Inc. analysis.

While the majority of Federal government jobs are associated with Fort Bliss, a significant number is directly attributable to the border crossing, thus making them border dependent.

4.0 Economic Impact of Border Crossings

The total economic impact of border dependent businesses is the sum of the direct, indirect and induced impacts, defined as follows:

- **Direct impacts** are the initial, immediate output, employment and income effects of the border dependent businesses.
- **Indirect impacts** are the incremental business sales and associated income and employment effects arising from the purchase of input materials (supplies, materials, equipment, and services) by border dependent businesses.
- **Induced impacts** are incremental business sales and associated income and employment effects resulting from household spending and re-spending on goods and services as a result of the direct and indirect impacts.

Generally, changes in employment or final demand associated with a business or industrial sector are the basis for modeling direct economic impact. For this analysis, the direct impacts are reductions in direct employment by border dependent businesses. The economic model used in the analysis is a customized model developed by Regional Economic Modeling Inc. (REMI). This economic simulation estimated indirect and induced impacts, resulting in total economic impact. The total impact is measured as changes in employment, output or gross regional product (GRP), value added, and personal income.

4.1 METHODOLOGY

The purpose of the analysis is to establish the total economic significance of the border ports of entry in the El Paso region. To accomplish this, we conducted a simulation of the economic impact of a reduction in employment by border dependent industries. A reduction in employment in these industries could result from several scenarios including, the closing of ports of entry, increased cost of border crossings as result of increased congestion or tolls, or increased safety and security concerns.

Table 4.1 displays the total direct employment impact for border dependent industries which totals over 690,000 jobs. For this analysis, two scenarios were analyzed. The first assumed a 50 percent reduction in employment (or 346,000 jobs) in border dependent businesses and the second assumed an 80 percent reduction (or 553,600 jobs). For each scenario, the reduction was applied evenly across each of the border dependent industry sector. For example, the 50 percent scenario assumed a 50 percent employment reduction in manufacturing,

transportation and warehousing, retail services and finance and real estate. The economic impact analysis of these direct employment reductions was conducted utilizing the 42 sector multi-region U.S.-Mexico REMI Model.

Table 4.1 Direct Employment and Output of Border Dependent Sectors, 2008

Sector	El Paso	Chihuahua	Dona Ana	Total
Manufacturing[6]	14,576	302,863	1,961	**319,400**
Retail & Wholesale Trades	58,400	177,210	10.833	**246,443**
Financial Services	27,244	7,213	4,899	**39,356**
Transportation & Warehousing	14,441	71,393	1,011	**86,845**
Total	114,661	558,679	18,677	**692,017**

Source: REMI

4.2 RESULTS

Reductions in border dependent economic activity would have significant impacts on the regional economy. A 50 percent reduction in direct employment in border dependent sectors would result in a loss of nearly 450,000 jobs in the bi-national region. An 80 percent reduction in direct employment would lead to a loss of nearly 808,000 jobs. The distribution of employment impact by locality is presented in Table 4.2.

Table 4.2 Job Loss Arising from Reductions in Border Dependent Activity

	50% Employment Reduction in Border Dependent Sectors		80% Employment Reduction in Border Dependent Sectors	
Region	**Direct Jobs**	**Total Jobs**	**Direct Jobs**	**Total Jobs**
El Paso	57,331	83,100	91,729	137,955
Dona Ana	9,352	12,135	14,963	20,710
Chihuahua	279,340	392,807	446,943	649,120
Total	356,022	448,042	553,636	807,970

Source: Cambridge Systematics, Inc analysis using REMI

[6] This refers to only border dependent manufacturing subsectors.

The State of Chihuahua stands to sustain the greatest loss if border dependent activities subside in the region as shown in Table 4.3. An average of 521,000 jobs or 39 percent of total employment could be at stake. These activities translated into 32.0 percent to 52.7 percent of GRP.

Table 4.3 Summary of Total Economic Impacts of Reduction in Border Dependent Business – State of Chihuahua, MX[1]

	Total Impact	
Economic Variables	**Number Lost**	**Percent Lost**
Employment (Thousands)	393 – 649	29.0 -48.0%
Gross Regional Product (Billion U.S.$)	$13 – 21.4	32 – 52.7%
Personal Income (Billion U.S.$)	$7.15 – 11.7	23.2 – 38%

1. Results based on assumed reductions in direct employment in border dependent sectors equal to 50% and 80%, respectively.

Source: Cambridge Systematics, Inc analysis using REMI.

The total economic impact of a 50 to 80 percent contraction in border dependent sectors in El Paso is displayed in Table 4.4. The impacts are estimated to range from 83,000 to 138,000 jobs, representing 22.3 to 37.0 percent of El Paso's total employment, 24 to 39 percent of GRP and 13 to 21 percent of personal income.

Table 4.4 Summary of Total Economic Impacts of Reduction in Border Dependent Business – El Paso, TX[1]

	Total Impact	
Economic Variables	**Number**	**Percent**
Employment (Thousands)	83.1 – 138	22.3-37%
Gross Regional Product (Billion U.S.$)	$4.6 – 7.57	23.8-39%
Personal Income (Billion U.S.$)	$2.55 – 4.18	12.9 – 21.2%

1. Results based on assumed reductions in direct employment in border dependent sectors equal to 50% and 80%, respectively.

Source: Cambridge Systematics, Inc. analysis using REMI.

Although Dona Ana County, NM would be the least impacted by declining border activities, the impacts are still significant. As shown in Table 4.5, a 50 to 80 percent decline in border dependent employment would have a total impact of 12,000 to nearly 21,000 jobs, representing up to 22 percent of County's total employment and 11 percent of the GRP and personal income.

Table 4.5 Summary of Total Economic Impacts of Reduction in Border Dependent Business– Dona Ana County, NM[1]

	Total Impact	
	Number	**Percent**
Employment (Thousands)	12.1 – 20.7	13.1 – 22.3%
Gross Regional Product (Billion U.S.$)	$0.7 – 1.2	16.23 – 27.4%
Personal Income (Billion U.S.$)	$0.34 – 0.56	6.5 – 11.0%

1. Results based on assumed reductions in direct employment in border dependent sectors equal to 50% and 80%, respectively.

Source: Cambridge Systematics, Inc. analysis using REMI.