

Texas Border Benefits from Retail Sales to Mexican Nationals

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Over the past 10 years, trade between the United States and Mexico has boomed, partly because of the significant reduction in tariffs from NAFTA and the strong growth in the maquiladora industry. Along with the expansion in trade, there has been strong population growth along the northern border of Mexico. Generally, the population in Mexican border cities is significantly larger than in the corresponding U.S. sister cities. Moreover, the South Texas border metros are a short drive from the industrial city of Monterrey, which had a population of 3.8 million in 2000. The large and growing population on the Mexican side of the border represents an important consumer base for retail stores in U.S. border towns.

While commercial trade between the United States and Mexico is well documented, less is known about the size of the nations' cross-border retail trade. Though small in comparison with commercial trade, this retail trade is a significant part of many border city economies. In 2003 alone, there were more than 38 million noncommercial crossings at the bridges along the Texas–Mexico border. Many of these individuals were coming to purchase goods to take back to their home country. Due to differences in national policies such as environmental laws, taxes and consumer safety regulations, people cross daily to purchase goods and services on both sides of the border.

Since most of the retail trade conducted on the U.S. side of the border is done in cash, it is difficult to document the share of retail spending by Mexican nationals. In this article, we use a simple consumption function to estimate the amount of retail spending that is essentially exported to Mexico via cross-border shoppers.¹ Since the true amount spent by Mexican nationals is not known, it is difficult to estimate the accuracy of our measures. Theory tells us, however, that metro



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areas having the biggest share of their retail sales going to Mexican nationals will be impacted the most by large swings in the value of the peso. We thus check that our estimates are consistent with the effects on local retail sales of movements in the real dollar/peso exchange rate.

Previous Research on Border Retail

Traditionally, the border has been a region of fast population and job growth compared with the rest of the United States and Mexico. The Border Industrialization Program—enacted in 1965 by the Mexican government after the United States ended the Bracero Program—gave birth to the maquiladora industry, which in turn intensified the border region's growth, not only

in Mexico but also on the U.S. side due to increasing border interlinkages. The maquiladora industry has been the main economic growth driver along the Texas–Mexico border.

Several studies have addressed the issue of cross-border retail trade as part of a larger question of the maquiladora industry's impact on the regional economies of U.S. border cities. The first studies on the subject date back to the early 1970s and indicate that a significant portion of maquiladora salaries was spent on the U.S. side of the border, mainly on food and clothing. More specifically, one study estimates that a 10 percent increase in maquiladora employment translates into a 23 percent increase in retail sales in Brownsville, a 13 percent increase in Laredo, an 11 percent increase in El Paso and a 7 percent increase in McAllen.²

Perhaps the first researcher to study the impact of the maquiladoras along the Texas border in a comprehensive manner was J. Michael Patrick.³ His main conclusion regarding cross-border retail trade activity is that growth in the maquiladora industry in Mexico stimulates U.S. border job growth mostly in the retail and service sectors, not in the manufacturing sector as commonly perceived.

One of the first studies to quantify the impact of Mexican nationals on retail trade on the U.S. side of the border was done by the San Diego Chamber of Commerce in 1979.⁴ Through surveys, the study estimated that 7.5 percent of San Diego's retail sales (\$407 million) could be attributed to Mexican nationals. In 1993, according to a study by the San Diego Dialogue, about 42 percent of the people who crossed into San Diego were Mexican nationals with the main purpose of shopping. They accounted for \$2.8 billion in retail sales.⁵

More recently, in 2002, Charney and Pavlakovich-Kochi estimated the eco-

conomic impact of Mexican visitors to the economy of Arizona. They found that Mexican visitors spent \$962 million, with the vast majority in department stores (41 percent) and grocery stores (25 percent), mostly in border counties.⁶ Similarly, on the Texas–Mexico border, the Center for Border Economic Studies at the University of Texas–Pan American estimated that total expenditures by Mexican visitors in the lower Rio Grande Valley amounted to \$1.4 billion in 2003.⁷

Other studies have focused on the impact of exchange rate fluctuations on U.S. border retail sales. For instance, Diehl concludes that the 1982 Mexican economic crisis that triggered peso devaluation stunned South Texas retailers by cutting retail sales as much as 80 to 90 percent in many border businesses.⁸ Similarly, Patrick and Renforth estimate, through the use of almost 4,000 surveys, that the 1994 peso devaluation resulted in a strong 41.8 percent decline in retail sales, but the results varied by city, store type, distance from the border and relative domestic market size.⁹ Gerber documents the relationship between peso value fluctuations and total taxable sales in San Diego and Imperial counties, where he finds that an unanticipated 10 percent decline in the value of the peso depresses total taxable sales by approximately 1 percent in San Diego County and 2.22 percent in Imperial County.¹⁰

Many of the studies, however, are region- and time-specific, making comparisons across regions and over time difficult. Also, many of the studies were done using time-consuming, labor-intensive, and thus expensive, survey techniques that would be difficult to perform consistently over time and across regions. To overcome these limitations, we use a simple consumption function approach that produces a consistent annual time series of exported retail sales for the four metropolitan statistical areas (MSAs) on the Texas–Mexico border.

Using a Different Approach

Phillips and Manzanera propose a simple model in which it is assumed that individuals spend a fixed proportion of their income on consumption, or in this case, retail sales.¹¹ For instance, they find that from 1986 to 1998 retail sales as a fraction of personal income in Texas aver-

aged 46 percent. For each of the four border MSAs, they multiplied 0.46 by total personal income to get an estimate of retail sales purchased by the local population and then subtracted sales to locals from total sales to get net exported retail sales. If the value of net exported retail sales is negative, that means more local income is spent outside the local economy than income spent by outsiders in the local community. While it is evident that many Mexican nationals cross the border to shop, U.S. citizens also cross into Mexico to dine at restaurants and to buy local handicrafts, medicines, liquor, dental services and other products and services. Border residents also vacation and shop at other destinations in the United States. Remittances to family members in Mexico can also reduce the amount of local income spent on local retail goods and thus reduce net exported retail sales.

Using a constant fraction of local personal income to estimate the amount that locals spend on retail—and using this amount to estimate net exported retail—produces reasonable results. However, we can further refine the model by decomposing personal income into three components, allowing the coefficient on each component to differ. The border region has a low employment-to-population ratio due to its young labor force and high unemployment rates. It also has persistently low per capita personal income yet strong job growth rates. If these factors play differing roles in retail spending, it is important to separate them out. We divide personal income (Y) as follows:

$$Y = \left(\frac{Y}{POP} \right) \times \left(\frac{POP}{EMP} \right) \times EMP,$$

where POP is population and thus Y/POP is per capita income, POP/EMP is the inverse of the employment-to-population ratio and EMP is total employment. We then try to estimate the impact of the three components of personal income on retail sales across the 23 non-border Texas MSAs. We use quarterly retail sales data at the metro level from 1978 to 2001, available from the Texas comptroller's office. Annual personal income for metro areas (less contributions for social insurance) from 1978 to 2001 is available from the Commerce Department's Bureau of Economic Analysis.

Table 1
Border Exported Retail Sales,
1978–2001

	Average share (percent)
Brownsville	25.7
El Paso	11.3
Laredo	51.1
McAllen	35.6

SOURCE: Authors' calculations.

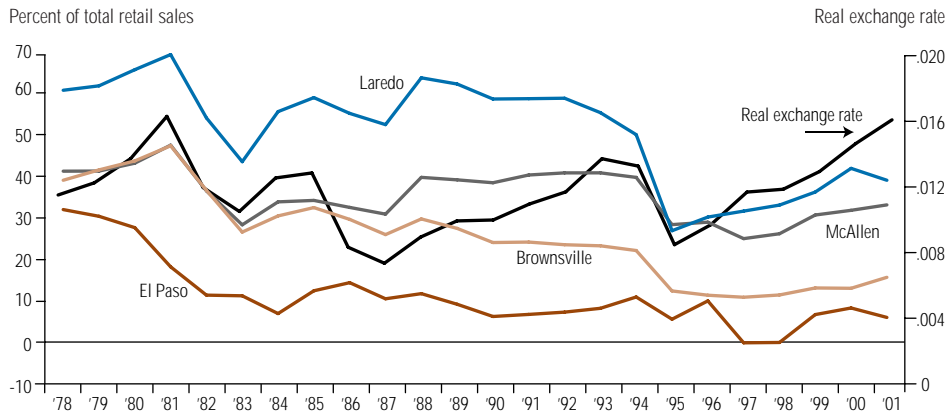
We use the results from the model to estimate exported retail sales for the four Texas border MSAs. Table 1 reports the average share of exported retail sales for these four areas during our estimation period. According to our results, in 2001, Mexican shoppers accounted for more than \$2 billion in retail sales, representing 0.75 percent of total retail sales in Texas. In 2001, McAllen was the biggest net exporter of retail sales to Mexicans, with almost \$1 billion in sales, representing 33 percent of its total local retail trade activity. Laredo came in second with \$540 million in exported retail sales, or 39 percent of total retail sales. Brownsville registered \$256 million (16 percent of total retail sales), while El Paso, the biggest of the four cities in terms of population, exported only \$215 million (6 percent) to Mexican nationals. El Paso's figure is well below its average exported retail sales of 11.3 percent and is primarily due to the contracted maquiladora activity south of the border. Ciudad Juárez registered its worst maquiladora performance in 2001 and 2002, with employment declining almost 25 percent.

On average over the 1978–2001 period, Mexican nationals accounted for 1.6 percent of Texas retail sales, or \$5.1 million on a daily basis. Chart 1 shows that over time Laredo has the highest share of exported retail sales to actual total sales, followed by McAllen, Brownsville and El Paso.

Sensitivity to Exchange Rate Swings

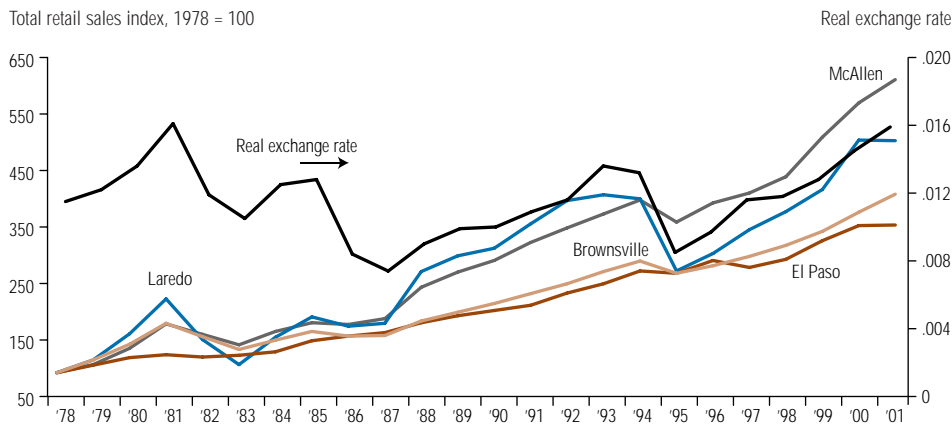
Although there is no straightforward way to determine the accuracy of our results, retail sales from Mexican nationals should be sensitive to swings in the value of the peso. These swings represent price shocks for Mexican nationals shopping on the U.S. side, and border retailers know that sharp declines in the peso's

Chart 1
Exported Retail Sales Shares



SOURCES: Authors' calculations; Federal Reserve Bank of Dallas.

Chart 2
Border Retail Sales Are Closely Related to Real Exchange Rate



SOURCES: Authors' calculations with data from Texas Comptroller of Public Accounts and Banco de México.

value result in a sharp drop in Mexican shoppers. Under our model, exported retail sales seem to be responsive to changes in exchange rate (see Chart 1).

If exported retail sales represents a significant portion of total retail sales, changes in the value of the peso should have statistically significant impacts on total retail sales. To assess this, we perform some statistical tests on the sensitivity of overall retail sales to changes in the value of the peso. Results show that, in all MSAs but El Paso, changes in the real exchange rate have statistically significant impacts on total local retail sales. The magnitude of the impact was the largest in Laredo. Since our results show that El Paso had the smallest share of its retail sales going to Mexican nationals and Laredo had the largest, these results are consistent with our previous findings (Chart 2).

Outlook

In mid-2005 the real value of the peso was above its 20-year average and the maquiladora industry was continuing to bounce back from its downturn in 2001–03. Both of these factors should continue to stimulate growth along the Texas side of the border. Looking to 2006, Mexico is hoping to have its second consecutive presidential election without a peso devaluation. The Texas border community is hoping for the same, as its economy ebbs and flows with the movements in the value of the peso and the accompanying waves of Mexican shoppers.

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Notes

¹ For a more detailed version of this article, please see “Exported Retail Sales along the Texas–Mexico Border,” by Keith R. Phillips and Roberto Coronado, Federal Reserve Bank of Dallas working paper (forthcoming).

² See “Maquiladoras along the Texas–Mexico Border: An Econometric Evaluation of Employment and Retail Sales Effect on Four Texas Border SMSAs,” by Richard J. Holden, Texas Department of Community Affairs, Regional Economic Development Division, February 1984.

³ See “The Economic Impact of Maquiladoras on Border Development: A Rio Grande Valley Case Study—Some Preliminary Findings,” by J. Michael Patrick and Roland S. Arriola, paper presented at the Western Social Science Association meeting, El Paso, Texas, 1987; “The Employment Impact of Maquiladoras along the U.S. Border,” by J. Michael Patrick, in *The Maquiladora Industry: Economic Solution or Problem?*, ed. Khosrow Fatemi, New York: Praeger Publishers, 1990, pp. 31–35; and “The Impact of NAFTA on Border Maquiladora and Industrial Activity,” by J. Michael Patrick, Technical Report, Center for Entrepreneurship and Economic Development, University of Texas–Pan American, 1991.

⁴ “Mexican Impacts on Retail Sales,” San Diego Chamber of Commerce, *San Diego Economic Bulletin*, vol. 27, no. 6, 1979.

⁵ “Who Crosses the Border: A View of the San Diego/Tijuana Metropolitan Region,” Technical Report, San Diego Dialogue, University of California, San Diego, 1993.

⁶ “The Economic Impacts of Mexican Visitors to Arizona: 2001,” by Alberta H. Charney and Vera K. Pavlakovich-Kochi, Research Studies, Economic and Business Research Program, University of Arizona, July 2002.

⁷ “The Economic Impact of Mexican Visitors to the Lower Rio Grande Valley 2003,” by Suad Ghaddar, Chad Richardson and Cynthia J. Brown, Technical Report, Center for Border Economic Studies, University of Texas–Pan American, 2004.

⁸ “The Effect of the Peso Devaluation on Texas Border Cities,” by Philip N. Diehl, *Texas Business Review*, vol. 57, May/June 1983, pp. 120–25.

⁹ “The Effects of the Peso Devaluation on Cross-Border Retailing,” by J. Michael Patrick and William Renforth, *Journal of Borderlands Studies*, vol. 11, Spring 1996, pp. 25–41.

¹⁰ “The Effects of a Depreciation of the Peso on Cross Border Retail Sales in San Diego and Imperial Counties,” by James Gerber, working paper, San Diego State University, June 1999.

¹¹ “Transportation Infrastructure and the Border Economy,” by Keith R. Phillips and Carlos Manzanarez, *The Border Economy*, Federal Reserve Bank of Dallas, June 2001.