Issues in the Maquila Industry

Along the Texas-Mexico Border*

BY

DR. ARMAND PICOU

TEXAS A&M INTERNATIONAL UNIVERSITY

Emmanuel Peluchon

TEXAS A&M INTERNATIONAL UNIVERSITY

* The authors gratefully acknowledge the Institute for International Trade for furnishing Maquiladora addresses and assisting in data collection.

Forward

The Texas Legislature established the **Texas Centers for Border Economic and Enterprise Development** during its 70th Session. The **Texas Centers** program is a consortium effort between Texas A&M International University, the University of Texas - El Paso and the University of Texas - Pan American. The primary purpose of the **Texas Centers** is to provide leadership and support to Texas border communities in their economic development efforts.

The legislature provides funds to support the efforts of the **Texas Centers** in three principal activity areas:

1) Development and maintenance of an economic database;
2) The conduct of economic development research and planning; and,
3) The provision of technical assistance to industrial and governmental entities.

Texas A&M International University's **Texas Center** operates under the direction of the Graduate School for International Trade and Business Administration's **Institute for International Trade** (IIT).

This report **"Issues in the Maquila Industry Along the Texas-Mexico Border"** by Armand Picou and Emmanuel Peluchon contributes to the goals of the **Texas Centers**.

Requests for additional copies should be directed to:

Institute for International Trade
Graduate School for International Trade
& Business Administration
Texas A&M International University
Laredo Texas 78040

EXECUTIVE SUMMARY

This research examines the opinions of maquiladora managers along the Texas - Mexico border after the passage of the North American Free Trade Agreement. The extent of expected growth in operations, benefits relating to the use of Mexican labor and the impact of the NAFTA are all concerns for the maquiladora managers. The findings are compared with the results of a survey for the entire U.S. - Mexico border region conducted in 1991. In the 1994 survey, which covers only Texas-Mexico locations, a rate of return of 25 percent is obtained, similar to the 1991 survey.

The study concentrates on labor and related issues. New questions in the study include issues related to Mexico's interior attractiveness and the sourcing of inputs in Mexico. Several new questions are added to provide insight into geographic concerns, labor concerns, and growth trends.

The study first shows that managers of the staging plants along the Texas - Mexico border are less attracted than expected by Mexico's interior locations. Second, managers do not expect to substantially increase in their sales in Mexico in the next 7 years despite the new opportunities offered by the NAFTA in this field.

The attractiveness of border locations has increased somewhat since the passage of the NAFTA. Under the geographic effects of NAFTA, a shift in sourcing from Asian countries to Mexico is an important consideration. In 1994, respondents show a significantly lower desire to switch from Asia to Mexico.

The percentage of direct sales in Mexico are expected to remain below levels allowed under the provisions of NAFTA. Respondents anticipate only 20% direct sales by the turn of the century. The question on the percentage of sourcing of inputs in Mexico, indicates a slow rise to 15% by the year 2001. These results indicate the maquila industry is mainly export-driven and it will probably not change before the next century.

The "raison d'etre" for the maquila program is tied to the border region. Opinions of respondents increasingly differ when asked about Mexico's interior attractiveness. Respondents may believe that locations in Mexico's interior would imply greater transportation costs and a lower infrastructure quality than in their current border location.

INTRODUCTION

This research examines the opinions of maquiladora managers along the Texas - Mexico border after the passage of the North American Free Trade Agreement. The extent of expected growth in operations, benefits related to the use of Mexican labor, and the impact of the NAFTA are all concerns for the maquiladora managers. The findings are compared with the results of a similar survey for the entire U.S. - Mexico border region conducted in 1991.

This study provides an ex-post NAFTA analysis, and contributes to the literature in two ways. The study first shows that managers of the plants along the Texas - Mexico border are less attracted to Mexico's interior locations than expected. Second, managers do not expect to substantially increase their sales in Mexico over the next 7 years, despite the new opportunities offered by the NAFTA.

BACKGROUND ON NAFTA

For the United States, the maquila industry in Mexico enables U.S. corporations to be more competitive in the world market by using less expensive Mexican labor. For Mexico, the main goal of the maquiladora industry is to spur economic development. One possibility is that the elimination of trade barriers could create a "maquiladoraization" of the Mexican economy, based on the comparative advantage of low labor costs. Alternatively, the maquila industry under the NAFTA could lead to a more integrated development for Mexico.

The new rules for the maquiladora industry under the NAFTA have two phases. During the first phase of 7 years, the maquila industry operates with the ability to sell up to 55 percent of the value of its production in the domestic market. This share rises until it reaches 100 percent in the year 2001.

The second phase under the NAFTA starts in the year 2001 when the maquila program will cease to exist. At that time, the maquiladoras will act like national producers. The transition should be smooth, as Mexico is expected to substantially reduce duties on supplies to the maquila industry (Vargas 1994). The present study takes place at the beginning of the first phase.

DATA

An abstract of the questionnaire used in 1991 was reused with the addition of new questions related to the effect of the recent implementation of the NAFTA (see Appendix I). The study concentrates on labor and related issues. New questions in the study include issues related to Mexico's interior attractiveness and the sourcing of inputs in Mexico. Several new questions are added to provide insight into geographic concerns, labor concerns, growth trends and product identification.

In the 1991 survey, 146 maquiladoras participated from a total of 588 locations contacted across the entire U.S.-Mexico border. In the 1994 survey, which surveyed only Texas-Mexico locations, 200 questionnaires were mailed to the managers of the maquila plants listed in the maquila directory from the Laredo Development Foundation. A rate of return of 25 percent was obtained with 49 questionnaires returned.

The majority of questions use a seven-point Likert-type scale with "agree" being seven and "disagree" being one. Four is labeled neutral. Two other types of questions were used, open-ended and a multiple-choice format, allowing selection from a number of alternatives.

The questionnaire was organized into five sections, geographic effects, economic effects, labor effects, growth, and product identification. The geographic effects section (statements 1-6) contains several statements concerning the attractive aspects of Mexico's interior states for future sales. The economic effects section (statements 7 and 8) addresses perceived advantages and competitive pressures felt by maquila managers. The labor effects section (statements 9-20) investigates attitudes toward labor's cost, quality, turnover, and working environment issues such as manager nationality, housing shortages and overall benefits package. The growth section (statements 21 and 22) is used to indicate expected rate of production changes and expansion plans. The final section, product identification (statement 23), is used to classify maquila survey participants by industry category.

RESULTS

Table 1 contains the results for Likert scaled statements and summarizes the geographic effects, economic effects and labor effects that can be compared to the 1991 study. Table 2 contains the results quantifying aspects of the maquila industry. The responses for the most part, confirm the 1991 study results. The attractiveness of border locations (statement 1) has increased somewhat since the passage of the NAFTA. Statement 2, switched sourcing, is significantly more negative. Under the geographic effects of NAFTA, a shift in sourcing from Asian countries to Mexico is an important consideration. The 1994 respondents show a significantly lower desire to switch from Asia to Mexico.

Statements 3 and 4 concern Mexico's interior attractiveness. The survey results indicate strong negative responses on average. As shown in statement 1 the "raison d'etre" of the maquila program lies on the border region. Opinions of respondents increasingly differ when asked about Mexico's interior attractiveness. Respondents may believe that locations in Mexico's interior would imply greater transportation costs and a lower infrastructure quality than in their current border location.

Statement 5 indicates the percentage of direct sales in Mexico are expected to remain below levels allowed under the provisions of NAFTA. Respondents anticipate only 20% direct sales by the turn of the century. Statement 6, the percentage of sourcing of inputs in Mexico, indicates a slow rise to 15% by the year 2001. These results indicate the maquila industry is mainly export-driven and it will probably not change before the next century.

Similarly to the 1991 findings, the free trade agreement statement received strong positive responses (statements 7a, 7b, 7c). In 1994, respondents strongly believe that the NAFTA is good for Mexico. Respondents also strongly believe that the NAFTA is good for their business (statement 7a), although it may increase competitive pressure on their firms (statement 8).

When considering labor effects in Mexico, several issues scored significantly lower in 1994. Low labor rates (statement 9) are declining in importance for the maquila managers. Issues pertaining to housing shortages (statement 10) are also exhibiting reduced importance, but Maquila employees continue to have problems with housing. The results for statement 11, concerns over a shortage of labor, remain unchanged from 1991.

The assumption of a high quality of work (statement 12) appears to be in question as maquila managers indicate a significantly reduced level of expectation since the 1991 survey. However, respondents still feel that the quality of work is above expectation.

The remaining Likert scaled statements (13 - 17) essentially duplicate the 1991 results. Only statement 14, worker turnover appears to be consistently high in both studies. Preliminary research into employee characteristics and demographics indicates a strong relationship between worker turnover and several factors pertaining to education level and several economic hardships.

In answering statement 18, respondents indicate that Mexican Nationals comprise only 31% of the plant managers in 1994. Worker turnover is a problem, as indicated by the answers to statement 19. While half of the respondents indicate turnover is 25% or below, one third of the total surveyed indicate turnover rates of greater than 25% and less than 75%. One eighth of those surveyed indicate the highest turnover rate, more than 75% annually.

Benefits to the employee (statement 20) appear unchanged with one possible exception. The use of a productivity bonus seems to be gaining in popularity. Statement 21, changes in production levels, was left unanswered by 25% of the respondents. Of those responding, an increase in production levels was forecasted by all. Surprisingly, lower labor rates, economic and financial incentives, and access to domestic market do not present obvious motivations for the respondents to move into Mexico's interior. The majority of respondents indicate three border states as their choice for development (Statement 22), Tamaulipas (24%), Nuevo Leon (12%), and Coahuila (10%). Among the reasons to relocate to the interior, the most attractive is a greater access to mexico's domestic market. The two respondents who indicate the strongest desire to move to Mexico's interior would chose the States of Vera Cruz and Zacatecas for location. Selling into South America is one of their motivations.

CONCLUSIONS

The NAFTA and Mexico's government today offer new incentives to attract foreign investors to the Mexican territory. However, many foreign investors are still looking to other countries for direct investment. In this study, respondent attach importance to Asian countries as competitors for maquiladora locations. A recent survey (Trivoli and Herbig 1993) analyzes the growing trend of U.S. foreign direct investments (FDI) in East Asian countries. Some U.S. Foreign Direct investments bypass Mexico for "better" opportunities in Latin America, despite the passage of NAFTA.

For most survey questions, there is no significant difference in attitude between the respondents of 1991 and 1994. However, the 1994 respondents had a significantly different attitude from 1991 respondents in the following four cases. Source switching, labor rates, housing shortages, and quality of work are significantly lower concerns to the maquila manager in 1994.

The results reflect the conclusions of DeVito and Wambsganss (1994) that wage rates are not the main motivation for maquila growth. This could result from the diminishing migration of workers toward the border. Border housing may have improved since 1991 as the level of housing investments have increased under the NAFTA.

To a certain extent, the present study also shows that maquila managers along the border are not convinced of Mexico's interior attractiveness, or even if they are convinced, they do not really expect to take advantage of it. If it appears that the industry plans to remain mainly export-driven, then the NAFTA will barely bring any large scale changes before the next century.

TABLE 1

COMPARISON OF MEANS FOR THE TWO STUDIES:
1991 AND 1994

Statement #	1994 Mean/Std.Dev.	1991 Mean/Std.Dev.	Observed T-Value
1	5.84 / 1.42	5.93 / 1.70	0.34
2	2.37 / 1.54	3.43 / 1.79	3.68**
3	3.08 / 1.99	N.A.	
4 A	3.49 / 2.21	N.A.	
4 B	3.39 / 2.26	N.A.	
4 C	3.62 / 2.25	N.A.	
7 A	5.47 / 1.76	5.26 / 1.97	-0.60
7 B	5.78 / 1.67	5.84 / 1.43	0.26
7 C	6.27 / 1.52	5.89 / 1.47	-1.50
8	3.78 / 2.07	N.A.	
9	5.67 / 1.58	6.04 / 0.91	1.97*
10	5.29 / 1.71	6.05 / 0.97	3.84**
11	4.06 / 1.79	3.92 / 2.38	-0.30
12	4.71 / 1.82	5.37 / 1.47	2.53**
13	4.57 / 1.95	4.73 / 1.70	0.54
14	5.06 / 1.91	5.43 / 2.02	1.11
15	4.06 / 2.35	4.59 / 2.32	1.37
16	4.45 / 1.69	4.64 / 1.43	0.76
17	4.34 / 2.09	N.A.	

* Significant at a 95% L.O.C.
** Significant at a 99% L.O.C.

TABLE 2

Selected Results for 1994 Study
of Texas-Mexico Border

Statement #	1994 Mean/Std.Dev.	1995 Mean/Std.Dev.	1996 Mean/Std.Dev.	2001 Mean/Std.Dev.
5	3.34 / 5.31	6.02 / 7.67	10.68 / 12.43	20.20 / 32.30
6	5.88 / 9.55	8.82 / 10.30	11.03 / 10.36	14.90 / 11.20

Statement #	Mexican Nationals	U.S. Nationals
18	31%	69%

Statement 19 % Turnover		Statement 20 Benefits Provided		Statement 21	
Turnover Range	% Respondents	Benefit	% Respondents 1994 / 1991	% Increase in Production	% Respondents
1 - 10 %	34 %	Subsidized Lunch	71% / 80%	1 - 2%	4%
11 - 25 %	26 %	Food Coupons	73% / 65%	3 - 5%	4%
26 - 50 %	20 %	Productivity Bonus	69% / 42%	6 - 10%	12%
51 - 75 %	12 %	Transport	75% / 65%	11 - 25%	22%
76 - 100%	8 %	Savings Plan	71% / 80%	26 - 50%	18%
		Attendance Bonus	81% / 80%	51 - 100%	16%
		Medical Staff	67% / 69%		

REFERENCES

De Vito, Raffaelea and Jacob Wambsganss. (1994, January). "Maquilas and the NAFTA: Implications of a Free Trade Microcosm. Journal of Borderland Studies. Vol VIII, No.2. pg.105-116.

Trivoli, George W. and Paul A. Herbig. (1993, Winter). "Investment strategies and Activities of Leading Multinational Firms in East Asian Markets: an Empirical Study", The International Trade Journal. Vol. VII, No.6. pg.27-38.

Vargas, Lucinda, (1994, April), "A Positive outlook", Twin Plant News. pg.33-36.