

TRANSPORTATION

Infrastructure and the Border Economy

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On a typical day, about 205,000 vehicles and 97,000 pedestrians cross the Texas–Mexico border.¹ The 15,000 commercial trucks and 1,220 railcars that traverse the border daily highlight the importance of international trade to this region. In addition, the many shopping malls, grocery stores and discount supercenters attest to the numbers of Mexican nationals crossing the border to buy goods ranging from pasteurized milk to expensive clothes and jewelry.

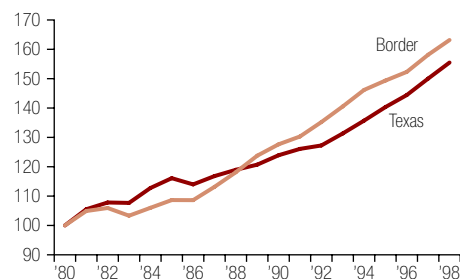
The costs of building and maintaining infrastructure to service international trade, however, remain a challenge. The increased auto and truck traffic stimulated by Mexico's entry into the General Agreement on Tariffs and Trade (GATT) in 1986 and the start of NAFTA in 1994 have placed pressure on border infrastructure. This article describes some of the costs and benefits international trade poses for Texas border counties.²

Retail Sales a Boon to Border

While relative per capita income along the border has stagnated at low levels, job growth has surged, particularly since Mexico entered GATT in 1986 (*Chart 1*). Although some measures,

Chart 1
Border Job Growth

Total employment index, 1980 = 100



NOTE: Border is defined as the counties that include Brownsville, Del Rio, Eagle Pass, El Paso, Laredo and McAllen.

SOURCE: Bureau of Labor Statistics.

such as earnings per job, have shown relative gains in the 1990s, significant relative income gains are unlikely until educational attainment increases.³

The retail trade industry highlights the strong job growth and low income typical of the border. Retail sector growth in the 1990s has created many new jobs well suited for the average education level of border workers. However, because the retail industry generally pays at or near minimum wage, growth in this sector suppresses average wage growth.⁴

In general, the retail sector is not perceived as a major economic driver because retail goods are purchased mainly by local citizens. This is not true along the border, however, since Mexican nationals purchase a significant amount of retail goods and services. One way to estimate Mexicans' retail spending in border cities is to estimate, based on border income levels, the part of retail spending that likely comes from local citizens. This local spending can be subtracted from total retail spending to determine retail sales to individuals from outside the local area.

To estimate local retail spending, we use average retail sales as a percentage of personal income for the state as a whole—in other words, the fraction of their incomes average Texans spend on retail products. From 1986 to 1998, they spent 46 percent. Using this figure as the likely amount of personal income border residents spend on retail goods, we find that exported retail sales are a substantial portion of overall retail sales on the border. Exported retail sales in 1998 ranged from \$20 million (6 percent of all retail sales) in Del Rio to \$901 million (22 percent) in McAllen (*Chart 2*). Laredo's \$643 million in exported retail sales represented the highest share of retail spending, 35 percent, of all the areas. For the six border counties in our study, exported retail sales totaled



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about \$2.2 billion in 1998 and \$3.4 billion in 1994, the year before the peso devaluation.

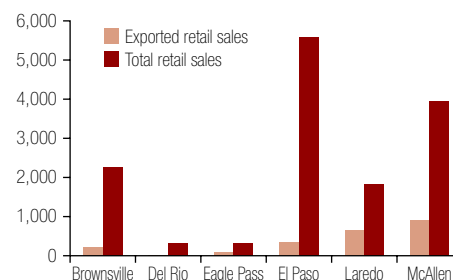
Benefits of International Trade

The benefits of border retail exports are obvious; the advantages of numerous trucks and trains rumbling through border towns are less clear. One direct benefit from international trade is the federal jobs created in the U.S. Customs Service, the Immigration and Naturalization Service and various federal law enforcement agencies.

The presence of federal jobs along the border is easily measured using a location quotient, defined as the local share of jobs in an industry divided by the national share of jobs in the same industry. A location quotient greater than 1 implies that this industry is producing for consumers outside the local

Chart 2
Exported Retail Sales and Total Retail Sales, 1998

Millions of dollars

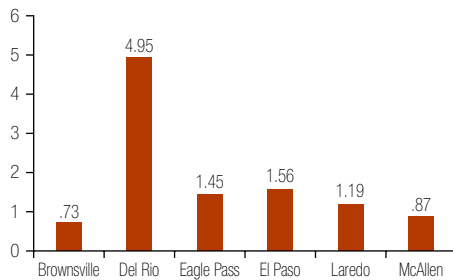


SOURCES: Texas Comptroller of Public Accounts; Bureau of Economic Analysis; authors' calculations.

Chart 3

Border Share of Federal Civilian Jobs
(County Job Share/U.S. Job Share, 1997)

Location quotient



NOTE: Data are for each county that includes the listed city.
SOURCE: Census Bureau, *County Business Patterns*.

area. As shown in Chart 3, federal civilian government accounts for a greater share of jobs in border counties than the U.S. average. (The values for Del Rio and El Paso are also influenced by the military presence at Laughlin Air Force Base and Fort Bliss, respectively.)

While the overall share of federal civilian jobs along the border remains low—about 2.3 percent in 1998—these jobs pay relatively high wages, especially when the value of employee benefits is taken into consideration. Chart 4 illustrates the large and growing disparity between border earnings per job for federal civilian workers and average border earnings per job. In 1998, average annual earnings for federal civilian workers on the border was \$62,351, while the average border worker earned \$24,427.

Another benefit of international trade is its creation of transportation and warehousing jobs. Once again, this is measured by a location quotient (Chart 5). Transportation services (which include freight-forwarding) and trucking and warehousing are important border industries. Although the large border counties all had location quotients greater than 1, Laredo far exceeded the other areas in this industry. In 1997, Laredo's employment share in transportation services was 26 times the U.S. average.

One reason for the extraordinary size of the transportation services industry in Laredo is the extensive truck traffic

through this city. In 1999, \$30 billion in U.S. exports and \$35 billion in U.S. imports flowed through Laredo. The city accounted for about 39 percent of the volume and 50 percent of the value of all land-transported trade between the United States and Mexico in 1999. The volume was twice that of the second-largest port, El Paso, which accommodated 19 percent of land-shipped trade.

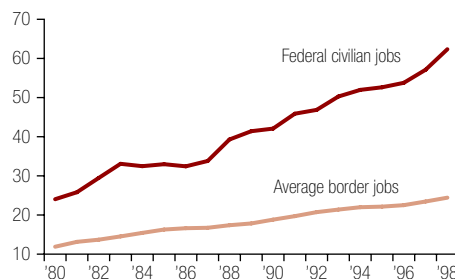
The destination of southbound shipments through Laredo also has increased the size of its transportation services industry. Nonmaquiladora shipments—which represent a greater share of the Laredo traffic than at other border ports—are subject to greater tariff restrictions and thus require more paperwork and inspection. This delay at the border creates a market for short-haulers, as it is not efficient for long-haul truckers to wait for the extra inspections and paperwork to be completed. Many maquiladora plants close to the border use their own trucks to haul products to and from warehouses on the U.S. side.

Additional freight-forwarding and transportation services jobs in Laredo result from the practices of Mexican customs brokers, who must preclear all truck cargo before it crosses into Mexico. Trucks are cleared on the U.S. side partly because warehouse and truck terminal space is lacking in Nuevo Laredo, on the Mexican side. U.S. long-haul carriers typically drop their cargo

Chart 4

Federal Civilian Earnings Versus Average Border Earnings Per Job

Border county annual earnings (thousands of dollars)



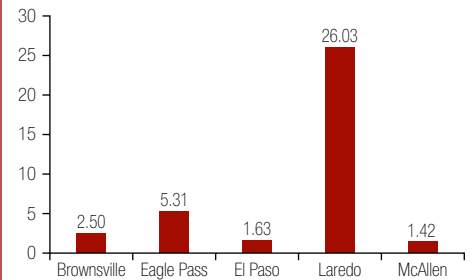
NOTE: Border is defined as the six counties that include Brownsville, Del Rio, Eagle Pass, El Paso, Laredo and McAllen.

SOURCE: Bureau of Economic Analysis.

Chart 5

Border Share of Transportation Services Jobs
(County Job Share/U.S. Job Share, 1997)

Location quotient



NOTES: Data are for each county that includes the listed city. Data for Del Rio not reported.

SOURCE: Census Bureau, *County Business Patterns*.

at a company warehouse in Laredo. A freight-forwarding company picks up the cargo and takes it to a Mexican customs broker's warehouse in Laredo. The customs broker inspects it, collects duties and arranges for another freight-forwarding truck to transport the load across the bridge. The freight-forwarder then returns to Laredo, usually empty. Thus, the abundance of trucks passing through Laredo, their inability to legally reach the interior of Mexico, and their inspection and clearance on the U.S. side of the border by Mexican customs brokers all work together to create a large demand for warehousing and freight-forwarding in this city.

Border earnings in transportation services grew strongly in the 1990s (Chart 6). This was especially true in Laredo, where transportation services accounted for 59 percent of total border earnings from this sector in 1998. Growth in border transportation services has lifted average border earnings because this sector pays better-than-average earnings. In 1998, transportation services workers earned an average of \$29,662, versus an average of \$24,427 for all border jobs. As shown in Chart 7, Laredo topped all other border cities in earnings growth in the 1990s, most likely on the strength of its transportation services industry.

Besides producing jobs and earnings, international trade creates direct revenue for border cities through bridge tolls. Local governments own most of

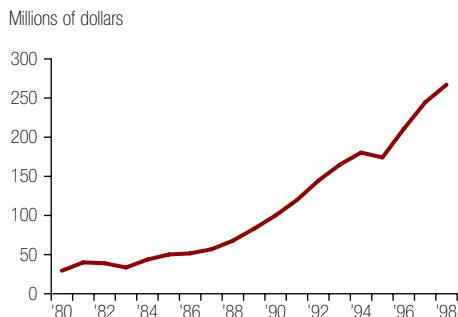
the 26 motor vehicle crossings on the Texas–Mexico border, although several are owned by the state and federal government and several are privately owned.⁵ Southbound fees collected at the bridges accrue to U.S. public and private bridge owners and can be substantial. In 1999, the three bridges in Laredo collected \$27.2 million in tolls. City officials say about half that amount goes to direct costs associated with the bridges and the rest to the city’s general fund.

Border Traffic Imposes Costs

The number of vehicles crossing the Texas–Mexico border has increased dramatically since the early 1990s (*Chart 8*). This is especially true in Laredo, which has seen truck crossings rise 116 percent, from 1.3 million in 1993 to 2.8 million in 1999, and overall vehicle crossings increase 21 percent, from 14.1 million in 1993 to 17.1 million in 1999. With the influx of traffic passing through the border come infrastructure and social costs. From 1993 through 2000, the Texas Department of Transportation (TXDOT) spent \$388 million on roads and highways in Laredo and is projecting to spend another \$298 million from 2001 through 2005. An important congestion cost, air pollution, is increasing in border cities, especially in El Paso, which exceeds air quality standards in many categories.

Because international bridges create a revenue stream that generally pays for their costs, border communities

Chart 6
Border Transportation Services Earnings Growth



SOURCE: Bureau of Economic Analysis.

Chart 7
Border Job Growth Versus Earnings Per Job Growth



SOURCE: Bureau of Economic Analysis.

invested heavily in bridges during the 1990s. In the busy port of Laredo, the modern Colombia–Solidarity Bridge was built in 1991 and the World Trade Bridge was finished in the summer of 2000. To complete the bridge quickly, the city built the U.S. Customs inspection station and leases it to the General Services Administration on a 12-year lease-to-own arrangement. The city is currently in the planning stages for a fifth bridge. Other bridges built in the 1990s include the Free Trade Bridge (Los Indios, 1992), the Pharr–Reynosa International Bridge on the Rise (Pharr, 1995), the Camino Real International Bridge (Eagle Pass, 1999) and Veterans International Bridge at Los Tomates (Brownsville, 1999). Most existing bridges along the border have been improved or expanded, including the four separate structures of the Bridge of the Americas in El Paso, which were rebuilt in 1998. In addition, as of May 2001, Presidential Permit applications were pending for four new bridges.

Although border cities are investing in bridges, there seems to be less incentive to build highways and interchanges. For example, although the Colombia–Solidarity Bridge was built in 1991, the roads on either side of it remained inadequate for years. The road on the U.S. side was improved in 2000 with completion of a privately built toll road connecting the bridge to Interstate 35. TXDOT is still constructing the overpass connecting I-35 to the World Trade Bridge and won’t complete

this project until August 2002. The TXDOT border districts of El Paso, Laredo and Pharr have all received higher-than-average funding per daily vehicle mile traveled. However, because of the rapid growth in truck traffic and its concentration on major arteries, the border may need even greater spending to reduce congestion and the associated social costs.

A projected funding shortfall for infrastructure is slowing progress on border roadways. While TXDOT is gaining ground in acquiring federal highway dollars to improve border infrastructure, the agency estimates it has funding for only about 36 percent of the state’s transportation needs. Texas finances highway construction with the pay-as-you-go method. Hence, a sudden increase in demand for infrastructure—such as that brought on by accelerating trade with Mexico in the 1990s—puts a strain on funding.

In a review of TXDOT in January 2001, the Texas Comptroller of Public Accounts suggested several changes to speed up funding of border infrastructure projects.⁶ Several federal programs enacted since 1995 would allow quicker access to funds for border projects. Grant Anticipation Revenue Vehicles backed by future federal funds, called GARVEE bonds, and federal credit assistance from the Transportation Infrastructure Finance and Innovation Act of 1998 could be used to fund border

Chart 8
Border Vehicle Crossings in the 1990s



NOTE: Crossings through Brownsville, Del Rio, Eagle Pass, El Paso, Harlingen, Laredo, McAllen–Hidalgo, Presidio, Progreso, Rio Grande City and Roma.

SOURCE: Texas A&M International University.

projects. In addition, the comptroller recommends that TXDOT take steps to improve its success rate in obtaining discretionary federal funds, increase the use of toll roads and expand the use of TXDOT's Texas State Infrastructure Bank. The bank was developed in 1997 to allow TXDOT to lend money at below-market interest rates for public and private investment in infrastructure.

Improving Transport Efficiency

The extensive use of the short-haul trucking industry has stimulated relative earnings growth in Laredo and added to the city's toll revenues. However, this system raises costs to firms shipping goods to Mexico because it delays cargo from one to several days and imposes storage and freight-forwarding costs. Also, about 43 percent of cargo trucks crossing Laredo's international bridges in 1999 had either no trailer or an empty one, intensifying congestion costs and infrastructure demand. Under NAFTA's trucking provision, which by now would have allowed trucks to travel freely between countries, some of these costs could be eliminated, enhancing the efficiency of border transport but also reducing the demand for trucking and warehousing along the border.⁷ In early 2001, President Bush announced the United States would comply with the trucking provision by January 1, 2002.

While the trucking provision's implementation may reduce the demand for new border transportation infrastructure, other measures also can improve transport efficiency. One example is a fee structure or agreement with shipping companies that encourages trucks to avoid the peak travel times of 11 a.m. to 2 p.m. and 4 p.m. to 8 p.m. Often the bridges have excess capacity during off-peak times. Border officials and groups such as the Mexico-Texas Bridge Owners Association have voiced concerns that the federal agencies that inspect border traffic have not increased staffing to keep up with the large increase in trade and the growing concern about illegal drugs and immigration.⁸ Recent actions that have eased

the flow of commuters who cross the border daily to work and shop include dedicated commuter toll-tag lanes at the Stanton Bridge in El Paso and the rerouting of truck traffic in Laredo to the new World Trade Bridge.

The October 2000 completion of Laredo's Camino Colombia toll road, the first private toll road in Texas, signals that the private sector is acting to improve border transport efficiency. The road provides a direct route from I-35 to the Colombia-Solidarity Bridge, which can save time and money associated with bottlenecks and congestion. By paying a toll to use the road, the manufacturers and transporters who receive the benefits of this infrastructure also pay for its construction and maintenance. Despite light traffic on the toll road in the first several months, bridge owners say that under Mexican President Vicente Fox's administration, a new highway may be built on the Mexican side of the Colombia-Solidarity Bridge. This would likely spur use of the state-of-the-art bridge and the Camino Colombia toll road.

Summary

The border receives many benefits from increased trade with Mexico. The expense of maintaining infrastructure to accommodate international trade, however, poses a challenge. Before significantly more dollars are spent on border infrastructure, the efficiency of the current system needs to be addressed. The implementation of the NAFTA trucking provision is a step in the right direction. Other issues to consider are peak travel times, customs manpower and Mexican customs brokers' policies. Border cities, particularly Laredo, have benefited from the strong growth in the short-haul trucking industry, however, and efforts to improve border transport efficiency may result in reduced job growth in this industry.

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Notes

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¹ Border-crossing data are from the Texas Center for Border Economic and Enterprise Development at Texas A&M International University. Truck crossing data for El Paso, which are not recorded, were estimated using trucks as a percentage of total vehicle crossings at the other border ports. For raw data, see <http://tamiu.edu/coba/bti/>.

² In this article we use county data for the six major cities along the border—Brownsville, Del Rio, Eagle Pass, El Paso, Laredo and McAllen.

³ See "Border Region Makes Progress in the 1990s," Federal Reserve Bank of Dallas San Antonio Branch *Vista*, December 1999.

⁴ It is interesting to note, however, that because minimum wages in the United States are about 10 times higher than in Mexico, border retail wages are high in comparison with many jobs in neighboring Mexico. Since many border residents immigrated from Mexico, have relatives in Mexico and may compare their wages with the lower pay in Mexico, they may believe their wages are above average.

⁵ Twenty-three of the crossings are bridges, two are dams and one is a hand-drawn ferry. The two dams and three of the bridges are owned by the U.S. government, the ferry and three bridges are privately owned, one bridge is owned by the state of Texas and the remainder are owned by a local governmental entity such as a city or county. The Mexican federal government typically owns the Mexican portion of an international bridge.

⁶ See *Paving the Way: A Review of the Texas Department of Transportation*, January 2001, Texas Comptroller of Public Accounts, www.window.state.tx.us/txdot/.

⁷ President Clinton, responding to perceived safety issues, delayed indefinitely the trucking provision, which would have allowed trucks access to border states by December 1995 and throughout both countries by 2000. The current restrictions barring U.S. trucks from Mexico and vice versa are not the only source of transportation delays at the border, however. The Mexican customs brokers' practice of requiring inspection on the Texas side of the border is also a factor, as it stimulates short-haul freight-forwarding and warehousing of goods. Thus, it is unclear what impact the trucking provision, when implemented, will have on the movement of goods across the border. For a more detailed discussion of border transportation inefficiencies, see "Texas to Mexico: A Border to Avoid," by James Giermanski, *Journal of Borderlands Studies*, vol. 10, no. 2, 1995, pp. 33–53.

⁸ For example, see "More Agents for Customs Are Sought," *Wall Street Journal*, July 12, 2000, p. T1.