

**The Effects of a Depreciation of the Peso on Cross Border
Retail Sales in San Diego and Imperial Counties**

Summary: June 8, 1999

James Gerber

Professor of Economics, San Diego State University

Economic Research Fellow, San Diego Dialogue

jgerber@mail.sdsu.edu

ABSTRACT: Changes in taxable sales in San Diego and Imperial counties are correlated with fluctuations in the value of the peso. An empirical model is used to specify and estimate the relationship between fluctuations in the value of the peso and total taxable sales. Regression results show that an unanticipated ten percent decline in the value of the peso depresses total taxable sales by approximately one percent in San Diego county and 2.25 percent in Imperial county. During periods of high peso volatility, expectations of future depreciations can offset much of this effect, however, and lead to increased purchases. The paper also shows that the effects of the peso depreciation vary by retail sector and region. The largest relative effects are in the auto and automotive products sector in San Diego and the apparel sector in Imperial county.

SUMMARY OF FINDINGS

Introduction

Recent turmoil in international financial markets has focused attention on a number of highly important global economic issues. Policymakers and politicians around the world have taken an interest in international financial economics and are working to increase their understanding of capital flow volatility, the role of the IMF during an international crisis, and the overall architecture of the international financial system.

Invariably, global economic turmoil has local secondary effects. These effects are less noted because they are spread over a narrower region and lack the dramatic national and international significance of issues tied to the impacts of volatile short term capital flows in emerging markets. One local secondary effect is tied to the role of the peso in U.S. communities located along the border with Mexico. When the peso's value fell by twenty percent in less than two months during the summer of 1998 (from 8.8 to the dollar on July 21, 1998, to 10.63 to the dollar on September 10) it had important implications for the economies of San Diego and Imperial counties. While these may be less dramatic than the national and international implications of a sudden depreciation, in regional economies such as San Diego-Tijuana and Imperial-Mexicali, where different national currencies are widely circulated and where U.S. and Mexican citizens mix together in business, social, and family circles, local effects of a decline in the value of the peso are deeply felt. One effect is that a decline in the value of the peso affects the ability of Mexican citizens to make purchases on the northern side of the international border.

The cross border market

In all communities along the border, cross border purchases are a significant part of the local economy (San Diego Chamber of Commerce, 1979; Patrick and Renforth, 1996; Prock, 1983; San Diego Dialogue, 1994; San Diego Dialogue, et. al., 1998). Clark (1994) hypothesized that these effects decrease as the distance from U.S. cities to the border increases, and as the relative size of the cross border market increases. Patrick and Renforth (1996) confirmed this empirically for a sample of four Texas border cities. They estimated that sales to Mexican citizens comprised between 20 and 50 percent of total retail sales along the Texas border, with larger cities having a share closer to the smaller number and smaller cities closer to the larger one. After the collapse of the peso in late 1994, they estimate that retail sales fell by approximately 40 percent in their sample of 374 retailers in four cities.

Estimates of the importance of cross border shopping in California have been made by the San Diego Dialogue (1994) for San Diego, and a consortium of San Diego Dialogue, Centro de Estudios Económicos del Sector Empresarial de Mexicali, A.C., and Universidad Autónoma de Baja California (1998) for Imperial county. The study of San Diego, based on a 1992 survey of border crossers estimated that \$1.5 billion of taxable sales in San Diego county were to northbound border crossers. This was equal to approximately 7.1 percent of taxable sales in the county in 1992 (California State Board of Equalization, 1992). It is interesting to compare this figure to an estimate made in

1979 by the Economic Research Bureau of the San Diego Chamber of Commerce. The Chamber conducted spot surveys of shopping districts around the county and concluded that 7.5 percent of the county's taxable sales were to residents of Mexico who crossed the border to shop.

The estimate that 7 to 7.5 percent of taxable sales in San Diego county are to Mexican citizens is reasonable. Since the San Diego market is the largest in the border area, the percentage should be below the comparable figures for urban areas in Texas. Taxable sales in San Diego county during the first half of 1998 were \$14 billion and seven percent of that amount is \$980 million. It is not surprising that a decline in the peso's value will hurt many local retailers.

The impact on Imperial county taxable sales of a decline in the value of the peso is smaller in dollar amounts, but larger relative to the size of the regional economy. This follows from the facts that at the beginning of 1998 Imperial county had 142,100 people compared to San Diego county's 2,794,800 (Department of Finance). In addition, it was estimated in early 1998 that over 900,000 monthly northbound border crossings occurred at the Calexico port of entry in Imperial county, a number roughly seven times the size of the population. While estimates are uncertain of the total expenditures in Imperial county by these border crossers, there are ample indications that it is a much larger share of the county economy than in San Diego.

How the peso matters

A fall in the value of the peso affects the ability of Mexican residents to make purchases in the U.S. The most immediate and obvious effect is that dollars become more expensive, so goods that are priced in dollars are more expensive too. Economically, this is equivalent to a fall in income since it pushes many goods out of the family budget. The depreciation also creates an incentive to substitute Mexican made goods for U.S. made ones because, for awhile at least, relative prices favor Mexican goods and services. Over time, the substitution effect will disappear since a depreciation in the peso is soon followed by an increase in the price level. In Tijuana, for example, between 1980 and 1998, every ten percent depreciation in the value of the peso resulted in a 7.8 percent increase in prices within three quarters.

Several factors ameliorate the impact of a decline in the value of the peso on San Diego and Imperial county retail sales. First, a significant part of the economies of Tijuana and Mexicali is dollarized. In other words, many receipts and payments take place in dollars. Second, the aforementioned increase in prices in Mexico after a depreciation quickly eliminates price gaps between U.S. and Mexican produced goods. Third, in times of extreme peso volatility and turmoil, Mexican citizens come to expect future depreciations of equal or greater magnitude. This effect can increase current spending on the northern side of the border since necessary purchases are better made now rather than later when the peso will be worth even less.

Characteristically, periods of rapid depreciation are associated with periods of much higher peso volatility. Over the period from 1980 to 1998, there were two major episodes of rapid depreciation and high volatility, as shown in the following table. The fact that depreciations are associated with increased uncertainty about the future value of the peso makes it impossible to predict how any given depreciation will affect retail sales.

If expectations about the future value of the peso remain unchanged, then a depreciation will reduce spending across the border. If, however, expectations are altered and Mexican shoppers expect a significant depreciation in the future, then they may increase spending in this period in order to avoid having to make purchases in the future when the peso is expected to be worth less.

<i>Quarterly Rates of Change in the Dollar Value of the Peso</i>		
	<i>Mean rate of change</i>	<i>Standard deviation</i>
Group 1 <i>1981:4 to 1988:1 and 1994:4 to 1995:4</i>	-16.68 percent	10.72 percent
Group 2 <i>1980:2 to 1981:3 and 1988:2 to 1994:3 and 1996:1 to 1997:3</i>	-2.22 percent	2.83 percent

Source: Bureau of Labor Statistics (BLS), Instituto Nacional de Estadística, Geografía e Informática (INEGI), JP Morgan, author's calculations.

Empirical estimates of the impact of a peso depreciation on taxable sales in San Diego and Imperial Counties

The real value of taxable sales are a function of incomes in San Diego and Tijuana, and the exchange rate. Several variables are included in the estimating equation to proxy the effects of a change in either San Diego/Imperial incomes and Tijuana/Mexicali incomes. The exchange rate is the nominal rate measured as the number of dollars per peso. The following table shows the estimated effect on taxable sales of a ten percent depreciation in the value of the peso.

<i>The Effects on Taxable Sales in San Diego and Imperial Counties of a Ten Percent Depreciation in the Value of the Peso</i>		
	San Diego County	Imperial County
Total taxable sales	-0.99 percent	-2.22 percent
Retail sales	-0.97 percent	-1.93 percent
Autos and automotive products	-1.67 percent	-1.71 percent
Building materials	-1.27 percent	-0.48 percent
General Merchandise	-1.12 percent	-2.64 percent
Eating and drinking places	-0.44 percent	-2.03 percent
Apparel	-0.70 percent	-6.04 percent
Specialty shops	+0.02 percent	-3.12 percent

Source: Author's calculations. See Tables 6, 7, 8 and 9.

Interpretation of the numbers in the table is as follows. Holding constant the expectations of Mexican consumers, a ten percent depreciation in the peso causes total taxable sales in San Diego county to fall by just under one percent (0.99 percent), or about \$73 million dollars in the most recent quarterly data (Q2:1998). In Imperial county the effect is relatively larger, with a ten percent depreciation leading to a 2.22 percent fall in taxable sales, an amount equal to about \$6.4 million dollars when measured by the most recent quarter (Q2:1998, California State Board of Equalization). Declines in total

taxable sales are unevenly spread across product groups, with autos and automotive products, building materials, and general merchandise retailers all experiencing relatively larger effects in San Diego county, and apparel, specialty shops and general merchandise the hardest hit in Imperial county.

Caution should be exercised in applying these numbers since they are contingent on the assumption that expectations about the future movement of the peso are unchanged. If, however, Mexican consumers anticipate that a current depreciation will lead to significant future depreciations, they will increase certain types of expenditure. That is, the current decline in the value of the peso imposes a tighter budget constraint on Mexican households and reduces expenditure, but at the same time, expectations of future depreciations increases expenditure. During periods of prolonged turmoil in exchange markets the expenditure inducing elements may actually outweigh the expenditure decreasing elements.