Blue Jeans and Local Linkages:  
*The Blue Jeans Boom in Torreón, Mexico*

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One of the most important historic events in the 1990s was the creation of the North American Free Trade Agreement (NAFTA). Since its inception on January 1, 1994, NAFTA has directed Canada, the United States, and Mexico toward the formation of a highly integrated and competitive economic region. In the case of Mexico, however, NAFTA is not just another strategy for international competitiveness, but an integral part of its development strategy. For Mexico, NAFTA represents a hope of reaching the production capabilities and standards of living of its two rich commercial partners.

There is no doubt that increased access to the U.S. market is having an enormous effect on the Mexican economy. In 1990, Mexico exported products to the U.S. valued at around US $20 billion. By 1997 this quantity increased to $94 billion. The specific mix of exported products has also changed. The percentage of petroleum and its derived products dropped from 29% in 1990 to 9% in 1997. The main trade flows between the two countries are now concentrated in the manufacturing sector, particularly electronics, cars and autoparts, telecommunications, and apparel.

Six years after the implementation of NAFTA, a verdict on its consequences for Mexican development has yet to be reached. Although this treaty has obviously increased the number of jobs in export industries, their quality and their potential to "boost" Mexican development is still being questioned. Critics of NAFTA emphasize the exploitative nature of the relationship between Mexican and American companies, disparities in wages for jobs with equal effort and ability involved, and the low quality of work conditions for Mexican workers. Whether this view of NAFTA is accurate depends on the specific activities and types of production that are created in Mexico as a direct consequence of these changes. Prior to NAFTA, most Mexican exports to the United States were done under the U.S. tariff schedule provision HTS 9802.00.80 (formerly clause 807) of the production sharing or maquila program. Under this arrangement, U.S. raw materials and parts were transported into Mexico for assembly, and then re-sent to the U.S. without any taxation. The maquila program was designed to take advantage of cheap Mexican labor without jeopardizing the future of U.S. producers. For Mexico, the disadvantages of maquila production are its low investments, primarily unskilled jobs, low wages, and no linkages to the local economy. If NAFTA only increases the amount of maquila work available, then the prospects for Mexican development are not encouraging.

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1 This report originally was prepared as a research note for the World Bank’s *World Development Report 2000/1* on poverty. The findings will be used to illustrate how regional economic integration can promote local industrialization.
However, we propose that NAFTA is transforming the export sector in Mexico by substituting traditional maquila production with a new and more integrated form of export manufacturing. The liberalization of trade with the United States is pushing Mexico toward “full package” production, where not only assembly but all other required manufacturing activities, including the purchase and production of raw materials, are performed within the country. This full package model provides better opportunities for development by accelerating technology transfer, creating high quality jobs with better wages, and providing opportunities for local entrepreneurs, correcting some of the exploitative characteristics of the maquila production system.

To evaluate the degree to which NAFTA is transforming production and not increasing the exploitative potential of the maquila system, we selected the case of the blue jeans industry in the city of Torreón. Two main reasons justify this selection. First, apparel is in a sense the worst-case scenario for development. This labor-intensive industry is characterized by low investments, low wages, and bad working conditions. Furthermore, apparel is famous for its disappearing acts, since it moves easily from one region to another in the search for lower wages. Intuitively, apparel should be the last place to look for the positive consequences of NAFTA. Therefore, precisely because of these negative expectations, positive changes in the industry are more significant. Second, the Torreón area represents an excellent comparison of the pre- and post-NAFTA periods. Although apparel, and in particular the production of blue jeans for the national market, has a long tradition in the region, the financial crisis of the 1980s almost destroyed the industry. Most of the survivors were forced to concentrate on assembly export operations under the 807/maquila program. The Torreón case allow us to answer three main questions: a) What are the specific mechanisms within NAFTA that may be transforming production systems toward a more integrated kind of manufacturing? b) To what extent is full package production or integrated manufacturing becoming predominant? c) Are there positive consequences of these changes in terms of equity, economic development, and living standards?

The Transformation of the Apparel Supply Chain in Mexico

In order to become an instrument of development for the Torreón area, apparel production in the region requires qualitative and quantitative deviations from the traditional maquila model. First, apparel production must integrate more activities and processes. Second, apparel manufacturing must reach certain levels of production in order to have a significant impact. We identify three mechanisms that are increasing both the size of apparel production and the activities performed in Torreón: the implementation of NAFTA, the peso devaluation, and the entrance of new big American buyers to the region.

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2 Torreón is the center of La Laguna, a highly integrated economic region formed by two other neighboring cities (Gomez Palacio and Lerdo) and many rural villages located in northern Mexico. One particular segment of the apparel industry, blue jean production, has concentrated in La Laguna.

3 Information for this article was obtained through a series of interviews with apparel and textile companies in their production sites in La Laguna region by Gary Gereffi, Martha Martinez, and Jennifer Bair of Duke University during the summer of 1998. Statistical materials and additional interviews were carried out in supporting institutions such as SECOFI and the local branch of the Cámara Nacional de la Industria del Vestido.
Implementation of NAFTA. The most obvious consequence of NAFTA is a change in the rules of the game for producers in Mexico. For the apparel industry, NAFTA has meant the progressive elimination of U.S. taxes and non-monetary barriers to all apparel production activities, including laundering, cutting and finishing, as well as the use of Mexican inputs such as textiles (denim), buttons, labels, etc. Figure 1 shows how these new rules have translated into a transformation in production activities in the Torreón region. In 1993 the region was dedicated exclusively to apparel assembly. By 1996 Mexican-made denim, trim, and labels were used for blue jean exports, and laundering and finishing were also carried out in Mexico. By 1998, cutting and distribution were emerging in the region as well. However, Figure 1 indicates that marketing and retail, the most profitable activities in the apparel industry, are still exclusively performed in the United States.

The Peso Devaluation. While NAFTA created opportunities for additional production activities, the peso devaluation in 1994-95 increased the general demand for Mexican manufacturing. After three years of relative stability, the Mexican peso suffered a dramatic devaluation at the end of 1994. The exchange rate jumped from 3.4 pesos per dollar in September of 1994 to 6.8 pesos per dollar in January of 1995. For the apparel industry, the peso devaluation increased the number of U.S. clients interested in the Torreón region and the quantity of jeans manufactured by Mexican plants quickly multiplied. Table 1 shows that prior to 1994, only three U.S. manufacturers, Sun Apparel, Wrangler, and Levi Strauss & Co., had a significant presence in the region. By 1998, the number of clients grew significantly (the most salient examples are listed in Table 1). At the same time, the number of jeans manufactured in the region jumped nearly tenfold from 500,000 to 4.5 million pairs per week (see Table 2).

New Organizational Buyers. The combination of the NAFTA effect and the peso devaluation effect facilitated the role of new organizational buyers in the United States. Whereas the 807/maquila model of export production before NAFTA was linked to large U.S. apparel manufacturers who provided the inputs for Mexican assembly, the emergence of full package production after NAFTA enticed U.S. retailers and marketers to consider Mexico as an alternative to Asia for their sourcing needs. This diversified clientele included companies with higher status and more expensive products than those that made blue jeans in Mexico prior to 1994. Table 1 not only shows an increase in the number of U.S. clients with operations in the region, but also the entrance of new kinds of players: branded marketers and retailers. Both retailers and branded marketers require high volumes of full package production for two main reasons. First, they dedicate themselves to design, distribution, and marketing, and not to production activities. Second, because they base their business in the power of their brands and the image they create, companies like Liz Claiborne, Calvin Klein, and Donna Karan, and even retailers like JC Penney, Kmart, and Sears, distance themselves from the often exploitative conditions in maquila production.

The blue jean industry in Torreón is being substantially transformed due to these new activities and clients. Table 2 offers several indicators of this transformation in La Laguna. In 1998, the region made 4.5 million pairs of jeans per week, with at least 25% being full package production. Although no accurate estimate can be provided, the rest of production is moving to

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4 Source: International Financial Statistics (International Monetary Fund, 1999).
what is locally known as “half package”—i.e., the assembly, cutting, laundering, and finishing of jeans, but not the acquisition of denim, trim and other materials. Another important change is a general increase in the production capacities of all firms. In 1993, the biggest firms could assemble a maximum of 50,000 pairs of jeans per week. In 1998, Sun Apparel and its subcontractors alone produced 540,000 pairs per week. Since NAFTA, assembly prices have risen, in part because of the increased demand, but also because jeans with higher retail prices are being made in the region.

Local Linkages

In general, NAFTA, the peso devaluation, and new organizational buyers have brought to the Torreón region added stages of the apparel production process, larger orders, and new clients. How has this transformation affected regional development? An obvious effect is the creation of local linkages. The most important criticism of the maquila mode of production is that its economic impact is limited to the use (or exploitation) of cheap labor without providing any additional incentives to the local economy. Due to the addition of new activities, this is no longer the case. Local producers of denim, trim, labels, dyestuffs, chemicals for laundering, etc. are supplying the export-oriented industry. However, local linkages are just one dimension of development. In the following paragraphs, we explore the consequences of recent transformations for technology transfer, profits and ownership, and labor conditions in Torreón.

Technology Transfer

Apparel is an industry characterized by labor-intensive work, not by state-of-the-art technology. However, many American companies with high status and valuable brand names do not want to be associated with a production system that could be accused of exploiting labor. For example, Levi’s expects its subcontractors to build new plants with modern equipment because that is the only type of production with which they want their products identified. In addition, full package production requires a series of activities, like laundering and cutting, which require a higher level of technological sophistication. Because of these two factors, American firms have promoted and introduced at least four technological advances to the region.

- Automated sewing and assembly operations
- Computerized technologies for cutting
- Water recycling for laundering activities
- On-line inventory replenishment systems connected to U.S. clients

Although cheap labor continues to be one important reason for U.S. operations in Mexico, companies with an advanced technology strategy and big production volumes are making considerable investments. For example, Wrangler spent $40 million in the construction of one plant for cutting, assembly, and laundering, while Kentucky-Lajat spent approximate the same amount in its laundering and finishing facility. The Cone-Parras joint-venture denim mill required an investment close to $100 million. These investments demonstrate that NAFTA has attracted companies with a great diversity of strategies concerning labor-capital relationships, with a number of them focused on efficient and modern production systems.
Profits and Ownership

Another measure of local development is the extent to which production benefits local communities. Retention of profits and value is related to the different activities performed and to the ownership of the plants. As mentioned in the former section, apparel production in La Laguna now involves textile production, cutting, laundering, finishing, and to a lesser extent the production of other inputs. Why are these activities important for the local creation and retention of wealth? They are important due to their higher value added and larger profit margins. For example, consider a pair of jeans with a production cost of $10. This includes $1.50 for assembly, $4.00 for fabric, and the rest of the cost, $4.50, is due to cutting, laundering, and finishing. Before NAFTA Mexican companies only profited from assembly, which is the lowest amount of value added in the entire production process.

Another important aspect in the retention of wealth is ownership. If Mexican companies are the ones doing production, then profits are more likely to stay in the country. The addition of new activities, and the subsequent increase in profits, has attracted more Mexican entrepreneurs, in particular big diversified corporate groups. Concerning ownership, La Laguna presents the following patterns:

- Most assembly plants are owned by Mexican entrepreneurs.
- Full package production is performed by:
  - Firms with 100% Mexican capital (e.g., Grupo Libra; Siete Leguas).
  - Mexican-U.S. joint ventures (e.g., Kentucky-Lajat; Aalfs/OMJC).
  - Firms with 100% U.S. capital (e.g., Wrangler; Sun Apparel).
- The two major sources of local denim are: a Mexican-American joint venture and a firm with 100% Mexican capital (Parras-Cone and Lajat Textiles).

It is important to notice that Mexican companies involved in joint ventures enter these alliances as equals, either by providing the know-how of production in Mexico or by their share in capital. For example, Grupo Lajat, a corporate group that has interests in cotton and gas, formed a joint venture with Kentucky Apparel in which each member has a 50% share of both American and Mexican operations. It would not be surprising if Grupo Lajat would eventually buy the shares of their U.S. counterpart. However, marketing, the most profitable segment in apparel, remains completely under the control of American companies. Of all Mexican apparel companies, only Grupo Libra and Kentucky-Lajat have sales offices in the United States. No Mexican firm has its own brand. Mexican companies are not yet be on an equal footing with their American counterparts, but they are gaining ground.

Labor Conditions

Labor-related benefits of the post-NAFTA growth can be classified in six different areas: employment, wages and benefits, working conditions, unions, upgrading of personnel, and rural communities. Each one requires further explanation.

Employment. Since 1993, apparel employment in La Laguna has increased 300%, while during the same period employment in commerce and services only grew 3%, construction 80%,
and the auto industry 100%. Table 3 shows the general dynamics of employment in the region, which can be summarized in the following way:

- Total employment in the region has grown significantly (30% from 1993 to 1998).
- Most of this growth has concentrated on manufacturing (68% of new jobs created from 1993 to 1998 are in manufacturing).
- Apparel and textiles have become the most important source of employment in the region.
- As a consequence of this growth, unemployment in the city of Torreón has decreased from 7.6% in February 1995 to 3.1% in December 1997.

Wages and benefits. Although wages are far lower than in the United States, they have been rising steadily since 1994. The basic wage in the region is 1.5 times the Mexican minimum wage (around US$5.00 per day for basic operators), but almost no one would accept to work for this amount of money. In addition to the minimum wage, companies offer productivity bonuses that can increase the income of a basic operator up to three times the minimum wage. Not all workers reach the levels of productivity required to obtain the highest levels of income, but a large proportion of them do. This payment scheme is necessary due to the increased competition between companies for labor due to NAFTA. More clients require more workers.

Working conditions. The presence in the region of very visible clients with high investments in their brand names prompts improved working conditions. Large retailers and marketers do not want their brands associated with the exploitation of workers or with unsafe working conditions. Companies like Gap and JC Penney have created and imposed very detailed Codes of Conduct related not only to the final quality of the product, but also to the quality of the process. Any plant or company that fails to fulfill these requirements, including compliance with local labor laws, safety practices, and even the conditions of the bathrooms, is in danger of losing its contracts. In addition, since most plants and factories have been constructed since 1994, they were designed to provide a safe working environment with proper ventilation, lighting, ergonomic equipment, etc. In general, the working conditions of many of these Mexican plants are better than those offered by local competitors and often are better than those in similar factories in the United States.

Unions. In tandem with the liberalization of the economy, the Mexican government has reduced the power of unions to a minimum. The role of unions in the apparel industry in La Laguna has been limited in many cases to helping the firms and their managers deal with the workers. Effective representation and collective bargaining have almost disappeared. However, workers exercise their power by moving from one company to another fairly often. Turnover rates in the region reach 10% per week. Workers use their mobility as a source of bargaining to obtain small wage increases and non-monetary benefits, like transportation, free lunch, classes, raffles, and prizes. However, this is a benefit contingent upon a continued high demand for labor.

Upgrading of personnel. The analysis of this dimension is complicated by the characteristics of the local labor market and of the industry. Highly competitive labor markets
have forced many companies to slash educational requirements to a minimum, with some companies not even asking for basic writing and reading skills. Companies provide limited options for upward mobility and relatively few positions for skilled workers and professionals. However, the low educational requirements can be seen as favoring the most impoverished strata of Mexican society. Wages are not tied to education but to productivity, offering an opportunity for the most disadvantaged workers in Mexico to earn a living wage. Furthermore companies frequently provide opportunities for workers to continue (or even begin) their education.

**Rural Communities.** Employment opportunities created by NAFTA are also spreading to rural communities. The main reason for companies to establish plants in rural areas is to escape the more competitive urban labor markets. However, this benefit remains limited. Around 10% of apparel jobs are located in rural communities, while the rural labor force represents 30% of the total in La Laguna region. Rural communities have become a dependent periphery, with wages 30% lower than in urban areas. Furthermore, rural communities often perform only assembly and have no access to the technological advances mentioned above.

**Conclusion**

Although this report has emphasized a new kind of manufacturing orientation with more positive consequences for Mexican development, the final picture of NAFTA’s effects is mixed. Wages are still low, and some companies are already beginning to consider escaping from this competitive labor market by moving to other regions with even lower wages. However, the industry after NAFTA is not just an extension of the maquila model, but implies very important transformations in the characteristics of the industry:

a) From “superficial” to “embedded” production, where other local companies may obtain the benefits of apparel production
b) From low value to high value activities
c) From low to medium wages
d) From urban production to a mix of urban-rural production.
e) From locally defined Codes of Conduct to international standards

At least in apparel, these transformations are closely tied to the entrance of retailers and marketers to the region, primarily in response to NAFTA. In particular the “image” concerns of these companies means improved working conditions and employment for Mexican workers. Although other industries may have different dynamics, a general evolution toward integrated manufacturing is taking place. The export production system in Mexico is definitely moving away from the traditional maquila model and its negative consequences. Even in an industry with the disadvantages of apparel, Mexican firms are improving their capabilities and their position in the production system. Mexican capital is playing an increasingly key role in this development, assuring stability to the economic process, as well as helping retain some of the economic wealth generated in the country. At this point, the Mexican economy has the potential to move from simple assembly to a higher level in the production hierarchy with activities like design, the supply of intermediate goods, business services, distribution, and marketing. Whether or not this potential is fulfilled remains an open question, but considerable progress is evident.
FIGURE 1

APPAREL COMMODITY CHAIN
ACTIVITIES AND LOCATION

1993

UNITED STATES

- Textiles
- Trims and Labels
- Cutting
- Assembly
- Laundry and Finishing
- Distribution
- Marketing
- Retail

MEXICO

- Textiles
- Trims and Labels
- Cutting
- Assembly
- Laundry and Finishing
- Distribution
- Marketing
- Retail

1996

UNITED STATES

- Textiles
- Trims and Labels
- Cutting
- Assembly
- Laundry and Finishing
- Distribution
- Marketing
- Retail

MEXICO

- Textiles
- Trims and Labels
- Cutting
- Assembly
- Laundry and Finishing
- Distribution
- Marketing
- Retail

1999

UNITED STATES

- Textiles
- Trims and Labels
- Cutting
- Assembly
- Laundry and Finishing
- Distribution
- Marketing
- Retail

MEXICO

- Textiles
- Trims and Labels
- Cutting
- Assembly
- Laundry and Finishing
- Distribution
- Marketing
- Retail
### Table 1

**MAIN CLIENTS FOR TORREON APPAREL EXPORTS**

<table>
<thead>
<tr>
<th>Type of Clients</th>
<th>1993</th>
<th>1998</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturers</td>
<td>Farah (M)</td>
<td>Sun Apparel-Jones of NY (M)</td>
</tr>
<tr>
<td></td>
<td>Sun Apparel (M)</td>
<td>Aalfs (M)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kentucky Apparel (M)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Grupo Libra (M)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Siete Leguas (M)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tarrant (M)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tropical Sportwear (M)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Red Kap (M)</td>
</tr>
<tr>
<td>Branded Marketers</td>
<td>Levi’s (BM,M)</td>
<td>Levi’s (BM,M)</td>
</tr>
<tr>
<td></td>
<td>Wrangler (BM,M)</td>
<td>Wrangler (BM,M)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Action West (BM,M)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Polo (BM)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Calvin Klein (BM)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Liz Claiborne (BM)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Old Navy (BM)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tommy Hilfiger (BM)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Donna Karan (BM)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Guess (BM)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chaps (BM)</td>
</tr>
<tr>
<td>Retailers</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Gap (BM,R)</td>
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<tr>
<td></td>
<td></td>
<td>The Limited (BM, R)</td>
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</tbody>
</table>

M=Manufacturers  
BM=Brand Marketers  
R=Retailers

**Note:** Firms aligned to the right are hybrids.
Table 2
APPAREL INDUSTRY INDICATORS FOR LA LAGUNA AREA*

<table>
<thead>
<tr>
<th>Variables</th>
<th>1993</th>
<th>1998</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output of Jeans (pairs per week)</td>
<td>500,000</td>
<td>4.5 million</td>
</tr>
<tr>
<td>Output per Company (pairs per week)</td>
<td>Max. 50,000</td>
<td>Max. 540,000</td>
</tr>
<tr>
<td>Mexican Denim in Export Production</td>
<td>10%</td>
<td>50%</td>
</tr>
<tr>
<td>Assembly Price per Piece</td>
<td>US$0.90-1.10</td>
<td>US$1.50 - 2.05</td>
</tr>
<tr>
<td>U.S. Retail Price</td>
<td>US$10 - 40</td>
<td>US$10 - 80</td>
</tr>
<tr>
<td>Activities with Mexican Ownership</td>
<td>Assembly</td>
<td>Assembly Laundry Cutting Finishing Textiles Trim and labels US sales offices</td>
</tr>
<tr>
<td>Types of Companies</td>
<td>Specialized Apparel Firms</td>
<td>Diversified Corporate Groups and Textile Exporters **</td>
</tr>
<tr>
<td>Regulation of Work Conditions</td>
<td>Mexican Legislation</td>
<td>Mexican Legislation and Foreign Buyers' Codes of Conduct</td>
</tr>
</tbody>
</table>

* Torreon is the center of La Laguna, a highly integrated economic region formed by two additional cities (Gomez Palacio and Lerdo) and several rural communities. Although each city is a distinct political entity, they form an integrated production zone.

**Examples of these new companies are Grupo Lajat, Grupo Soriana and textile producers like Parras-Cone and Textil Lajat.
Table 3

EMPLOYMENT INDICATORS FOR TORREON

<table>
<thead>
<tr>
<th>Variables</th>
<th>1993</th>
<th>1998</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Employment</td>
<td>94,094</td>
<td>121,567</td>
</tr>
<tr>
<td>Total Manufacturing Employment</td>
<td>24,791</td>
<td>43,329</td>
</tr>
<tr>
<td>Employment in Apparel and Textiles</td>
<td>4,481</td>
<td>17,201</td>
</tr>
<tr>
<td>Percentage of Total Employment in Apparel and Textiles</td>
<td>5%</td>
<td>14%</td>
</tr>
<tr>
<td>Main Source of Manufacturing Employment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automobile</td>
<td>20%</td>
<td>40%</td>
</tr>
<tr>
<td>Apparel and Textiles</td>
<td>17%</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>63%</td>
<td></td>
</tr>
<tr>
<td>Unemployment</td>
<td>7 - 8%</td>
<td>3.1%</td>
</tr>
</tbody>
</table>

Source: Calculated estimates by FOMEC for La Laguna region, using INEGI data on the number of permanent workers covered by IMSS.

Note: Informal estimates of the total number of jobs (permanent and temporary) in the textile and apparel industry in the region are 12,000 in 1993, and 70,000 in 1998.