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## Conference Paper

# From globalisation to upgrading value in the productive chain in specialised agglomerations: Is local space still important? Evidence From Mexico

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41<sup>st</sup> Congress of the European Regional Science Association (ERSA)

Zagreb, Croatia. August-September 2001

***From Globalisation to upgrading value in the productive chain in specialised agglomerations: Is local space still important? Evidence From Mexico<sup>1</sup>***

**Abstract:** After trade liberalisation, the local productive system in Mexico changed in two ways: 1) industry relocated to places different to traditional concentrations and; 2) changes in industry organisation took place led by larger firms and subcontracting practices. In this sense, Mexico has passed from one protective system, orientated towards the domestic market, to two main local systems: those producing for national markets and those with export market orientation. The latter agglomerations are more integrated into the global system of production, specialising in some phases of the productive process. The remarkable performance of export-oriented agglomerations in upgrading value within the productive chain suggests that agglomeration economies are also achieved in these kinds of agglomerations. Using the flexible industrial district theory as a method of analysis, the paper also suggests that local/regional linkages are important to strengthen the competitive situation of an agglomeration in a global context.

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## *I. Introduction*

In recent years the world has seen important changes in production and distribution systems challenging the competence of national economies. Increasing flows of capital and trade among countries, combined with important developments in telecommunications, have pushed towards new re-arrangements of industrial production around the world. Thus, processes of globalisation are considered to shape productive systems and the localisation of different industrial sectors around the world (OECD, 1996).

With the trend towards the integration of regional trade agreements, less developed countries (LDCs), which in many cases have relied on an internal productive structure based on a closed economy, are also highly pressurised to become open economies, and therefore, strongly need to adapt their productive structure to the new globalisation context of economic activity.

In this new context of globalisation, the region<sup>2</sup> has been highlighted as an important player both as an important source of industry competitiveness for localised firms, and in the relocation of the productive process. Agglomeration economies and innovation are considered the most important forces in agglomeration leading to increasing competitiveness and to improving living conditions for people living in such regions (Piore & Sabel, 1984; Becattini 1990, Storper, 1995). Throughout the literature on industrial agglomerations, important theoretical propositions have been drawn from the analysis of industrial regions localised mainly in European and North American cases. However, fewer analyses and implications considering the new context of international division of labour have been carried out in LDCs, which are now playing an important role in the relocation of industrial production and in the process of globalisation<sup>3</sup>.

In the relocation of economic activity, there is a trend for industrialised countries to move parts of the productive process to less developed countries to reduce costs. Parts of the

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<sup>2</sup> 'Region' is used in this paper as a national sub-unit.

<sup>3</sup> LDCs and mainly new industrialised countries (NICs) from the 1980s have increasingly received important flows of foreign direct investment (J. Markusen, 1998) and have also suffered important crises, which have allowed important trade and financial flows to these countries.

labour-intensive productive chain have been relocated, while developed countries have retained high value added activities such as marketing and design. In this way, some regions of LDCs are being incorporated into this international specialisation through industry productive chains.

In the Mexican case, industry has changed its face since trade liberalisation took place in 1986, when Mexico became a member of the General Agreement on Tariffs and Trade (GATT). Additionally, the signing of the North American Trade Agreement (NAFTA) in 1994 has resulted in further tariff reduction, which not only has created an environment of high competition but also an important incentive for the relocation of some phases of the productive system to Mexico. Thus, in addition to the national agglomerations already established, new productive and successful regions have also been boosted after trade liberalisation. Some regions, mainly those in the centre and the south, have tended to focus their production for the domestic market, while northern States have geared towards international markets.

Production for the international market has meant integrating into the global production system, where regions tend to specialise in some phases of the productive process along the value chain. In this sense, this paper attempts to analyse to what extent an export-oriented agglomeration is integrated into the global production chain and able to upgrade its value along the value chain as a method for regional development. Since firms are geographically clustered, it suggests agglomeration economies may also accrue in these kinds of agglomerations. In this way, using the *flexible industrial agglomeration theory* as a method of analysis, local/regional linkages are traced to identify their presence in strengthening the specialised global agglomeration.

## *1.2. Case selection*

The garment industry was selected for the analysis given the fact that it is a traditional labour-intensive sector, in which investment requirements are relatively lower than in other industries. In looking for successful adapted manufacturing branches after trade liberalisation, in terms of exports, production and employment growth<sup>4</sup>, the garment industry is among the

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<sup>4</sup> The rest of the manufacturing branches are: 1) electronic equipment and apparatus 2) motor vehicles, 3) electrical household appliances 4) other textile industries (man-made or synthetic fibres), 5) machinery and

nine most dynamic manufacturing branches in Mexico, (INEGI, S.C.N.M, various years). According to the latest data available for 1998, the garment industry is in fact the main economic branch source of employment in Mexico. Besides, this sector has since 1997 become the no. 1 world exporter of garments to the U.S. market (INEGI, A.E.C.E, 1998, 1999; INEGI, Censos industriales, 1998).

Following the idea that agglomeration of economic activity matters in order to increase competitiveness of specialised agglomerated firms, a case study is presented. The case study presented in this paper was selected by applying *location quotients* to gauge the relative specialisation of the Mexican states in the garment manufacturing. Thus, Isard (1960; 1998) has been followed to construct *location quotients* for the 31 states and 1 federal district which constitute Mexico<sup>5</sup> (see table 1):

$$\frac{E_i^J / E_i}{E^J / E} \quad \text{or the equivalent} \quad \frac{E_i^J / E^J}{E_i / E}$$

Where<sup>6</sup>:

$E_i^J$  = employment in branch i in a given region J

$E_i$  = employment in branch i in the nation

$E^J$  = total manufacturing employment in region R

$E$  = total manufacturing employment in the nation

As a result, the state of Durango was selected as a case study, not only for having the highest specialisation in the garment industry but also for being the main state to concentrate garment ‘maquiladoras’ (assembly firms) (CEPAL, 1996), which suggests regional specialisation along the global productive chain as well as high export levels. Soon after choosing the state of Durango as a case study, it was realised that the garment industry was agglomerated in La Laguna region; a metropolitan area situated on the border of the two northern states of Coahuila and Durango. Hence, the enquiry was carried out in the whole region.

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electrical apparatus, 6) garment, 7) bodywork, engines, parts and accessories for motor vehicles, 8) electrical equipment and apparatus and, 9) other metal products, except machinery.

<sup>5</sup> 12 states showed a location quotient higher than 1, which means that these states are more specialised than the nation in the clothing industry.

<sup>6</sup> In this case total manufacturing employment is used instead of total employment, as Malmberg & Maskell (1997) do.

**Table 1.**

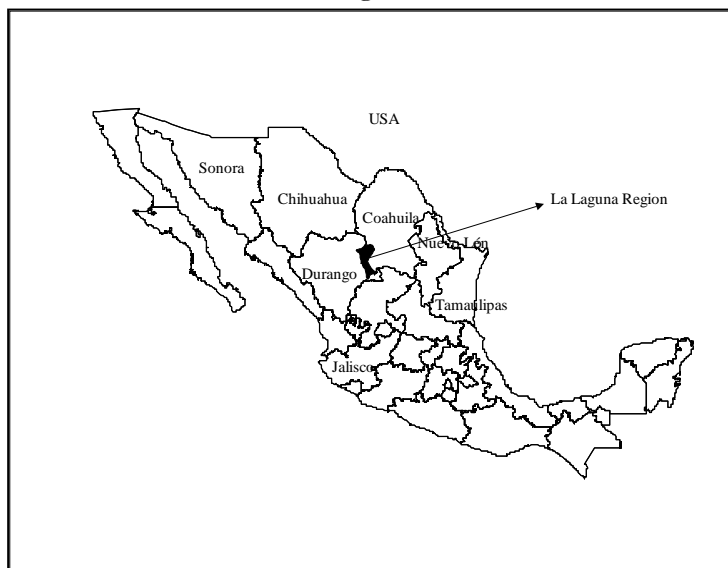
|   | <i>Listed in accordance with 1985 Location Quotients</i> |            |            |            |            |            |
|---|--|------------|------------|------------|------------|------------|
|   | 1975   | 1980       | 1985       | 1988       | 1993       | 1998       |
| AGUASCALIENTES  | 3.6  | 4.1        | 6.1        | 3.9        | 2.9        | 2.8        |
| GUERRERO  | 1.6  | 1.6        | 2.9        | 2.1        | 1.3        | 1.1        |
| TLAXCALA  | 1.9  | 2.5        | 1.9        | 1.5        | 2.1        | 2.2        |
| YUCATAN   | 1.2  | 1.4        | 1.7        | 1.7        | 2.7        | 2.8        |
| DISTRITO FEDERAL  | 1.7  | 1.6        | 1.6        | 1.5        | 1.3        | 0.9        |
| ZACATECAS   | 0.4  | 2.5        | 1.6        | 1.4        | 0.8        | 1.2        |
| DURANGO   | 0.8  | 1.3        | 1.5        | 3.5        | 4.2        | 4.0        |
| PUEBLA  | 0.7  | 1.0        | 1.3        | 1.6        | 2.2        | 2.6        |
| QUERETARO   | 0.3  | 0.9        | 1.3        | 1.2        | 1.2        | 1.2        |
| BAJA CALIFORNIA   | 1.8  | 1.2        | 1.2        | 1.2        | 0.5        | 0.5        |
| COAHUILA  | 0.8  | 0.9        | 1.1        | 1.1        | 1.3        | 1.7        |
| QUINTANA ROO  | 0.7  | 1.1        | 1.1        | 0.6        | 1.0        | 0.6        |
| HIDALGO   | 0.4  | 0.8        | 1.0        | 1.7        | 2.4        | 2.4        |
| NACIONAL  | <b>1.0</b>   | <b>1.0</b> | <b>1.0</b> | <b>1.0</b> | <b>1.0</b> | <b>1.0</b> |
| CHIHUAHUA   | 1.2  | 1.4        | 0.9        | 0.9        | 0.3        | 0.7        |
| NUEVO LEON  | 0.9  | 0.7        | 0.8        | 0.9        | 0.8        | 0.5        |
| GUANAJUATO  | 0.8  | 0.8        | 0.6        | 0.6        | 0.8        | 0.9        |
| BAJA CALIFORNIA SUR   | 0.0  | 0.2        | 0.6        | 1.3        | 1.0        | 1.5        |
| MEXICO  | 0.4  | 0.5        | 0.6        | 0.6        | 0.6        | 0.7        |
| SONORA  | 0.8  | 0.6        | 0.6        | 1.2        | 0.7        | 0.4        |
| JALISCO   | 0.7  | 0.7        | 0.6        | 0.6        | 0.6        | n.a.       |
| CHIAPAS   | 0.4  | 0.4        | 0.5        | 0.6        | 1.0        | 0.5        |
| TABASCO   | 0.6  | 0.5        | 0.4        | 0.3        | 0.4        | n.a.       |
| MICHOACAN   | 0.4  | 0.5        | 0.4        | 0.2        | 0.4        | 0.4        |
| TAMAULIPAS  | 0.7  | 0.4        | 0.4        | 0.4        | 0.5        | 0.7        |
| SAN LUIS POTOSI   | 0.3  | 0.4        | 0.4        | 0.4        | 0.7        | 0.5        |
| CAMPECHE  | 0.3  | 0.4        | 0.4        | 0.5        | 1.8        | 0.8        |
| OAXACA  | 0.4  | 0.4        | 0.4        | 0.3        | 0.6        | 0.8        |
| MORELOS   | 1.0  | 0.2        | 0.3        | 0.2        | 0.7        | 0.8        |
| NAYARIT   | 0.2  | 0.3        | 0.3        | 0.3        | 0.4        | 0.4        |
| VERACRUZ  | 0.3  | 0.3        | 0.2        | 0.2        | 0.5        | 0.7        |
| COLIMA  | 0.3  | 0.3        | 0.2        | 0.2        | 0.5        | n.a.       |
| SINALOA   | 0.2  | 0.2        | 0.1        | 0.1        | 0.4        | n.a.       |
| Note: n.a. Not Available  |  |            |            |            |            |            |
| Source: Calculated based on INEGI, Censo Industrial, various years. |  |            |            |            |            |            |
|   |  |            |            |            |            |            |

## II. La Laguna region: local response, integration and high performance after trade liberalisation

In the last decade the La Laguna region has become one of the main sites for the production of garments in Mexico. The dramatic boom of the garment industry in this region has mainly developed since the North American Free Trade Agreement (NAFTA) was implemented in 1994. Important transformations have occurred in this area, over the last 6 years it has successfully been integrated into the global system of production, particularly for the U.S. market. The region has moved up into higher-value creating activities, together with increasing production and employment levels. Nowadays, the La Laguna region is an important producer of garments where many of the most important designer labels are based or have connections to local firms.

The La Laguna region is made up by the adjoining municipalities of Gómez Palacio and Lerdo in the state of Durango, and Torreón in the state of Coahuila. Within the garment industry these three municipalities concentrate the production and main textile and garment firms in their respective States. According to the latest economic data available for 1998, Gómez Palacio and Lerdo together concentrated 95 per cent of total garment sector employment in the state of Durango, while Torreón represented nearly 25 per cent of the state of Coahuila's garment sector employment (INEGI, Censos Economicos, 2001).

Figure 1.



## *2.1 Trade liberalisation, local response and global integration: the boom of the La Laguna region*

The garment industry has been present in the region for over 40 years, with relatively modest development until trade liberalisation took place in 1986 when Mexico joined the GATT, which changed the face of the industrial sector in the region. Despite economic crises during the 1980s and high foreign and national competition after liberalisation, which almost destroyed the industry, the garment industry in the La Laguna region managed to drastically improve its performance. In fact, this area has experienced a boom since NAFTA came into effect, which has consolidated the region as one of the most important garment-producing zones in Mexico (Canaive, CD, 2000), and the main production site for the international market. To achieve this kind of success the regional industry has undergone significant transformations in order to successfully adapt to the new globalisation context.

During the import substitution period, the garment industry in La Laguna was modest and not very developed, given that most garment products were brought in from the centre of Mexico. La Laguna specialised essentially in the production of trousers for the rural market, taking advantage of the material produced in the region. Pioneers of the garment industry specialised in the production of denim trousers<sup>7</sup>, to be sold in the neighbouring states, from the Chihuahua mountain range to the state of Sinaloa. The product was manufactured in La Laguna and sold by the same producer, who with the help of relatives delivered it in vans, to be sold in towns and shops in small villages.

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<sup>7</sup> These kinds of trousers were considered in the past as “trousers for peasants”, given that they were trousers for working, used by peasants and labourers.



This small scale production, as in the rest of the country, did not foster the use of new technology, given the low level of rivalry that allowed the selling of products no matter what the quality, diversity and price of the product. By 1980, the garment industry in the region had no great impact on the industrial development in the region. The garment industry represented 5.7 percent and 3.63 percent of total manufacturing employment in the states of Durango and Coahuila, respectively. At local level, in the two most important cities by far of the La Laguna region, the production of garments created just 1,464 jobs in Gómez Palacio and 542 jobs in Torreón; 13.5% and 4.5% of the total local manufacturing employment, respectively (INEGI, S.C.N.M, various years).

Following the economic crisis of 1982, businesses in the region had to face the weakening of the domestic market in order to remain in the market. Consequences of the economic crisis (high inflation rates, fall of domestic consumption, and high interest rates) were the beginning for national producers<sup>8</sup>. This situation, in conjunction with Mexico's entrance in the GATT almost shattered La Laguna's garment industry. Consequently, given the level of quality, price and diversity of Mexican products, many garment producers went out of business (Gereffi and & Martinez, 2000). In this way, the regional industry had been forced to make a series of adjustments in order to remain in the market.

*2.2 Change in regional industrial organisation, integration into the global production system.* The restructuring of the garment industry in La Laguna followed a different path to that pursued in the rest of the country. In contrast to national producers, the region incorporated its garment industry into the global system of production. The integration into

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<sup>8</sup> Producers had to face high inflation rates that affected the performance of their business. Thus, once producers sold their products, the money they received was not enough to pay the production costs of a new garment.

global production follows two phases: the first was the shifting of producers into assembly plants after 1986 and; the second phase is the period after NAFTA when the region managed to upgrade its value through the global production chain.

With the entrance of Mexico in the GATT, firms had to restructure the way they were doing business. Prices of the products and relationships with clients and suppliers had to be reconsidered, given the high competition from imported products. With the problems of high inflation rates, high interest rates and the loss of purchasing power in the domestic market, firms shifted from being in charge of the whole process of production into just being specialised in one phase of the production process. According to entrepreneurs interviewed, the shift towards the assembly of garments did not need a higher level of knowledge given that regional firms had the basic infrastructure and quality to start international production. Assembly thus emerged as an option for the local producers in this new global context. At first, firms tried to restructure their production for the domestic market, then shortage of capital, along with the consequences of the 1986-7 crises, pushed them to move towards assembly activities.

In this sense, firms were forced to specialise in assembly activities, leaving behind the national market, the marketing, sourcing and design of products. Firms converted their productive system into production line, more labour-intensive, oriented to export assembly operations through 807/maquila programmes or second tier subcontractors<sup>9</sup>. The assembly of garments has always been carried out for American firms, which sent packages with the pieces of garment already cut, ready to be assembled and then to be re-sent to the U.S.

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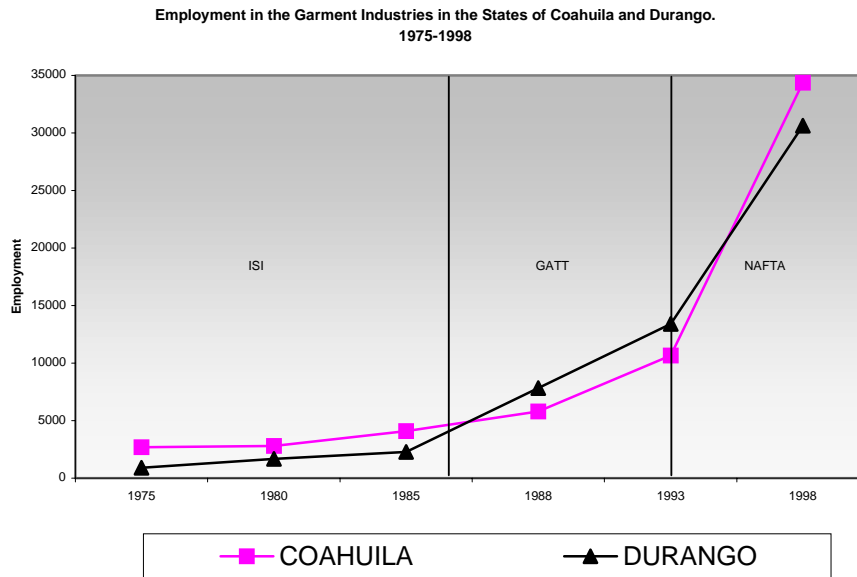
<sup>9</sup> The importance of maquila practices has changed the industrial organisation of firms within the region. A different level of subcontracting within the region has been developed, organising firms from those registered in the 807/maquila programmes to those subcontracted for the latter kind of firms, which are normally smaller.

The maquila (assembly) industry in La Laguna started to develop in an impressive way soon after liberalisation, to become the most important place for maquila/807 assembly activities in Mexico. Despite the fact that the maquila programmes had already existed before trade liberalisation, the number of firms under 807 activities increased dramatically in the region; from there being only 3 firms creating 203 jobs in 1980, to 64 firms generating 8,037 jobs by 1990. Under the 'new' form of production, firms started to play, and get accommodated in, the global production system: between 1988 and 1993, firms started to accumulate capital, increase their investment in machinery, while their size and number grew at the same pace<sup>10</sup>. Thus, by 1993, the average size of the maquiladora firm rose from 68 to 125 employees per plant in these five years (Cepal, 1996: Statistical Annex). In fact, the region in 1990 became the main place for garment maquila activities in the country, generating a fifth of the total maquila employment in Mexico's garment industry (Cepal, 1996: 52).

## Figure 2.

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<sup>10</sup> A pioneer entrepreneur commented that pioneering firms started off by assembling small quantities of trousers (about 1,000 trousers), then double, then 20,000 and so on until they needed to build a new plant (Casolco interview).



Source: INEGI, Censo Industrial, various years.

La Laguna’s garment industry, through its boom in assembly activities, was soon undergoing adaptation in involving itself in a part of the global production system. During the GATT period (1986 to 1993), this industry experienced a significant improvement in employment and production terms. From 1988 to 1993, general employment in the region rose by 36 %, adding 4,813 new jobs in the area, while the number of firms grew by 60 per cent, from the 136 existing firms to 228 firms (see figure 2).

The importance of this traditional industry in the regional economy also increased during this period of time. In only 5 years, from 1988 to 1993, the share of workforce in the garment industry rose from 21.7 to 38.2 per cent of total manufacturing employment for the region, increasing the figure for the La Laguna Region municipalities of the state of Durango (see table 1). In that period of time, the region also became one of the main sites for garments in Mexico. La Laguna increased its share participation in the national garment industry by representing 7.3 per cent of total employment generated in 1993 compared with 1.9 per cent generated in 1980.

**Table 1.**

| <b>Significance of garment industry employment in terms of local, regional and national manufacturing employment</b>                   |       |        |        |        |        |
|--|-------|--------|--------|--------|--------|
|  | 1975  | 1980   | 1988   | 1993   | 1998   |
| Total for state of Durango   | 100.0 | 100.0% | 100.0% | 100.0% | 100.0% |
| 1. Gómez Palacio   | 88.9  | 86.8   | 95.9   | 79.0   |        |
| 2. Lerdo   | -     | 8.3    | 3.1    | 15.5   |        |
| Total for state of Coahuila  | 100.0 | 100.0  | 100.0  | 100.0  | 100.0  |
| 3. Torreón   | 13.7  | 19.4   | 15.8   | 24.2   |        |
| La Laguna Region (1-3)/National  | 1.3   | 1.9    | 6.6    | 7.3    | 10*    |
| Average significance within the region   |       | 19.6   | 21.7   | 38.2%  |        |
| Source: Calculated based on INEGI, XIV Censo Industrial state of Durango INEGI; XIV Censo Industrial state of Coahuila. Various years. |       |        |        |        |        |

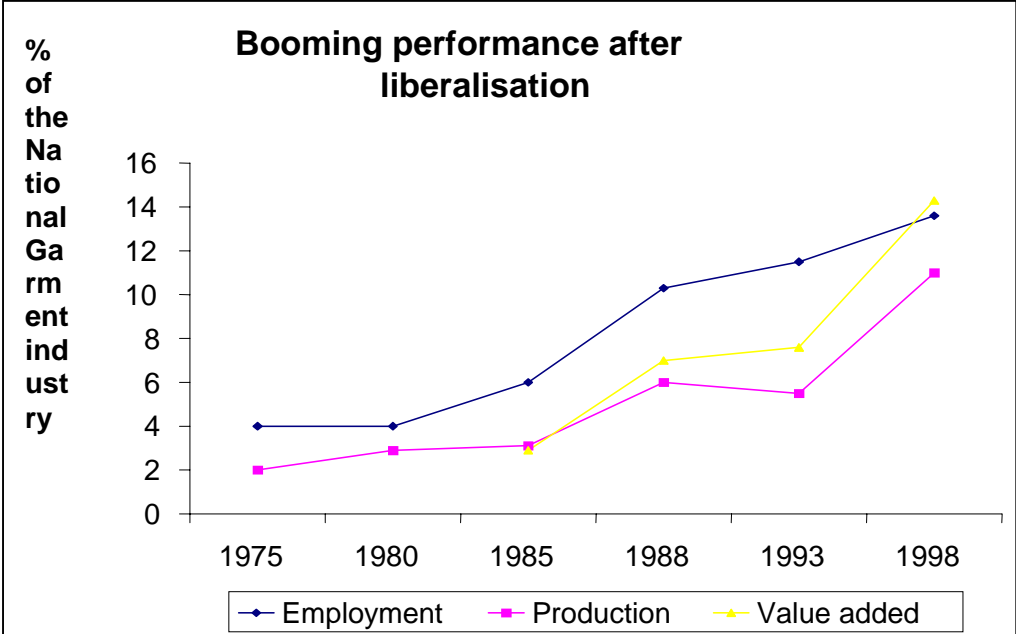
In this way, during the GATT period, La Laguna's garment industry started to acquire knowledge, accumulate capital and get international exposure, to become more competitive in a global industry. Thus, the accumulation of a stock of investment and knowledge during this period proved significant in preparing the region for the integration of its productive sector into the NAFTA.

*2.3 From assembly activities to integrating production: Booming under the NAFTA period.* The signing of NAFTA has meant important challenges, opportunities and changes in the industrial agglomeration of the La Laguna region. With the change in duty regulations, the NAFTA allowed the region the possibility of integrating and upgrading its industrial sector to activities with more value added.

After 1994, the region underwent a *boom* in the garment industry, consolidating the region not only as the main agglomeration exporter of garments in Mexico but also as one of the main contributor sites generating value added, production and employment for the national garment industry. In 1980, La Laguna contributed to the national garment industry with just 2

per cent of total employment. Meanwhile, according to the latest data available for 1998, the region accounted for 1 in 10 jobs that the Mexican garment industry created.

Figure 3.



Note: this information is relevant for the Coahuila and Durango states, where La Laguna is the main producer site in these states  
 Source: INEGI, Censos Industriales, many years.

The La Laguna region’s contribution to the production and value added of the Mexican garment industry has also increased rapidly since NAFTA was implemented, its share participation being only three per cent by 1980-1985, increasing to 11 per cent of national production in 1998. Before trade liberalisation the region just contributed with 3 per cent of the national value added, then during the GATT period it increased its share participation to 7.6 per cent. Meanwhile by 1998, the region became the region with most added valued generated in the garment industry in Mexico. The integration of the productive sector through the productive chain value has allowed the region to retain more value for the local economy.

The region has been able to upgrade its industry to activities with higher value added within the productive chain, allowing the local productive system to become more integrated into the

global production system. The performance of the garment industry in the region has attracted the establishment of new firms, in turn increasing the spatial concentration of specialised firms. Meanwhile garment exports increased significantly in the regional economy<sup>11</sup> without considering that La Laguna concentrates 21 out of the 100 highest garment exporter firms in Mexico (Secofi, D.G.E., 2000).

After a period of adjustment in the productive system, the remarkable performance of this region suggests that agglomeration effects and integration with the global production system have taken place. Thus, in a context of globalisation, the sector became the main source of employment within the region, and by 1998 more than a third of the population worked in activities related to this traditional industry (see table 2). The garment industry is in fact the main source of employment in the region, followed by the automobile industry with 23 % of the total manufacturing industry. In this sense, the pooling of labour force along with the entrance of new firms in the region suggests that agglomerated firms have benefited from external economies. Fieldwork was carried out to identify and analyse networks and linkages within the industrial agglomeration, which could suggest that these linkages are still relevant in an agglomeration specialised along labour intensive activities of the global garment industry.

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<sup>11</sup> In fact, exports from the garment industry (localised in La Laguna) represented 57 percent of total exports for the state of Durango in 1998 (Secofi, Cadenas productivas en Mexico, 1998).

**Table 2. Some indicators in the Laguna Region**

| Variables   | 1980   | 1993                      | 2000   |
|---|--|---------------------------|--|
| Trousers Output (per week)  | n.a.   | 500,000                   | 5'000, 000   |
| Trousers made of Mexican material                                 | n.a.   | 10%                       | 60%  |
| Output per company (maximum)                                      | n.a.   | 50,000                    | 1'200, 000   |
| Activities with Mexican ownership                                 | All activities with limited capacity and quality | Assembly                  | Textiles<br>Cutting<br>Assembly<br>Laundry<br>Finishing<br>Trim and labels<br>US Sales offices |
| Direct employment in the apparel industry                         | 2,058  | 15,255                    | 45,745   |
| Importance of the apparel industry in the regional industry*      | 19.6%  | 21.7%                     | 38.7%  |
| Importance of La Laguna in the national garment industry**        | 1.8%   | 7.3%                      | 10.0%  |
| Value added in La Laguna as % of the national garment value added | 2.0%   | 7.7%                      | 14.0%  |
| Types of companies in the region                                  | Local/Regional-oriented small firms              | Specialised garment firms | Diversified corporate groups. Large companies  |

\* Garment/ % Total manufacturing employment in the region

\*\* (% Apparel Laguna employment/National apparel employment)

Source: Inegi, Censos Industriales, Many years. Coahuila state. Inegi, Censos Industriales, Many years; Durango state; G.Gereffi & Martinez, M. (2000), FOMEC- La Laguna, and direct research by the author.

### III. *Results of the Fieldwork*

In order to assess the local productive system after trade liberalisation, a survey was carried out in this spatial concentration of sectoral specialised firms. The industrial organisation of the region is analysed using the flexible industrial agglomerations framework as a point of reference to analyse the importance of local networks and the integration with the global production system. The aim of the research is to analyse the different networks and linkages created within the industrial structure promoting external benefits to agglomerated firms. In this way, backwards, forwards and institutional linkages of agglomerated firms are identified to show that external economies seem to arise from local interaction, which in turn increases the productive performance of firms in the global production system.



The fieldwork was based on a questionnaire applied to a sample of firms, interviews with leader entrepreneurs and directors of local, regional and national institutions with direct relation to the garment industry. The sample of firms was randomly selected from the directory of the local Chamber of the garment industry. The sample covers 25 per cent of firms established in the La Laguna region, comprising questionnaires applied to 35 firms with independent ownership, out of 140 firms registered with the regional chamber of the garment industry<sup>12</sup>. The sample was also divided by firm size, however, it was complicated distinguishing between different firm size due the great concentration of large firms. The sample was divided as follows:

- 27 per cent of firms employ less than 100 employees
- 27.2 employ between 100 and 200 employees
- 18.2 per cent of the firms sampled were in the range of 201 to 500 employees
- Very large firms, 27.3 percent of the sample, employ more than 500 employees.

The sample firms show the following characteristics:

- 1) The La Laguna region is well known for being a place specialised in the production of trousers of different varieties. The sample also follows this pattern: 75 per cent of firms produce trousers (jeans, dockers and shorts) made of denim or calico. 15.1 percent produce sports clothing, while the rest of the firms manufacture other products such as dressing gowns, jackets and t-shirts. The production is specialised on one product, rather than on age groups.
- 2) A hallmark in the La Laguna region is the establishment of firms created after NAFTA, giving a mix of few old firms and a majority of recently created firms: 27. 3

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<sup>12</sup> Despite the fact that there are 230 firms registered with the Chamber, the number of members affiliated to the Chamber was 140 due to the fact that some members own more than one firm (Canive-Laguna, web page, 2001).

per cent of the firms were created before trade liberalisation took place in 1986; while in the GATT period, between 1986 and 1993, just 12.1 per cent of surveyed firms set up business. The distinctive characteristic of the sample is that 60 per cent are newly created firms; that is to say, firms starting businesses after 1994.

- 3) Despite the fact that more than 70 per cent of the surveyed firms were created after trade liberalisation, the La Laguna region is characterised by local ownership (see table below).

**Table 3. Ownership of firms in the region**

|                       |      | % of foreign investment in the firm |       |       |       |        |
|-----------------------|------|-------------------------------------|-------|-------|-------|--------|
|                       |      | .00                                 | 20.00 | 40.00 | 80.00 | 100.00 |
| Year of establishment | 1956 | 1                                   |       |       |       |        |
|                       | 1981 | 3                                   |       |       |       |        |
|                       | 1982 |                                     |       | 1     |       |        |
|                       | 1983 | 1                                   |       |       |       |        |
|                       | 1985 | 2                                   | 1     |       |       |        |
|                       | 1986 | 1                                   |       |       |       |        |
|                       | 1990 | 1                                   |       |       |       |        |
|                       | 1991 |                                     |       |       |       | 1      |
|                       | 1992 | 1                                   |       |       |       |        |
|                       | 1994 | 3                                   |       |       |       |        |
|                       | 1995 | 2                                   |       |       |       |        |
|                       | 1996 | 2                                   |       |       | 1     | 1      |
|                       | 1997 | 5                                   |       |       |       |        |
|                       | 1998 | 2                                   |       |       |       | 2      |
|                       | 1999 | 1                                   |       |       |       |        |
|                       | 2000 | 1                                   |       |       |       |        |

Source: Author's survey.

*Industrial Structure.* The size of firms becomes an important characteristic to differentiate the logic of functioning and arrangements within the agglomeration. Firm size is interesting in this export-oriented agglomeration: the La Laguna region follows a different pattern of agglomeration to that of the so-called pattern in industrial districts literature. The industry is predominantly dominated by large-scale firms, which are in charge of coordinating the

productive system within the region. The amalgamation of agglomerated firms has allowed its integration with the global production system, particularly through its productive integration with the American production system, where the region specialises in some activities along the value chain.

The industrial structure in the La Laguna region is widely dominated by large-scale firms. In a study carried out by the Ministry of Trade and Industrial Promotion (SECOFI), medium and large firms accounted for 88 per cent of total employment generated for the regional garment industry. The importance of large firms is manifested in the study through the striking fact that only 35 firms, making up the large scale industry of the sample, contributed for 75 percent of the total employment in the region (SECOFI, study on industrial concentrations, 1998). Accordingly, with the structure of this export-oriented agglomeration, the sample shows this characteristic: small firms created only 1 per cent of employment; firms employing between 100 and 200 employees generated about 5 per cent of employment. The situation contrasts with the high level of employment of large firms, creating 94 per cent of employment. The concentration of employment is even higher for firms employing more than 500 employees, given that this group concentrates more than 84 per cent of the employment created by the sample firms.

*Vertical organisation* of firms is another characteristic of the garment industry agglomeration. From the sample, a certain vertical organisation of firms appears to be found in the region. Only 27.3 per cent of all firms subcontract other firms, although this varies when taking into account the size of the firms. Thus, as the firm becomes larger, it tends to rely on subcontracting practices: 66.7 per cent of the total of large firms subcontract, 33 per

cent of the total of medium size firms do, while no small firms subcontract at all. These figures reinforce the idea of a group of large firms leading the industrial agglomeration.

Large firms, leading the regional industry, carry out most of the different activities along the productive chain. Large establishments are involved in most of the phases of the different activities throughout the garment industry: from assembly to the finishing of garments<sup>13</sup> (see figure 4). Large firms have more capacity for large amounts of production, as they benefit from large physical installations, machinery, and a greater labour force. The capacity to face large orders from American companies is a most important factor to fulfil if firms want to be directly incorporated into this global production chain. In this sense, firms with smaller capacities have less capacity to directly negotiate with American companies, where small firms are incorporated as second tier subcontractors for large firms, being in charge of assembly activities.

**Figure 4. The firm size along the value chain.**

*Large firms*

|        |         |         |          |           |           |
|--------|---------|---------|----------|-----------|-----------|
| Design | Laundry | Cutting | Assembly | Finishing | Marketing |
|--------|---------|---------|----------|-----------|-----------|

*Small firms*

|        |         |         |          |           |           |
|--------|---------|---------|----------|-----------|-----------|
| Design | Laundry | Cutting | Assembly | Finishing | Marketing |
|--------|---------|---------|----------|-----------|-----------|

*Source: Author's fieldwork*

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<sup>13</sup> Finishing comprises labelling, embroidering, ironing and packaging.

As it is possible appreciate in figure 4, most firms tend to concentrate on assembly activities (i.e. sewing), while the proportion decreases as the value added of activities tends to increase. Thus, 90 per cent of the sample firms were involved in assembly activities, 75 per cent in finishing garments, then 57 per cent were involved in the cutting of the material to then be put together through assembly. Meanwhile, only 25 per cent of the firms, mainly large firms, were involved in managerial activities related to some aspects of design and marketing.

*Forward Linkages. Integration into the global production system: the role of new buyers in the region.*

The NAFTA allowed the change leading to better integration of the La Laguna agglomeration into the global production system. Before 1994, maquila activities enjoyed benefits from the duty regulations of fractions 806.30 and 807.00 (9802.00.80 of the harmonised Tariff Schedule) that allowed tax exemption for American components, charging it only upon exterior value added (CEPAL, 1996: 36). However, activities that could only be based in the US, given the preferential system, did not allow for the establishment of any other activities but those of assembly in Mexico. From 1 January 1994, the duty taxes for material formed and cut totally in the U.S. and exported or returned to that country were eliminated as well as the restrictions on import quotas (9802.00.80.20 Tariff Schedule), given that these operations were restricted by the Multi Fibre Agreement (CEPAL, 1996:36). Thus, these important changes in trade liberalisation allowed the possibility for the Mexican industry to integrate and upgrade its industrial sector into the industrial value chain<sup>14</sup>. In this sense, the productive system of La Laguna had the possibility of specialising not only in maquila/807 activities but also in activities incorporating more value added along the value chain.

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<sup>14</sup> As long as the maquiladora industry fulfils the requirements of the rule of origin.

**Figure 5.**

**La Laguna geographical position with respect to the main sites of garment in the U.S.**



*Relationships with newcomers and learning processes.* With the benefits stemming from the NAFTA, and the geographical location, American firms became more and more interested in doing business in La Laguna<sup>15</sup>. Within the region, about 70 per cent of firms are subcontracted by firms located abroad, and 30 per cent by local firms, and only 4 per cent subcontract for firms located in different parts of the country.

In terms of cooperation between American buyers (contractors) and firms in the region, flows of information tend to rely on technical support practices. Along the productive process, the relationship between these actors has changed through time. When foreign buyers first arrived in La Laguna in the early nineties, the relationship was reduced to just carrying out assembly activities. Assembly meant that American buyers had carried out all phases along the value chain, from design to marketing, except assembly, which was carried out by firms in La Laguna. In this way, buyers used to design, wash the material, and cut the garment into pieces that then were assembled in Mexico, to then be finished in the U.S. The product in

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<sup>15</sup> Soon after liberalisation, firms in the La Laguna region started having contact with brokers located mainly in El Paso, Texas.

pieces was given to assemblers in packets, so what firms had to do was just be specialised in properly assembling the garment.

The learning process of firms in order to shift to assembly was not difficult given the specialisation required for the most labour intensive part of the process. The firms had enough machinery on one hand and on the other hand, the regional industry was able to supply the labour force. Specialisation is an important factor helping firms to attain quality. At the beginning American firms sent small amounts of orders to subcontractor firms to check their quality and delivery time. Firms specialised in a style of garment, so that after a short period of time they made their productive process efficient. After 8 to 10 weeks working with the same product, doing repetitive tasks, a firm is able to increase their quality and production time. Thus, after testing their capabilities, contractors placed more contracts with them. In this way, it was a cycle, where firms after increasing their productive efficiency were able to meet clients demands; and then after meeting clients demands, were asked for larger orders, making this come full circle to larger and larger orders. In this way, with the integration of La Laguna into global production, American companies efficient have efficient helped local firms to get access to the market but have also supported them through the transfer of knowledge, helping out in this way to raise local quality to international standards.

According to Gereffi and Martinez (2000), American firms have promoted or introduced four technological advantages to La Laguna. Automated systems of sewing and assembly, computerised cutting technologies, water recycling systems for laundering activities and, online inventory. Results from the fieldwork support that idea, subcontracted firms were asked about non-traded benefits they received from American firms, and in most cases local firms benefited from technical support and advice. Firms in the La Laguna region received

the specifications along with some procedures that they had to follow to assemble the garment. This form of unofficial cooperation has been the most important practice followed in the region, although firms in La Laguna have been benefiting from the *training* that American firms give, normally when a new production line or a new design is implemented or demanded. The training can be of two types, the first one is when American firms bring an engineer to teach supervisors in the Mexican company, the other one is to send the former to the U.S. to learn the new process. Another programme that firms have is working as the twin of an American company. In this sense, the learning process is internalised by subcontractors of foreign firms. Meanwhile, training of non-skilled labour is given by the agglomeration and fed by government policies.

| <b>Table 4. Transferring Knowledge to the Region: The support from American firms</b><br>( % of total subcontractors firms working for foreign companies) |           |            |
|---|-----------|------------|
|   | <b>No</b> | <b>Yes</b> |
| <i>Technical support and advice</i>   | 25.0%     | 75.0%      |
| <i>Supply of equipment</i>  | 58.3%     | 41.7%      |
| <i>Financial assistance</i>   | 83.3%     | 16.7%      |
| <i>Training</i>   | 58.3%     | 41.7%      |
| <i>Managerial assistance</i>  | 83.3%     | 16.7%      |
| Source: Author's Fieldwork  |           |            |

On the other hand, as American firms are becoming more specialised in high value activities within the garment industry, they tend to also support their subcontractors with whom they



have built a trust relationship<sup>16</sup> through the provision of equipment (see table 4). The provision of equipment is given in the first instance as a loan from American companies. Once the relationship has reached certain maturity, machinery is either sold or granted to subcontracted firms.

Cooperation among American firms and firms in La Laguna has arisen from the fulfilment of requirements from the latter firms. Thus, non-traded benefits have arisen from the traded relationships among firms. Furthermore, it should be pointed out that despite the fact that firms in the La Laguna region receive large contracts, they just have a few buyers-clients. Subcontracted firms tend not to work for many firms, however, as the size of the firm increases there is also a tendency to increase the number of firms for which they subcontract.

Firms have to follow the quality systems established by their contractors. These norms normally refer to procedures and standardising in the production. As the maquila firms have proved their responsiveness to quality, time, service and price they soon attracted more clients into La Laguna (see table 5). As more and more firms were doing businesses in La Laguna, the region has been able to upgrade and internalise its quality to international standards.

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<sup>16</sup> This relationship is always based on 3 aspects: quality, delivery time, and production levels.

**Table 5. Main manufacturing participants and clients of La Laguna**

| Type of Firm             | 1993   | 2000   |
|--------------------------|--|--|
| <b>Manufacturers</b>     | <ul style="list-style-type: none"> <li>• Farah</li> <li>• Sun Garment</li> <li>• Kentuchy-Lajat</li> <li>• Manufacturera Libra</li> <li>• Casolco</li> </ul> | <ul style="list-style-type: none"> <li>• Tropical Sportswear International (Farah)</li> <li>• Jones Garment of NY (Sun Garment)</li> <li>• Kentuchy-Lajat</li> <li>• Manufacturera Libra</li> <li>• Siete Leguas</li> <li>• Maquilas Pami</li> <li>• Aramark</li> <li>• Manufacturas Deportivas Roman</li> <li>• Casolco</li> <li>• Tarrant</li> <li>• Vanity Fair</li> <li>• The Original Jeans Mexican Co.</li> <li>• Garment group</li> <li>• Red Kap</li> <li>• Derringer</li> <li>• Sara Lee</li> </ul>   |
| <b>Branded Marketers</b> | <ul style="list-style-type: none"> <li>• Levi Strauss &amp; Co. (BM, M)</li> <li>• Wrangler (BM,M)</li> </ul>  | <ul style="list-style-type: none"> <li>• Levi Strauss &amp; Co. (BM, M)</li> <li>• Lee (BM,M)</li> <li>• Nautica</li> <li>• Samsung</li> <li>• Wrangler (BM,M)</li> <li>• Action West (BM,M)</li> <li>• Gerber Children's Wear (BM,M)</li> <li>• Guess?</li> <li>• Polo Ralph Laurent</li> <li>• IOU</li> <li>• Russell Athletic</li> <li>• Chaps by Ralph Laurent</li> <li>• Liz Claiborne</li> <li>• Fruit of the Lum (BM,M)</li> <li>• Britannia</li> <li>• Hanes (BM,M)</li> <li>• Jordache</li> <li>• Calvin Klein</li> <li>• Dockers (BM,M)</li> <li>• Tommy Hilfiger</li> <li>• Donna Karan</li> <li>• Williamson Dickies (BM,M)</li> </ul> |
| <b>Retailers</b>         |  | <ul style="list-style-type: none"> <li>• The Gap (BM,R)</li> <li>• Banana Republic (BM,R)</li> <li>• Old Navy (BM,R)</li> <li>• The Limited (BM,R)</li> <li>• K-Mart</li> <li>• JC Penney</li> <li>• Sears</li> <li>• Mervyn's</li> <li>• Target</li> <li>• WalMart</li> </ul>   |

Note: M (Manufacturers); BM (Brand Marketers); R (Retailers)

Source: CNIV-La Laguna; FOMECA- La Laguna; G.Gereffi & Martinez, M. (2000); and direct research by the author.

It is worth highlighting the transformation of clients for the industrial sector in La Laguna. When firms first started to carry out assembly activities for American companies, it was mainly for brokers located in El Paso, Texas (see figure 5). These brokers, in turn sold the production to big buyers such as K-mart, Walmart. However, soon after synergies from the learning process developed in the region, local firms have been able to upgrade and get to know the global production logic. In this logic, local firms realised that they could directly deal with big contractors without being in contact with brokers.

Online inventory has been another important technological advance introduced in the region. Firms in La Laguna region manage large stocks of garments for when the client demands it. And these inventories have to be monitored and updated frequently to meet buyers' demands. The use of online resources also is important for monitoring production, delivery products and even to know the right specifications for the garment. Entrepreneurs mentioned that in a typical transaction they take pictures to show the client how the product was received, manufactured and sent. During the production process, this "technique" is also used when local firms have a query on details or in different patterns of sewing the garment.

Quality has also been translated into social welfare of the population in the region. This has meant that firms have to follow international codes of conduct similar to those followed in more developed countries. Firms are now required to operate and follow codes of conduct followed by their contractors, otherwise they will not be able to continue their relationship with their contractors. Among the codes of conduct that firms have to follow are those related to ensuring that operations are safe and non-exploitative: child labour is not allowed, improving working conditions (ventilation, lighting, emergency exits, services for workers,

and in some cases the use of ergonomic equipment), also all government regulations have to be met and the labour force has to be paid according to national regulations<sup>17</sup>.

*Backward linkages.* Firms are imbedded in different relationships with other firms, where different forms of cooperation, feedback, implicit cooperation and in general, non-traded benefits may arise. However, not all relationships necessarily bring benefits if there is no cooperation among the agents involved, leaving the possibility of increased benefits reduced to only traded relations. This is particularly significant for Mexican firms, which during the *import substitution period* had a captive market that did not give firms the incentive to cooperate and interact at local level in order to gain more competitiveness through clustering.

Subcontracting - specialisation of different firm size along the productive chain is an important factor in the industry organisation of this region. Despite the fact that firms tend to be vertically organised, some parts of the productive process are decentralised. Large firms in the region have very few subcontractors, normally no more than 9 firms. Large firms concentrate most of the production, and then some of the phases of the production are decentralised to smaller firms. In the first instance, large firms carry out all productive phases on-site, from cutting, washing, assembly to finishing. Then, when firms do not have the capacity to deal with orders, they decentralise the assembly activities to smaller firms<sup>18</sup>. A difference with the so-called agglomerations of the flexible industrial approach is that firms do not decrease costs and social security payments through subcontracting. Large firms prefer to carry out the assembly of garments on-site, given the quality, commitment or capacity of possible subcontractors.

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<sup>17</sup> For a comprehensive study on codes of conduct of the main brands see the study carried out by the U.S. Department of Labor in 1996.

<sup>18</sup> An important fact of large firms in the region is the interest they have in keeping most of the work for themselves, given that their profit is through quantity rather than price.

All firms given subcontracts carry them out within the region, which retains the possible benefits of interaction. Subcontracting for assembly in other parts outside the region is not a significant practice, however, when it is carried out by large firms subcontracting in central and southern states of Mexico, where labour force is cheaper.

Despite the fact that the subcontracting practice is not widely spread across the region, cooperation among firms is important in the development of the garment industry in the region. Cooperation among subcontractors and regional contractors, when it occurs, is important in order to allow flows of information regionally: 78 per cent of local contractor firms give some kind of support to their subcontractors (see table 6). There are some activities concentrated where cooperation is more important: technical support, supply of equipment, and financial assistance are the most important practices carried out among subcontractor firms. The information, and the absorption of innovation from the U.S. into the region are carried out at a second level within subcontractors. Maquila/807 firms, when subcontracting, are in charge of passing this information onto the second tier subcontractors. The latter firms have to follow the standards and requirements that international clients demand. In this way, maquila/807 firms set up a quality system that second-level subcontractors have to follow. Thus, for instance, once a garment is divided into three main areas, the auditors have to follow the quality system. This system refers to procedures and standardising in the production, where JC Penny is the system most frequently used to meet quality requirements.

At the beginning large subcontractors quite often sent auditors in order to check that the system had been followed and could meet all client requirements. Once the system is learnt

and completely internalised by the firm, large firms have a monthly meeting with all their subcontractors. In these meetings, firms discuss all the problems they have with production, how they solved them and the way to carry out production. These meetings also serve to show the performance of every subcontractor as well as to encourage competition among them. In this sense, second level tier subcontractors learn and internalise international quality standards, making the regional industrial system stronger.

Among the practices carried out in the subcontracting process, there are some activities with lower levels of cooperation among firms, such as practices including training or managerial support, given that the emphasis of the relationship is merely productive (see table 6). This is to say, training of labour and managerial assistance are not carried out in the region through subcontracting practices, which leaves a gap in the learning of firms.

**Table 6. Regional subcontracting. Support given to second tier subcontractors**

|   | No<br>% | Yes<br>% | Total<br>% |
|---|---------|----------|------------|
| Technical support to your subcontractors (assemblers) | 0.0     | 100.0    | 100.0      |
| Supply of equipment to your subcontractors            | 28.6    | 71.4     | 100.0      |
| Financial assistance to your subcontractors           | 14.3    | 85.7     | 100.0      |
| Training support to your subcontractors               | 42.9    | 57.1     | 100.0      |
| Marketing & managerial support to your subcontractors | 71.4    | 28.6     | 100.0      |

Source: Author’s fieldwork

*Links with suppliers.* The important performance of the garment industry has attracted the establishment of suppliers to the region. The region in very few years has passed from an almost absence of suppliers into suppliers of the highest level, according to the needs of local producers. As the region has moved towards the *full package*, suppliers have tended to locate

in the region. Thus, after NAFTA took place, La Laguna benefited from the concentration of important suppliers, which creates external economies for localised firms through its local organisation. This important arrival of suppliers has benefited firms in terms of costs and time due the fact that before trade liberalisation firms had to buy their inputs outside the region, predominantly in the centre of the country.

Despite the fact that the La Laguna industry was vertically organised before trade liberalisation, the localisation of suppliers heavily relied on suppliers located in the centre of the country, where most of the national production was carried out. Mexico City and the states of Mexico, Puebla and Jalisco were the main suppliers and the central sites for the garment industry before 1986. The fact that firms shifted towards subcontracting/maquila activities after liberalisation did not favour the localisation of suppliers in the region. This is because American contractors provided all materials required and even cut, solely requiring assembly in the region. However, since the region has moved into providing the *full package*, new supplier firms have arrived to play an active role.

The recent development of the subsidiary industries for the garment industry is evident when taking into account the number of firms registered in the member list of the local Chamber of the Clothing Industry (Canaive –La Laguna Region)<sup>19</sup>. Since 1994, from being almost inexistent, suppliers have increased their number in the region. All kind of auxiliary industries have appeared in the region in recent years, international suppliers of thread (Coat Timon and Hilos American & Efird), suppliers of zips, buttons and studs (YKK, Cierres Ideal and Scovill Fasteners), label and tag firms, as well as local, national and international firms supplying accessories and spare parts for sewing machines, laundries and cutting rooms.

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<sup>19</sup> The National Chamber of the Garment Industry, as well as all their local representatives, do not only group related manufacturer firms but also suppliers to the industry.

Mexico is not specialised in the production of machinery at international standards. Most of the supply of the machinery sector originates in the USA and Europe. The localisation of supplier-distributors of machinery before the 1990s was centralised in the main cities of Mexico (i.e. Monterrey, Guadalajara and the Federal District). There were no cooperative relationships between users and buyers of technology; sellers were concentrated solely on selling without involvement in cooperative practices. However, the great performance of the region has attracted the localisation of more suppliers of technology. The number of firms selling new and used machinery in the region has increased dramatically and nowadays almost 50 per cent of second hand machinery is bought locally and the other 50 per cent abroad. Meanwhile, 50 percent of new machinery is bought abroad, 40 percent locally and only 10 percent nationally.

The development of the textile industry in the region has also favoured the boom of the orientation towards full package production. The regional industry has benefited not only from the establishment of branches of suppliers of raw material but also due to the fact that an important quantity of raw material is now produced in the La Laguna region. In fact there now are two textile plants serving the regional industry which are amongst the most important plants producers of cotton and calico in the world. *Parras-Cone* (a joint venture between *Industrial de Parras*, a leading Mexican denim-producing and marketing company, and *Cone Mills*, the world's largest producer of denim fabrics) is one of the four largest denim and twill producers in the world, established in the state of Coahuila in 1995. Together with this plant, *Parras La Laguna*, an additional textile plant of *Industrial Parras*<sup>20</sup>, and *Santa Fé* apart from selling to the international market, also directly serve the regional

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<sup>20</sup> This firm was brought to *Grupo Lajat* by *Compañía Industrial de Parras* in Torreón, Coahuila in 1999.



market. In cooperation with their clients, these companies offer customer support, through advise on stitching and cleaning of materials to produce garments of higher quality. Also they develop new products in conjunction with their clients, they develop fabrics with the weights, colours and textures that their customers want.

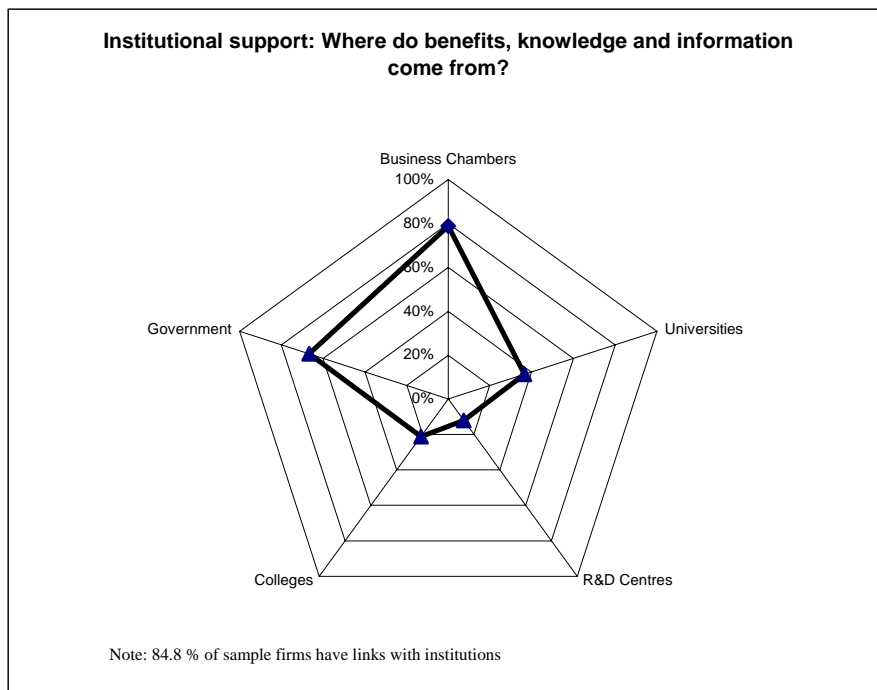
Cooperation is an important practice carried out among garment manufacturers and suppliers. Data from the survey shows that about 85 per cent of firms received some kind of benefit from suppliers. Advice on the development of inputs is received by 57 per cent of total firms receiving support. Training support to firms is a normal practice only with machinery suppliers, while no one single firm is supported in any aspect of managerial or marketing activities.

On the way towards the *full package*, garment producers have counted on important support from their suppliers. Credit and financial agreements are important forms of cooperation among firms, about 40 per cent of surveyed firms had some kind of financial deals, mainly to pay for the inputs at a later stage. Geographical proximity is important to interact and to get to know more entrepreneurs working in the industry. Thus, firms wanting to go into the *full package* establish links with possible suppliers that they already know, and tell them about their plans. They explain who are the firms interested in buying the garments and they start to cooperate with them by giving credits for inputs. Thus, they start with a small amount of products, to then be increased if the commitments are met. In this way, cooperation and confidence with suppliers is important in the regional garment industry to upgrade production.

Institutional linkages: *Enhancing local capacity building for the garment industry.*

Institutions have played an important role in the development of the garment industry of La Laguna. The region has managed to articulate an important network of institutions able to promote and support the industry at all levels. Local governments, entrepreneurial chambers, technical schools, and institutions of the federal government have given an important boost to the development of the industry in the region. Data from the fieldwork points out the importance of institutions: 85 percent of the total sample firms acknowledged having links with institutions passing information, knowledge or other benefits.

**Figure 6.**



The local chamber of the apparel industry and the government are the two most important institutions for the agglomerated firms. Nearly 80 per cent of the total sample firms have links with the Chamber, and 67 per cent with the government. Meanwhile links with

universities and technical colleges are at some extent not widely developed yet (see figure 6). In the following subsection the role of these institutions is presented in more detail.

*The emergence of the local Chamber of the Garment Industry.* The role of the business chambers is considered an important factor in the literature on flexible industrial districts, however, not much attention has been paid to them in the process of interactive learning at the regional level. Chambers can increase the flow of information and enhance the innovative process through linking different players. Business associations are important to link flow of information and services among their members, which in turn can increase the innovative capacity of firms (Bennet, 1998). In this sense, the local chamber of the National Chamber of the Garment Industry (CNIV) in La Laguna has been an important instrument in the region for advancing the local garment industry and is nowadays one of the strongest delegations of the CNIV.

The Chamber is a relatively new institution, dating from 1994. The chamber was originally formed with 23 entrepreneurs, nowadays it counts 140 members, though the numbers of plants increased to 230 plants, given that a great part of its members own more than one plant<sup>21</sup> (CANAIIVE, 2000). The initiative of creating this institution was born at the beginning of the 1990s from the idea of local entrepreneurs interested in promoting their firms in the U.S. and in having representation with national institutions influencing the regional industry (i.e. Secofi, Bancomext, CNIV). As it is suggested by Bennett and Payne (2000, Ch. 2), representation of business interests has been an important task of the local Chamber. Through their representation, entrepreneurs have been able to express their opinions and views with regard to national institutions and with different levels of government.

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<sup>21</sup> Of their members, 80 percent are engaged in the garment production, while the rest are suppliers to them.

The promotion of the regional garment industry has been another important task of the local Chamber to attract more clients and to promote direct and indirect exporting. In reaching these objectives the local Chamber of the CNIV has developed its main project, the Trade Show for assembly activities (*Laguna 807 & Private Label Expo*). Despite the fact that the trade fair is only in its fifth year, the Chamber has consolidated this event internationally as one of the most important trade shows in the world on assembly activities. The origins of this trade show go back to 1995, when in the middle of the economic crisis the local Chamber was present at the Bobbin Show (one of the most important shows in the world for the garment industry). The importance of participating in this international forum opened up the possibility not only to try to link producers with local firms, but also it served as a first and important step in learning the way trade shows work. This experience was put in practice a year later when the first trade show took place in La Laguna.

The success of the trade show has been of great importance; soon it attracted important clients into the region (see table 5). In fact, the trade show in its 4<sup>th</sup> year increased the number of manufacturers and potential buyers by 25 per cent with respect to the previous year<sup>22</sup>. Some medium size entrepreneurs commented that in the second year of the 807 show, they won a client, and in the 3<sup>rd</sup> year they did not go given that their capacity was fully occupied.

With the support of the local governments, the intense promotion of this event has continued not only through constant participation in the Bobbin Shows, but also through the use of consultants that in the year 2000 have managed to send 25,000 personalised invitations to institutions and possible buyers who might be interested in the event, in the U.S., Europe,

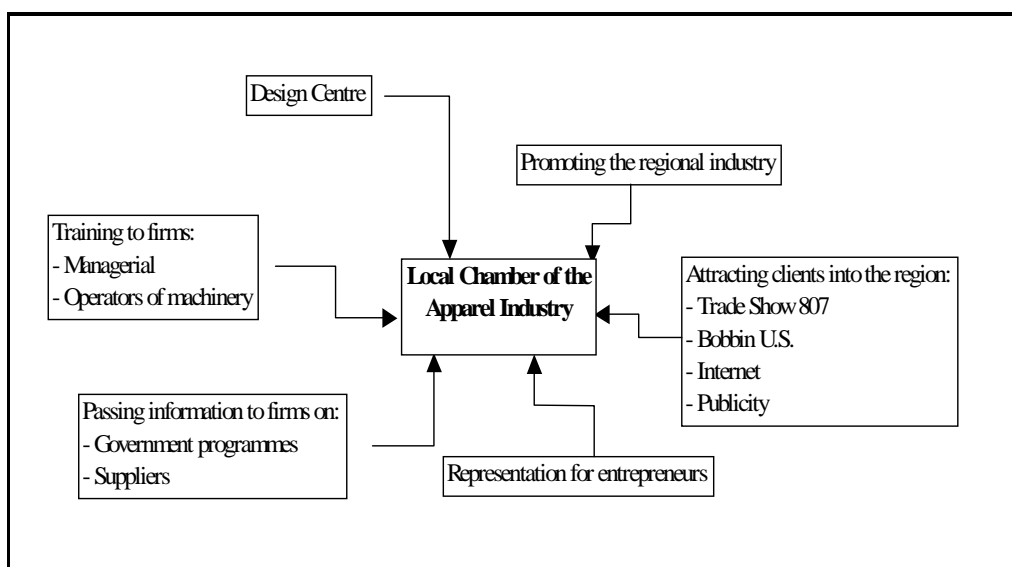
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<sup>22</sup> In the 4<sup>th</sup> year 10,000 promotional brochures were mailed to Mexico and U.S.

Asia, and Latin America (CNIV-La Laguna, Press release, 2000). The cooperation with the official government organisation for export (Bancomext) has been significant in promoting the show through all commissions of Bancomext around the world<sup>23</sup>. Thus, the local Chamber also serves as a link between foreign companies looking for information and sourcing in the region.

The local chamber has also acted as an important catalyst for informing and promoting government programmes among their members. Thus, programmes supporting maquila activities and support for exporters have also been promoted by the Chamber. Moreover, the local Chamber has taken a further step with to provide members with information and training in technology and operative information for the relevant sector. Thus, in conjunction with local technical schools offer training for operators and mechanical engineers. Meanwhile, the training for managers is carried out in collaboration with the Technology Institute of Monterrey through a diploma in competitiveness for the textile industry. Furthermore this institution has just launched in 2000 a design centre to help regional firms give a further step along the value chain.

**Figure 7. The Local Chamber of the garment industry**



<sup>23</sup> In fact, this trade show is one of the three shows that are part of the advertising campaigns by Bancomext in

*The role of the government in consolidating the regional industry.* The role of the local government has been central for the development of La Laguna region. After the economic crisis of 1995, high unemployment rates and with the NAFTA as a point of reference, the local government decided to take a more aggressive strategy through promoting regional sectoral growth. Thus, for the first time, local economic development policies were promoted based on an intensive territorial competition between the municipalities conforming La Laguna. Innovations were implemented in the way public policy were carried out to attract more investment and to create new jobs. The municipality of Gómez Palacio in 1994 donated the land where the local Chamber of the garment industry is located. *Municipal councils of economic development* were established for the first time in the state of Durango to assist in the local economic development (Gov. of Durango, 1999:169). Meanwhile the government of Coahuila state developed a strategy based on regional sectoral specialisation through local development agencies (Gov. of Coahuila, 1993;1999).

In the first stage, the government of Coahuila identified those sectors in which the state could have a competitive advantage (Gov. of Coahuila, PED, 1993). They recognised three manufacturing sectors clearly benefited from the NAFTA (automobile, garment and electronics). The automobile and the garment industry were the two sectors identified as having the minimum requirements to compete with other states<sup>24</sup>. In the former industry the state of Coahuila already showed important development with respect to the country as well as counting with the skills needed for these sector<sup>25</sup>. The garment industry was the second industrial sector to be promoted, given a relative concentration of garment firms, but mainly

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the U.S. (CANIV-La Laguna, press release, 1999).

<sup>24</sup> The electronics sector was not promoted given the state's lack of competitiveness and their lag with respect to other northern states

<sup>25</sup> To some extent, the metal-mechanic sector was also promoted given that it is related to the automobile industry.

because La Laguna had a competitive advantage in its vast rural population with sufficient education levels. In addition to these factors, this traditional sector was also selected for its characteristics of creating jobs for non-qualified labour. These were the sectors considered to have sustainable development in the region, due to infrastructure, education of labour force and strategic location. In this sense, industrial policy was oriented mainly towards the development of these sectors, based on a strategy of productive chains. For its part, Durango promoted the garment industry also because the garment industry is one of the two main manufacturing industries in the state.

The economic development policy was that of economic clusters through promoting productive chains in selected manufacturing sectors. Thus, the government initiated a promotion of different links of the productive chain to be located in the region. The promotion of the sector was based at the beginning on promoting and gathering local information for investor decisions, given that this information is not comprehensive at local/regional level. The qualification of human resources was put at the head of gathering information, specific data on age, education level, technical and professional education of the population in the region, stressing the figures from technical schools.

**Table 7. The formation of local development agencies in La Laguna**

The creation of local development agencies (Fomento Económico: Fomec) in 1994 was a significant part of the Coahuila government plan to support regional industry and to carry out its regional sectoral policy. The Fomec of La Laguna, a civil association, was conceived as a non-profit business assistance organisation, with the idea of promoting economic growth for the region through facilitating cooperation between local, regional and foreign firms, with municipal and state government strategies. A major objective of the development agencies is promoting foreign direct investment in the selected areas (automobile, textile & garment, and mining and minerals) where the region is considered to have advantages (Fomec, web page, 28/03/2001).

The agency acts as a host, refers investors to local services such as shelter services, temporary offices, relocation services, executive services and housing. In this way, Fomec in collaboration with the council and authorities, provide business development and cooperation to investors in the region. Thus, they help investors to evaluate possibilities, site selection, joint venture partnership and special government incentives to locate their plants in the region.

Fomec in its first phase was involved in gathering and generating information for the region as well as providing services to potential investors. As in any other institution, Fomec has gone through diverse stages in order to reach its goals. At the beginning the situation was complicated because the institution did not have the knowledge to promote investment in the region, they did not know how to contact firms, promote the region, and in general they lacked contacts. They started by creating a strategy that they named "*the collaboration net*". The strategy consisted, first in getting a list of contacts of people and institutions that could give them the contacts of people or institutions that could be eventually interested in the region. Thus, they contacted people from Bancomext (National Bank of Foreign Trade), Secofi, consulates, embassies, secretaries of economic development –mainly those in American states, brokers, construction companies, shelter service companies, all kind of firms that could be interested in La Laguna. The net, in this way started to add contact names. Then, in conjunction with the different levels of government it initiated many missions to promote the region.

At the same time and parallelly, Fomec was working on obtaining regional information to create a database with all possible information, due to the fact that Inegi (the national institute of statistics) does not have to a large extent disaggregated information at regional-local level. The collection of information was based on the idea of trying to give all information investors needed to know to satisfy their *matrix of decision* for site localisation<sup>26</sup>.

The first practical learning experience of Fomec was with the first company that decided to come to the La Laguna region. The first project was the establishment of the engine plant for John Deere. That study served as experience and a point of reference for futures projects. All this helped the local development agency to get the necessary information to satisfy firms' localisation matrix of decisions.

Source: Author's Fieldwork.

<sup>26</sup> The matrix has a web shape, which includes needs of infrastructure, suppliers, transport, labour market, education and technology.



Infrastructure was another factor in the strategy to promote investment in the region. Information was given on water, electricity and gas specifications, as well as railway networks, airlines flying to the region, roads, and in general all the information needed for investors, in order to help them fill their matrix of requirements. In order to fulfil shortage in the provision of infrastructure, the government of the two states delivered a policy based on promoting industrial parks.

In all municipalities, the local government delivered a policy supporting *industrial parks*. The idea was to place firms in industrial parks and try to promote suppliers for those firms in the same complex, with all infrastructure supplied or supported by the government or by shelter firms. Thus, an important part of the regional policy was towards the development and the promoting of industrial parks, where the garment industry was the main sector in terms of job creation in those parks (Presidencia Municipal Lerdo (1), 1996). Recent figures show, in fact, that from the 21 industrial parks dedicated to the garment industry in Mexico, seven are located within the La Laguna region (Secofi, web page, 2000; Inegi, Parques, Ciudades y Corredores industriales, 1999: 25,38).

*Municipal/state incentives.* To stimulate the sector and the relocation of firms into the region, the government of La Laguna offered diverse incentives. They offered cheap land, electricity lines, gas and water pipelines, pavement and good location sites in industrial parks<sup>27</sup>. Moreover, firms received full or partial exemptions for property tax and state payroll taxes at the municipal level<sup>28</sup>, increasing for those maquiladoras locating in rural areas (Gov. of Durango, 1999:169; Gov. of Torreón, 1995).

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<sup>27</sup> Land was sold at cost. In all cases the infrastructure provided was given to a federal entity, that is to say, roads were given to the Communications and Transport Ministry.

<sup>28</sup> For the Case of Torreón in the state of Coahuila, property taxes were given to firms acquiring new properties creating new jobs. The exemptions were given for two years from the acquisition of the property (50% for firms

*Attracting firms.* The strategy of the government in attracting firms was that of promoting the region with American companies that could transfer technology to the region, firms that could instruct the rural population on how to become manufacturing workers. Thus, the government of the state of Coahuila studied the companies that were about to close operations in the U.S. and then went to establish negotiations with Wrangler, Sara Lee, Fruit of the Loom and Vanity Fair to move their plants to the La Laguna region. Thus, after negotiations, these companies moved to the region. Wrangler established a head plant in La Laguna, next to the Lajat Industrial Park, with an investment of 32 million dollars. This plant has the functions of cutting, finishing, ironing and distribution, while located just next to Parras, the giant producer of material. Wrangler also established four assembly firms in the rural areas of the region. Thus, these great producers of garments transferred operative centres to the region, leaving in the U.S. their body of marketing, sales and financing. Thus, the local government attracted firms and formed clusters, promoting employment in the region.

In promoting the productive chain in the La Laguna region, the government of the states of Coahuila and Durango have promoted joint ventures associating local firms with American firms. This was the case for Parras, a local firm based in Torreón which used to produce 20 million square metres of material a year. The government was an active participant in the promotion of negotiations with Cone Mills, while in 1999, Parras established a new plant in Torreón. Nowadays, the region produces over 100 million square meters of material a year

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generating between 50-150 direct jobs; 75% for those creating 151-250 positions; while firms creating more than 251 new jobs were given 100% exemption). (Ley de Ingresos –Law on Income, Ch II, article 5) (Government of Torreón, Coahuila, web page, 2001). In the state of Durango also other incentives were promoted such as exemptions of rights to the inscription to the Public Real estate records, as well as minimum payment for public property duties. For attracting firms, the municipality of Lerdo offers municipal police presence in the industrial park.

with these two state-of-the-art plants, two of the most important producers of denim in the world<sup>29</sup>. In this way, the government has facilitated that firms buy calico and denim in the region at competitive prices. This situation has favoured the production of trousers in some cases with 100 percent national integration and in some cases with 100 percent regional integration. Kentucky-Lajat is another important joint venture promoted in the region. This firm now carries out all phases of the productive process (assembly, washing, and finishing) with a production of 500,000 pairs of jeans a week for clients like The Gap, JC Penney, Liz Claiborne and DKNY Jeans (Cortazar, 1998:108). In this sense, the government has helped to consolidate the La Laguna region as an important cluster of the garment industry.

*Training.* It is important to mention that in the institutional support of the region, local delegations of national institutions have also played an important role to make firms to achieve high production levels. These institutions have been important in two ways, financing local firms and providing training for workers in the region. Local government in the region has paid important attention to the training of labour force, through collaboration with national institutions. As it is identified in the fieldwork, local government has been important to fulfil the training of the local labour force that it is not carried out by any other agent in the agglomeration. Thus, the state governments offer training grants in the Durango employment training programme; while in Coahuila state, non-qualified workers are paid for one to three month of training (Gob. of Durango, 1999:176; Gob. of Coahuila, 1999:38).

In addition to these state programmes, the programme of industrial training of the labour force (CIMO) is the main programme in which firms are involved. This programme supported by the Labour ministry, is organised by the local representative of the ministry, the

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<sup>29</sup> 39 per cent of production remains for the domestic market (Expansión, 2000).

local organisation (Chambers) and consultants that directly deal with firms. In this programme technical and financial assistance is provided for training and productivity programmes, with the idea of increasing the productivity of firms as well as employment. In this programme the collaboration of the local Chamber of the garment industry is relevant not only to spread the programme but also the experiences of firms in other firms with similar characteristics, which allow the propagation of effects.

*Export incentives.* The local agency of Secofi (Ministry of trade and industrial promotion) is in charge of promoting the federal incentives for export firms such as Drawback<sup>30</sup>, Altex<sup>31</sup>, Pitex<sup>32</sup>, and Maquila programmes. The geographical concentration of firms, the collaborating with the local Chamber of the garment industry and the location of these agencies within the industrial parks allows more firms to acknowledge the benefits of promoting programmes: according to the registry of the local agencies of Secofi, most firms registered in maquila programmes are also registered in Pitex and Altex programmes (Secofi, Directorios, 2000). In this sense, the national incentives have also supported these firms in upgrading their firms along the productive chain.

Bancomext, also supports the activity of export firms through financing and promoting the sector. The promoting of the sector helps firms to access international markets. Through the *Programa Nacional de Eventos Internacionales*, this institution encourages firms to present at international business shows. To encourage participation in other markets, Bancomext organises trade missions to other countries. Meanwhile at the regional level, Bancomext also

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<sup>30</sup> The devolution of import taxes to exports (Drawback). The value of taxes paid for all inputs imported (raw materials, parts and components, packages, oils and all materials incorporated to the exported product) is returned to the exporter.

<sup>31</sup> Highly-export firms (Altex). Fiscal and administrative facilities to exporters of Mexican products.

<sup>32</sup> The programme of temporal importation to produce export products (Pitex). Temporal imports used in the production of export products do not pay the general import tax, value added tax and compensatory quotas.

collaborates with the local Chamber of the garment industry and with the states and local governments to promote the local trade show.

Institutional linkages seem to be relevant in the performance of agglomerated firms, intense cooperation and support of different levels of government have also been relevant in the last decade. In fact, many interviewed entrepreneurs commented that institutional support has also been important to upgrade firms in the region because they consider that the capacity of the learning process is not relevant by itself given that the most important factor in the first instance is the financial capacity to carry out full package activities.

Local/regional institutions have assisted agglomerated firm in passing knowledge and innovation passing information, where the role of the local chamber of the apparel industry and the local government institutions have relevant to the sector. In the following table, a summary of institutional benefits are summarised.

| <b>Table 8. What types of benefits from institutions?</b>   |                           |                           |                             |                 |                             |                              |                                      |
|---|---------------------------|---------------------------|-----------------------------|-----------------|-----------------------------|------------------------------|--------------------------------------|
| <i>As % of firms having linkages with every institution</i> |                           |                           |                             |                 |                             |                              |                                      |
|   | <b>Process Innovation</b> | <b>Product Innovation</b> | <b>Financial Assistance</b> | <b>Training</b> | <b>Marketing Assistance</b> | <b>Managerial Assistance</b> | <b>Information on suppliers, etc</b> |
| Business Chambers   | 33.3                      | 38.5                      | 7.7                         | 73.1            | 23.1                        | 19.2                         | 53.8                                 |
| Universities  | 58.3                      | 8.3                       | 0.0                         | 50              | 0.0                         | 33.3                         | 25.0                                 |
| Technical Colleges  | 42.9                      | 0.0                       | 0.0                         | 42.9            | 0.0                         | 0.0                          | 14.3                                 |
| Government  | 31.8                      | 13.6                      | 36.4                        | 54.3            | 4.5                         | 22.7                         | 27.3                                 |
| Source: Author's Fieldwork                                  |                           |                           |                             |                 |                             |                              |                                      |

### *Preliminary conclusions*

In a global world, there is a trend for countries to specialise in some activities along the value chain within the manufacturing industry. Since industry is geographically concentrated in some sites, and given the specialisation of agglomeration along the value chain, new forms of agglomerations have appeared in new industrialised countries. In the case of Mexico, agglomerations oriented to the export market, specialised along the global production chain, have been able to upgrade the value retained in the region. Despite the fact that industrial organisation is different from that suggested by the *flexible industrial agglomeration theory*, it has been suggested that external economies can accrue from the intense linkages in which firms are embedded. In this sense, linkages appear as another source to increase the competitiveness of agglomerated firms. Thus, local capacity building seems to still be relevant for increasing regional competitiveness and regional development. Further statistical analysis could be used to assess the relevance of local networks, and the role of the market in increasing competitiveness in a region.

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