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The Changing Dynamics of the Maquiladora Industry

(Part 1 of a two-part series)

The story of the maquiladora industry in the 1990s is not one of spectacular growth—as in the 1980s—but of consolidation.

Although the Mexican maquiladora program¹ has existed since 1965, the industry is perhaps best known for its spectacular growth during the 1980s. In 1985, for example, it drew national recognition when then President Miguel de la Madrid declared the industry a national priority because of its high foreign-exchange earning capacity. In that year, the maquiladora industry surpassed tourism as the second-largest generator of foreign exchange in Mexico. It continues to hold this rank today, outperformed only by the petroleum sector. It was also during the mid-1980s that the industry enhanced its international reputation as Asian companies, especially Japanese firms, joined U.S. and European companies in the Mexican maquiladora program.

¹ The maquiladora program allows manufacturers in Mexico to import their inputs duty-free as long as 100 percent of the final product is exported from Mexico. Another key incentive of the program is that it allows 100-percent foreign ownership.

The story of the industry in the 1990s is not one of spectacular growth but of consolidation. The explosive plant and employment growth of the 1980s has slowed to a more modest pace. However, significant qualitative developments, particularly in the border cities, are shaping the industry's new role in Mexico's modernization strategy.

The Maquiladora Industry's Boom

During its 1983–88 boom, maquiladora industry employment grew an average of 19.7 percent annually. By year-end 1988, the industry employed nearly 430,000 workers, up from 127,000 in 1982. The maquiladora industry's share in overall Mexican manufacturing employment reached 15.2 percent in 1988, up from just 5.1 percent in 1982.

Other measures of maquiladora activity exhibited a similar pattern of significant growth during 1983–88. The number of maquiladora plants increased at an average annual rate of 15.9 percent, reaching a level of almost 1,400 in 1988. The volume of imported raw materials increased at an average annual rate of 27.7 percent and equaled almost \$8 billion in 1988, up from less than \$2 billion in 1982. Value added reached a level of \$2.3 billion in 1988, after growing at an

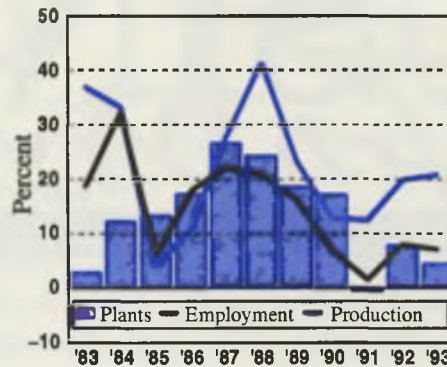
average annual rate of 20.5 percent during 1983–88. Finally, gross maquiladora production experienced average annual growth of 25.4 percent and was worth more than \$10 billion in 1988, up from less than \$3 billion in 1982.

A Qualified Deceleration

During 1989–91, maquiladora industry growth decelerated, especially in the number of plants and the level of employment. Thus, after increasing 21 percent in 1988, maquiladora employment grew 16.3 percent in 1989, 7.1 percent in 1990, and only 1.6 percent in 1991. In terms of the number of plants, 24.1-percent growth in 1988 was followed by growth rates of 18.6 percent in 1989 and 17.1 percent in 1990. In 1991, the number of plants *declined* 0.7 percent.

While the remaining measures of activity also decelerated during 1989–91, the lessening of the rate of growth was not as dramatic or as sustained. For example, gross production rose 23.2 percent in 1989, down from 41.3 percent-growth in 1988. During 1990 and 1991, maquiladora production still managed double-digit rates: 12.7 percent and 12.3 percent, respectively. Similarly, value added in 1989 decelerated to a rate of 30.7 percent, down from 43 percent in 1988. The next two years, value added still showed significant growth—18.1 percent in 1990 and 14.2 percent in 1991.

MAQUILADORA INDUSTRY ACTIVITY
(Annual Growth Rate)



A slowdown in the U.S. economy was largely responsible for the downturn of plant and employment growth in 1989. Since the great majority of maquiladora production is destined for the U.S. market, the industry is particularly sensitive to U.S. growth rates. Also, after spectacular growth during 1983–88, by 1989, the industry’s labor market conditions had tightened, especially in the more popular border locations. The price of labor, therefore, rose substantially. The average wage paid in the maquiladora industry in 1988, for example, rose 23.2 percent in dollar terms; the following year, it rose 17.9 percent. Thus, as labor rates rose and U.S. market conditions turned recessionary in 1990 and 1991, maquiladora employers became more conservative in their hiring.

Despite the U.S. recession, productivity gains resulting from growing technological sophistication enabled the industry to maintain growth in the other measures of activity. Whereas in the 1960s and

1970s the maquiladoras were classified as an unskilled, labor-intensive industry with production processes limited to assembly work, by the 1980s—especially the latter part of the decade—the industry had incorporated higher levels of technology.

Resurgence

In 1992–93, the maquiladora industry experienced a resurgence as all measures of activity rebounded from their 1989–91 levels. For example, employment grew 8 percent in 1992, up from 1.6-percent growth the previous year. Employment growth of 7.1 percent followed in 1993. The number of maquiladora plants rose 7.8 percent in 1992 and 4.5 percent in 1993, after having contracted 0.7 percent in 1991. The gross production growth rate rebounded to 19.7 percent and 20.7 percent in 1992 and 1993, respectively, up from 12.3 percent in 1991.

It is clear, then, that the maquiladora industry of the early 1990s is undergoing consolidation yet thriving. Dramatic employment increases have slowed to single-digit yet stable growth rates. Production, on the other hand, has registered strong gains despite the smaller increases in employment. In essence, the maquiladora industry’s productivity is improving with the growing use of state-of-the-art technology by an increasingly skilled labor force. Moreover, emphasis in the industry

no longer seems to be strictly on quantitative performance. Qualitative developments have assumed greater importance, especially in light of the new rules dictated by the North American Free Trade Agreement (NAFTA). (Part 2 of this series will elaborate further on this subject.)

On the Border

The story of the maquiladora industry's growth and change is really one of industry developments on the U.S.-Mexican border. Although the border's share of maquiladora activity has been decreasing, it continues to hold the majority. In 1993, the border was home to 71.8 percent of maquiladora workers and 72.7 percent of the industry's plants. In 1984, the border's share of maquiladora employment was higher at 88.6 percent; it had an 88.5 percent share in the number of plants.

Correspondingly, the maquiladora industry's presence in the interior has

increased as its employment share has grown to 28.2 percent in 1993 from 11.4 percent in 1984. All 31 states in Mexico now have at least one maquiladora plant, and some interior cities now have an established and growing maquiladora industry. But although the interior is becoming a region of growing importance for the industry—and certainly developments there should not be disregarded—the border remains the site of most maquiladora activity.

Along the border, the cities that have the greatest and most extended maquiladora presence are Ciudad Juarez in the state of Chihuahua; Tijuana and Mexicali in Baja California; Nogales, Sonora; and Matamoros, Reynosa, and Nuevo Laredo in the state of Tamaulipas. In 1993, these seven border cities were home to 62.4 percent of maquiladora workers and 57.8 percent of the industry's plants. The table below shows maquiladora

industry performance in these cities during 1990–93.

The stronger production performance and slower employment growth seen in the industry as a whole in the 1990s is also evident in those individual border cities. This is especially true in the two top ones, Ciudad Juarez and Tijuana, which combined hold a 38.7-percent share in maquiladora employment. Ciudad Juarez, for example, which employs about one-fourth of all maquiladora workers in Mexico, registered a significant production gain of 8.3 percent in 1990, despite an employment increase of only 1.7 percent. The following year, production growth was even more vigorous as it registered a 15-percent increase, despite a 2.3-percent decrease in maquiladora employment. In 1992–93, maquiladora production in Ciudad Juarez maintained its dynamism, while employment recovered with low single-digit growth rates. At year-end 1993,

MAQUILADORA INDUSTRY ACTIVITY National and by Major Border City (Annual Growth Rate)

	1990			1991			1992			1993		
	Plants ¹ %	Empl. ² %	Prod. ³ %	Plants %	Empl. %	Prod. %	Plants %	Empl. %	Prod. %	Plants %	Empl. %	Prod. %
NATIONAL	17.1	7.1	12.8	-0.7	1.6	12.3	7.8	8.0	19.7	4.4	7.1	20.7
Juarez	11.5	1.7	8.3	-9.3	-2.3	15.0	4.7	4.6	20.5	-4.9	2.3	16.0
Tijuana	5.2	9.3	16.3	-7.4	-4.1	9.4	10.5	13.4	28.3	7.6	11.9	22.1
Mexicali	2.7	1.6	35.9	-13.3	-4.3	-4.3	6.1	-3.7	-21.2	7	2.5	36.1
Nogales	-5.5	-12.6	-8.5	-5.8	-6.7	6.0	0	3.7	12.2	-4.6	-1.2	21.4
Matamoros	4.6	.7	31.6	1.1	-3.2	1.0	4.3	.8	-6	-1.0	1.4	5.2
Reynosa	13.3	3.9	2.9	13.2	12.1	9.2	15.6	12.0	22.7	2.3	11.2	34.4
N. Laredo	12.5	9.6	-9	-4.8	-2	17.4	-3.3	1.8	38.8	-5.2	-3.4	10.5

¹ Figures show average annual growth in the number of maquiladora plants.

² Figures show average annual growth in the number of maquiladora workers.

³ Figures show annual growth in maquiladora production stated in billions of U.S. dollars.

254 maquiladora plants in Ciudad Juarez employed more than 132,000 workers, and gross production totaled some \$5.8 billion.

Although Tijuana's concentration of maquiladora workers—about 14.3 percent of the total—is second only to that of Ciudad Juarez, Tijuana has the largest share of plants, with slightly more than 25 percent. Maquiladora production growth in Tijuana exceeded employment growth throughout 1990–93, posting double-digit increases for all years except 1991. Production growth was especially robust in 1992, increasing 28.3 percent, followed by 22.1-percent growth in 1993. Although employment increases were more modest throughout 1990–93, in contrast to Ciudad Juarez, Tijuana's employment registered double-digit increases during 1992–93, after a 4.1-percent decrease in 1991. At year-end 1993, Tijuana employed more than 77,000 workers in 554 maquiladora plants, and maquiladora production was worth \$4.1 billion.

Maquiladora growth patterns conformed, with some individual variations, to those of Ciudad Juarez, Tijuana, and the country, as a whole, in 1990–93. Matamoros, however, seems to present a unique case. It registered the largest production gain in 1990 but failed to sustain dynamic growth in the subsequent years. Production there rose almost 32 percent in 1990, yet only 1 percent in 1991. In 1992, production contracted 0.6 percent but recovered to 5.2 percent-growth in 1993. Employment's performance in Matamoros followed the pattern seen in the other cities during 1990–93, with mostly low single-digit gains and negative growth in 1991. It seems, then, that production in Matamoros underwent a consolidation during 1991–93 after

spectacular growth in 1990. Matamoros holds the third-largest share of maquiladora employment. At year-end 1993, it employed 38,000 workers in 96 plants, and maquiladora production was worth \$2.1 billion.

Conclusion

The maquiladora industry has become an important component of the Mexican economy. In 1993, it contributed \$5.5 billion in foreign exchange to Mexico, making it the country's second-largest source of international reserves. Also, the maquiladora industry's share in overall Mexican manufacturing employment reached 23 percent in 1993, up from just 5.1 percent in 1982.

The industry's performance in the early 1990s was characterized by dynamism in production and stabilization in employment. In 1990–93, very low and even negative growth rates for plants and employment replaced the booming rates of the 1980s. Looking solely at these two variables, one would conclude that the maquiladora industry's performance in the beginning of this decade was disappointing. However, the strong performance of maquiladora production during this period indicates that the industry is, in general, thriving and gaining productivity. This overall picture of the industry is supported, to varying degrees, by trends in the major border cities.

The next issue of *Business Frontier* will discuss the industry's 1994 performance and the new rules for maquiladoras under NAFTA.

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