El Paso Business Frontier

FEDERAL RESERVE BANK OF DALLAS EL PASO BRANCH ISSUE 1 • 2001

NAFTA, the U.S. Economy and Maquiladoras

Because of NAFTA and other new, related rules, the maquiladora label may no longer be warranted. What remains as a viable, increasingly important component of the Mexican economy, however, is the industrial base created by maquiladoras—one that is intimately linked with the economy across the border.

The North American Free Trade Agreement, now in its eighth year, is generating the expected increased trade between the United States, Mexico and Canada. In addition, the agreement has spurred investment flows between the three countries.[1] Still in question, however, is NAFTA's impact on Mexico's maquiladora industry. The agreement includes a set of rules for maquiladoras, the most important of which were slated to begin in 2001. This article first looks at the maquiladora industry's 2001 performance in light of the U.S. economic slowdown. It then discusses the NAFTA provisions for the industry and their impact on it thus far.[2]

2001 MAQUILADORA PERFORMANCE

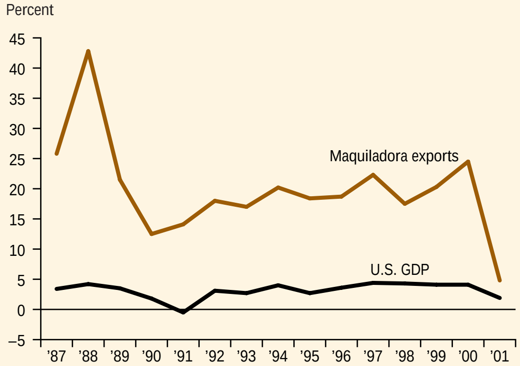
Key Indicators

The maquiladora industry is U.S.-demand driven since most of Mexico's maquiladora production is destined for the U.S. market. Chart 1, which traces the relationship between U.S. economic activity and maquiladora exports, shows that periods of U.S. economic expansion are associated with sustained maquiladora export growth. Conversely, periods of deceleration—such as the one currently under way—exert a downward impact on maquiladora export performance.

As seen in Table 1, the U.S. economic slowdown has dampened overall maquiladora activity in 2001. While maquiladora employment growth exceeded 12 percent in 2000, figures for January–May 2001 indicate growth of only 3.1 percent year-over-year. Also, after growing 24.5 percent last year, maquiladora exports through May grew only 6.9 percent from the year-earlier period.

Although these figures are evidence of a considerable slowdown in maquiladora activity, growth in all indicators remains positive for the year. This situation

Chart 1
U.S. GDP and Maquiladora Exports, 1987–2001
(Annual growth)



NOTE: Data for 2001 are for January through June.

SOURCES: Federal Reserve Bank of Dallas El Paso Branch, with data from Banco de México and Bureau of Economic Analysis.

is comparable with that of the 1990–91 U.S. recession, when growth in the industry also remained positive even as it underwent significant deceleration. Maquiladora industry exports grew 12.4 percent in 1990 and 14.7 percent in 1991, down from average annual growth of 25.3 percent during 1986–89. Maquiladora employment growth decelerated to 3.9 percent in 1990 and 4.7 percent in 1991, down from average growth of 19.8 percent per year during 1986–89.

Certainly U.S. economic activity explains much of the growth, or lack thereof, in the maquiladora industry. Another key factor behind this sector's performance is the peso/dollar exchange rate. This variable determines the cost-effectiveness of maquiladora operations because it measures the accessibility, in dollar terms, of labor and other inputs in Mexico relative to the U.S. and other economies. Because the maquiladora sector witnessed a boom from 1995 through 2000 and NAFTA became effective in 1994, the agreement has also been credited as a source of industry growth.

However, the December 1994 peso devaluation is what actually spurred the industry's rebound. Devaluation resulted, on an overnight basis, in dramatic cost reductions for maquiladora companies.[3] In fact, recent Dallas Fed research shows that NAFTA has not been responsible for maquiladora industry growth. The factors found to predominantly determine the growth pattern of maquiladoras are U.S. industrial production and the manufacturing wage ratio between Mexico and the United States and between Mexico and Asia (where the peso/dollar exchange rate is absorbed).[4]

Top Sectors and Cities

While overall growth in the maquiladora industry remained positive through May, it's important to note that some sectors have been more affected by the U.S. economic slowdown than what the general trend shows. Chart 2 traces maquiladora employment growth in the industry's top three sectors. The U.S. economic slowdown adversely affected employment in the transportation equipment and electronics sectors more than in the textiles and apparel sector. Also, both transportation equipment and electronics are underperforming the industry in employment growth this year.

In terms of cities, Ciudad Juárez and Tijuana—the top two locations for maquiladora investment—so far show employment growth above the overall trend. Thus, while total maquiladora employment during January–May 2001 grew 3.1 percent over the year-earlier period, growth in Juárez was slightly higher, at 3.5 percent, and more than twice as high in Tijuana, at 7.8 percent. Maquiladora employment growth in these two

Table 1
Maquiladora Industry Key Indicators

	January–May 2001	Year-over-year change (percent)	2000	2000 annual growth (percent)
Plants	3,735	6.2	3,590	8.9
Employment	1,276,911	3.1	1,285,007	12.4
Total raw materials *(billions of U.S. dollars)*	23.6	10.9	55.3	18.6
Imported	22.8	10.3	53.5	18.3
Domestic	.8	29.7	1.8	27.6
Value added *(billions of U.S. dollars)*	8.1	22.3	17.8	28.4
Exports *(billions of U.S. dollars)*	32.2	6.9	79.5	24.5

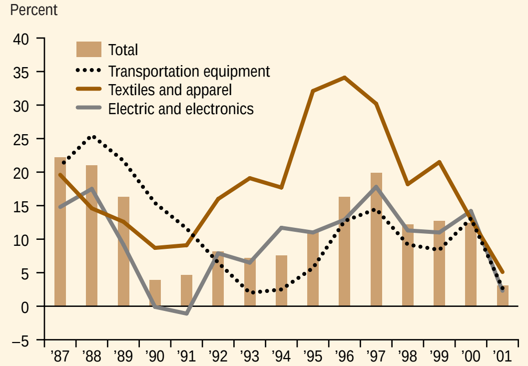
SOURCES: Federal Reserve Bank of Dallas El Paso Branch, with data from Instituto Nacional de Estadística, Geografía e Informática; export data from Banco de México.

cities reached double digits last year: 14.2 percent in Juárez and 16.1 percent in Tijuana. Even though maquiladora employment growth has managed to remain positive, this year's levels have come down considerably from last year's.

In Juárez, for example, maquiladora employment peaked in October 2000 at 262,805 workers. Since then it has closely mirrored the U.S. economic slowdown, especially in the auto industry, a prime maquiladora sector in Juárez. By May 2001, Juárez maquiladora employment had fallen to 235,887, a contraction of nearly 27,000 workers in seven months. Although no maquiladora company has shut down operations in Juárez, maquiladoras in this city and elsewhere in Mexico have taken steps to adjust to the U.S. economic slowdown by eliminating shifts and shortening workweeks. The employment numbers reflect these adjustments.

At the same time, however, employment is being sustained by increased investment in Mexico stemming from supply- or cost-side factors rather than demand considerations. The U.S. economic slowdown is motivating some U.S. companies to increase production in Mexico in an effort to cut costs and thus keep prices down or even push them lower to stimulate demand. This strategy helps companies preserve their existing market share and can potentially rescue profit margins from drastic reductions. Indeed, new companies have opened this year in Juárez and elsewhere in Mexico as part of this trend.[5]

Chart 2
Maquiladora Industry Employment in Principal Sectors, 1987–2001
(Annual growth)



NOTE: Data for 2001 are for January through May.

SOURCES: Federal Reserve Bank of Dallas El Paso Branch, with data from Instituto Nacional de Estadística, Geografía e Informática.

NAFTA AND MAQUILADORAS

Phase 1: 1994–2000

NAFTA rules for the maquiladora industry were stipulated in two phases. The first covers the period 1994–2000; the second starts in 2001. During its first phase, NAFTA allowed the maquiladora industry to preserve one of the maquiladora program's essential operational schemes—duty-free importation of inputs into Mexico, regardless of origin. Also during this first phase, NAFTA greatly liberalized maquiladora sales into the domestic market. For example, in 1993, the year before the agreement's enactment, a maquiladora company's domestic sales were limited to 50 percent of its previous year's export production. In 1994, the allowance of a maquiladora's sales into the domestic market went up by 5 percent—to 55 percent of the previous year's export production—and was raised by increments of 5 percent annually from 1995 to 2000. Thus, last year a maquiladora's domestic sales could equal 85 percent of its previous year's export production. Moreover, in 2001 the NAFTA limit on maquiladora domestic sales was totally relaxed so that, if they so desire, maquiladoras are now allowed to sell 100 percent of their production domestically.[6]

So just how many maquiladoras have taken advantage of the domestic market opening NAFTA allowed? The answer is not many. Most maquiladoras have set up shop in Mexico with the intent of serving the U.S. market. Although it's conceivable that many companies would welcome the opportunity to expand their market by selling into Mexico, the trend has been one of focusing production for the primary, and voluminous, U.S. market. Moreover, since sales into Mexico would require the assessment of duties on imported components—given that duty-free status on imported inputs is allowed only as long as 100 percent of the production is exported—then maquiladoras would have to incur additional costs (applicable tariffs plus administrative costs) before entertaining sales into Mexico.[7]

Although few maquiladoras have been selling directly into the domestic market, they have not left the Mexican market altogether untapped. To avoid the cumbersome and costly process of calculating the multiple duty rates on inputs for product to be sold directly into the Mexican market, companies simply send their product to the United States for export back to Mexico. Despite the extra shipping costs, this indirect way of tapping into the Mexican market has resulted in more favorable overall costs for maquiladoras. Duties are typically less on the final product—it may even be duty-free—and the simpler transaction lowers administrative costs.

In its first phase, NAFTA also liberalized trade and investment in the textiles and apparel sector —the maquiladora industry's second-largest employer.[8] Moreover, local-content rules in Mexico's automotive sector were relaxed to allow treatment of maquiladoras as national suppliers for purposes of complying with local-content requirements. Finally, prior to NAFTA, maquiladora goods entering the United States were assessed duties on the part of the good not of U.S. origin. With NAFTA, the value added to maquiladora output in Mexico, along with U.S.-origin inputs, is now typically excluded from duties.

Phase 2: 2001

Starting this year, NAFTA affects the maquiladora industry in one very important way: It abandons the provision of duty-free importation of inputs into Mexico, regardless of origin. Instead, North American rules of origin now determine duty-free status for a given import. Thus, as long as the source of the inputs is either the United States or Canada, no duties are assessed. However, whenever maquiladoras use non-North American inputs, NAFTA's Article 303 stipulates that duty drawback provisions apply. Specifically, these provisions allow maquiladoras to receive a duty refund for the lesser of (1) the amount of duties paid in Mexico for imported inputs or (2) the amount of duties paid on the final product in the United States or Canada at the time of importation from Mexico.

To assess the possible impact of the 2001 NAFTA rules, we need to look at the volume of inputs maquiladoras import from third countries. If maquiladoras rely heavily on imported inputs from sources outside the NAFTA region, it would appear that starting this year, because the new rules impose duties on these third-country imports where no duties were assessed before, maquiladoras will face dramatically increased costs. Actually, the opposite is true. The overwhelming majority of materials, parts and machinery imported by maquiladoras—90 percent, according to Banco de México—is sourced in the NAFTA region, specifically in the United States. Thus, this measure of overall maquiladora inputs would continue to enjoy the duty-free privileges that have applied ever since the maquiladora program started in 1965.

The fact remains, though, that now not all inputs imported by maquiladoras can enter Mexico duty-free. Even if only 10 percent of these inputs would now face duties because they are sourced in third countries, this translates into higher costs for some industry participants, especially if the duties in question are excessively high. In fact, one of the sectors most vulnerable to the new rules is the industry's largest—electric and electronics—since this sector has important supplier links with countries outside the NAFTA region, predominantly in East Asia.

During NAFTA's first phase, companies in the electric and electronics sector alerted Mexican authorities that the new duties they would face in 2001 on their third-country inputs would boost their costs and threaten the competitiveness of their investments in Mexico. To ensure compliance with the new North American rules-of-origin provisions that would be triggered in 2001, some third-country suppliers relocated to the NAFTA region. This strategy was pursued especially by Asian maquiladoras, which, along with maquiladoras in the electric and electronics sector, had the most extensive supplier links with countries outside the NAFTA region. However, members of the electric and electronics sector argued that it was not feasible for some components to be found or developed in the region or for third-country suppliers to relocate to the region. They contended that the use of inputs from outside the NAFTA region would still be required by 2001.

Mexican authorities responded in November 1998 by designating special rules that granted zero or nominal duties for third-country inputs for companies in the electric and electronics sector (maquiladoras and nonmaquiladoras alike).[9] Soon other sectors brought their own case to Mexican authorities and asked for the same special treatment for their third-country inputs. These developments ultimately resulted in the establishment of the so-called Sectoral Promotion Programs.

Sectoral Promotion Programs

On December 31, 2000, Mexico passed a decree creating 20 Sectoral Promotion Programs (Programas de Promoción Sectorial, or PROSECs) aimed at ensuring the continued competitiveness of the maquiladora industry. The PROSECs, listed in Table 2 with their average import duty, cover 19 specific areas and one miscellaneous area. They extend preferential duties—of no more than 5 percent—to those third-country inputs that maquiladoras have designated as critical for their operation. Some third-country inputs have even been granted duty-free status. Both maquiladora and nonmaquiladora companies can use the PROSECs. They also can petition Mexican authorities to establish additional PROSECs for areas not covered under the existing programs.

Some maquiladoras have complained that applying the PROSECs is cumbersome. However, the industry agrees that the PROSECs have resolved the potential risk of lost competitiveness

Table 2
Sectoral Promotion Programs (PROSECs)

	Sector	Average import duty* (percent)
1	Electrical	4.40
2	Electronics	.02
3	Furniture	0
4	Toys	0
5	Footwear	4.18
6	Metals and minerals	4.32
7	Capital goods (machinery and equipment)	3.29
8	Photography	.29
9	Agricultural machinery	0
10	Chemicals	2.74
11	Rubber and plastics	2.51
12	Steel	2.75
13	Pharmaceuticals and medical equipment	3.02
14	Transportation equipment	.44
15	Paper and cardboard	1.86
16	Wood	0
17	Leather and leather products	0
18	Automobiles and auto parts	.48
19	Textiles and apparel	3.12
20	Other industries	1.58

* This is the average duty that is applied to inputs imported from countries outside the NAFTA region by companies in the different sectors specified.

SOURCE: *NAFTA Works*, Vol. 6, Issue 1, January 2001 (Embassy of Mexico, Mexico's Economy Ministry, NAFTA Office).

that could have resulted from strict adherence to North American rules of origin in the determination of duty-free treatment of inputs. Moreover, since the preferential duties under the PROSECs apply to inputs that are imported on a temporary (to be processed for export) or permanent (to be processed for national distribution) basis, maquiladoras can now more easily entertain direct sales into the Mexican market—as NAFTA now allows—because any inputs imported from third countries are now in a more acceptable and predictable tariff range than they were before 2001.

CONCLUSION

2001 has been an interesting year for maquiladoras. Although the maquiladora industry is still growing, the U.S. economic slowdown has considerably dampened overall maquiladora activity. Also, 2001 triggered significant NAFTA provisions that would have limited duty-free status to maquiladora inputs imported from North America. Instead, Mexico established sectoral promotion programs that expanded the range of inputs with preferential or zero duties to include those sourced from third countries. Thus, much of the original maquiladora scheme of allowing duty-free entry into Mexico of inputs, regardless of country of origin, has been maintained.

Looked at another way, the maquiladora regime that originated in the 1960s has been replaced with a more comprehensive, maquiladora-*like* regime that supports freer trade and investment for all of Mexico's manufacturing industry, since both NAFTA and the PROSECs apply to maquiladoras and nonmaquiladoras alike. In this sense, the maquiladora label may no longer be warranted, given that the initial program that established the industry has essentially ceased to exist, along with its reason for being. What remains as a viable, increasingly important component of the Mexican economy, however, is the industrial base created by the maquiladoras—one that is intimately linked with the economy across the border.

—Lucinda Vargas
Senior Economist

NOTES

1 For a discussion of NAFTA's impact on trade and investment, see the following issues of the Federal Reserve Bank of Dallas El Paso Branch *Business Frontier*: "NAFTA's First Five Years (Part 1)," Issue 2, 1999; "NAFTA's First Five Years (Part 2): U.S.–Mexico Trade and Investment Under NAFTA," Issue 1, 2000; and "U.S.–Mexico Trade: Sectors and Regions," Issue 2, 2000.

2 This article completes a three-part series on NAFTA. Parts 1 and 2 appeared in *Business Frontier* Issue 2, 1999, and Issue 1, 2000, respectively.

3 Because maquiladora companies have dollar-denominated budgets but their costs are in pesos, the overnight impact of any peso devaluation is essentially a reduction in their peso-based costs. Maquiladoras have therefore responded to devaluations in Mexico by substantially expanding their operations.

4 See William C. Gruben and Sherry L. Kiser, "NAFTA and Maquiladoras: Is the Growth Connected?" in *The Border Economy*, Federal Reserve Bank of Dallas, June 2001.

5 Two examples of companies that opened new maquiladora facilities in Juárez in 2001 are Royal Philips Electronics of the Netherlands and Tatung Co., Taiwan's No. 1 manufacturer of electronics, home appliances and industrial equipment. Among the companies with new investments in Mexico this year are Motorola, Xerox Corp., Nokia, Sanyo Electric Co., IEC Electronics Corp., Escalade, Coastcast Corp., ArvinMeritor, Ansell Golden Needles and Guilford Mills.

6 While under NAFTA maquiladoras can, as of this year, destine their entire production to the domestic market, a new Mexican government decree, enacted late last year, stipulates that maquiladoras must export at least 10 to 30 percent of their production, leaving 70 to 90 percent, not 100 percent, to be sold domestically.

7 Prior to NAFTA, any maquiladora product to be sold into Mexico was assessed duties on all non-Mexican inputs, including components sourced in the United States. With the start of NAFTA in 1994, duties on maquiladora products sold into Mexico are now assessed only on non-NAFTA inputs; therefore, imported components from the United States and Canada are excluded from duties.

8 New NAFTA rules significantly opened up trade and invest-

ment for textiles and apparel. This resulted in dynamic employment growth in this sector during the second half of the 1990s. Also contributing to this dynamism, however, was the boost the industry in general got from the December 1994 peso devaluation. In 1993, employment growth in the textiles and apparel sector was 19 percent. It dipped somewhat in 1994—NAFTA's first year—to 17.7 percent. However, textiles and apparel employment growth rebounded to 32.1 percent in 1995, the first year of combined NAFTA and peso devaluation effects. During 1996 and 1997, growth rates remained above 30 percent.

9 An argument that this was a potential way for Mexican authorities to handle third-country inputs was made in "The Changing Dynamics of the Maquiladora Industry: How Much Does NAFTA Matter?" in *Business Frontier*, November/December 1994. Indeed, in November 1998, Mexico enacted a decree granting special treatment to third-country inputs used by companies in the electric and electronics sector. However, according to Rudy García, Foreign Trade Manager for Philips—a leading representative of maquiladoras in the electric and electronics sector—an input that was excluded from special duty treatment was cathode ray tubes (CRTs). U.S. CRT manufacturers lobbied against granting preferential duties on this input when imported by maquiladoras from countries outside the NAFTA region. Thus, the applicable duty on this input, when imported from a third country, has remained in the 15–18 percent range. Also, any non-NAFTA inputs that originate in countries where Mexico has placed antidumping sanctions, such as China, are excluded from the preferential tariffs under the PROSECs. In these cases, the more prohibitive countervailing duty rates in place would apply.

Business Frontier is published by the El Paso Branch of the Federal Reserve Bank of Dallas. The views expressed are those of the author and do not necessarily reflect the positions of the Federal Reserve Bank of Dallas or the Federal Reserve System.

Subscriptions are available free of charge. Please direct requests for subscriptions, back issues and address changes to the Public Affairs Department, El Paso Branch, Federal Reserve Bank of Dallas, 301 E. Main St., El Paso, TX 79901-1326; call 915-521-8235; fax 915-521-8228; or subscribe via the Internet at www.dallasfed.org.

Articles may be reprinted on the condition that the source is credited and a copy of the publication containing the reprinted material is provided to the Research Department, El Paso Branch, Federal Reserve Bank of Dallas.

Business Frontier is available on the Bank's web site at www.dallasfed.org.

Editor: Lucinda Vargas, Senior Economist
Publications Director: Kay Champagne
Copy Editor: Jennifer Afflerbach
Design: Gene Autry
Layout & Production: Laura J. Bell