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Escuela de Graduados en  
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**THE EMERGENCE OF NEW SUCCESSFUL EXPORT ACTIVITIES  
IN MEXICO**

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Dr. Edgar Aragón  
Mtra. Marcia Campos  
Dra. Anne Fouquet

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# THE EMERGENCE OF NEW SUCCESSFUL EXPORT ACTIVITIES IN MEXICO

## I. The Avocado Case<sup>1</sup>

### 1) *Introduction*

The presence of avocado in the world market has been growing steadily in the past two decades, and it is no longer considered an exotic fruit but part of the everyday diet of many countries. This trend has been reinforced by the increasing popularity of natural products. Avocado, sold mainly as a fresh fruit, is the main ingredient of guacamole paste used in salads and snack dips. Consumption of avocados is recommended to assist in lowering cholesterol, and avocado processed oil is now being used in the pharmaceutical and cosmetic industries. Worldwide, Mexico is the largest grower, consumer, and more recently also the largest exporter of avocados. Mexican exports increased from less than a million dollars in 1985, to \$34.5 million in 1995, and up to \$407.6 million in 2005 (World Trade Atlas, 2006).<sup>2</sup>

This study shows how avocados emerged as a new successful export activity in Mexico in two ways: by specifying how Mexican companies, local associations and governments dealt with market failures (externalities, coordination failures and the existence of public goods; and by comparing it to a counterfactual case. The study first explains the logistics of initial avocado exports, identifying the main problems and uncertainties confronting the first exporters, or *first movers*. Second, the study analyzes the solutions provided by the *first movers* that might have provoked positive externalities (promotion of country brand-name, identification of transport requirement and so on), facilitating the entrance or newcomers or *imitators*. Special attention has been given to the diffusion of export know-how to *imitators*. Third, it points out the roles of local associations and governments in dealing with both the existence of public goods (setting up a plague-free region), and with coordination failures, such as the compliance of certification procedures in production and export stages.

Lastly, to emphasize the lessons provided by successful export activities of avocados, the avocado experience is compared to a counterfactual case. As several of the avocado producers and exporters had already tried unsuccessfully to export mangoes, this product was selected as the opposing scenario. Field work took place mainly in the avocado producing state of Michoacan, in central Mexico, between August 2006 and January 2007. Nineteen open-ended interviews were conducted with local producers, exporters, heads of NGOs, government officials and one industry consultant.

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<sup>1</sup> Research assistants, Judith Garza, Mario Rivas and Karina Ramírez, contributed to this document.

## 2) *Avocados and the State of Michoacán: a fresh marriage*

The Avocado. It is a fruit that belongs to the family of Lauraceas and the species *Persea gratissima* or *Persea Americana* Mill. The oldest evidence of avocado (*Persea americana*) in Mexico was found in a cave located in Coxcatlán, Puebla, Mexico that dated from 10.000 B.C. During colonial times, the Spaniards introduced the avocado to the rest of America and to European countries (APROAM, 2005). From 1950 to 1970 avocado producers in Mexico began planting diverse avocado varieties, such as Fuerte, Bacon, Rincon, Criollo and Zutano.<sup>3</sup> Perhaps the most important feature of the plant is that the fruit does not mature on the tree. Avocados will be ready to be consumed one or two weeks after being cut, and they can remain unspoiled on the tree anywhere from 4-6 months. The tree acts as a natural warehouse (Paz, interview, 11/27/06).

The State of Michoacán offers some comparative advantages for the cultivation of avocados, such as climate and soil features that allow the trees to produce all year long. A belt across the state possesses the bioclimatic requirements needed for the raising of avocados. Michoacán's avocado belt (86,000 hectares) is located on a volcanic area, 1,600 m. above sea level, across 20 municipalities (SAGARPA, 2005), the largest one being Uruapan, Michoacán. This belt contains volcanic soil, which is deep, clay-like earth rich in organic substances, and most importantly rich in iron, aluminum and potassium. The belt also has the correct level of humidity and an adequate climate for harvesting avocados. Avocado production requires a great deal of water. In Michoacán, where only about half the orchards have irrigation systems, abundant rainfall gives Mexican producers an advantage in lower water costs than other countries. In the areas visited, the orchards required relatively little maintenance, the fruit withstood neglect, and the trees continued to produce.

Michoacán avocado producers benefited early on from genetically *improved* varieties, which are rich in taste and resistant to plagues and extreme weather. In the mid 1950's, a small group of entrepreneurs established the first nurseries of improved avocado varieties, including Fuerte, in the town of Uruapan. During this time, Mr. Hass developed a stronger avocado variety from Guatemalan trees, whose fruits lasted longer and were more resistant to plagues (Vega Esquivel, interview, 12/05/06). Hass and Fuerte plants then were taken to California, where their cold weather resistance increased. In 1957, the Uruapan nursery owners introduced these improved varieties to the region of Michoacán and they continue to be improved. For example, Leopoldo Vega, an Uruapan grower, imported 5,000 plants from California and created 25,000 more plants (Vega Esquivel, interview, 12/05/06). Michoacán producers then had access to improved avocado varieties. Due to the positive reaction of the Hass variety to Michoacán weather, many

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<sup>3</sup> In fact, there are more than 500 varieties of avocados but just a few of them have commercial importance today. The variety "Hass" is the most known due to its trade qualities, its ripening point lasts more comparing with the other varieties. Avocado has a thick, rough and bright green peel, varying to dark green, almost black depending on its ripening point. Its pulp is pale green colored and creamy textured; according to the National Institute of Nutrition in Mexico this product is of high value nutrition, has significant quantities of vitamins like A, C, D, E, K, and part of B complex that turns it into a 100% nutritive fruit. Medical researches assert that the avocado potentially could low down the cholesterol due to the important amount of fat in its contain from a 20% to a 30% depending on its ripening degree, mainly due to the unsaturated kind of fats contained. Experts in nutrition and dieting assure that the consumption of the avocado prevents cardio and circulatory diseases due to the reduction of the excess of fat in the blood.

local producers began to move from Fuerte and native varieties to the improved Hass variety. Half a million plants were produced and sold in Mexico during this time (Vega Esquivel, interview, 12/05/06).

In 1963, the state of Michoacan set up commercial nurseries containing the Hass variety with a potential of production of 18,000 to 20,000 certified plants from Santa Paula, California. By 1965, the Michoacán State Forest Commission had begun to produce nurseries for fruit trees, including Hass avocado, offering free trees to peasant producers in rural communities throughout the regions of Michoacán. As a result, the Hass variety became a strong competitor against the Fuerte and Criollo varieties for the national market. From an economic point of view, the genetically improved variety resistant to plagues and extreme weather developed by Mr. Hass and improved by Californian and Uruapan producers created a public good, whose benefits spread over the state of Michoacan through the action of private and public institutions.

By the late 1960s, Mexican consumer preferences were shifting slowly toward Hass, providing the consumer demand that resulted in a dramatic expansion in Hass avocado orchards in Michoacan. The cultivation area increased from 3,700 ha in 1970 to 80,000 ha in 2003. Production increased from 40,000 tons to one million tons in the same period. With this planting increase, Mexico became the world's largest avocado grower and consumer.

The boom of the avocado was known regionally as the time of “green gold,” and had its first peak in the middle of the 1980's. This situation effected an important change: the producers with greater surfaces gradually replaced plantations of coffee, banana, lemon, mango and guava with avocados. At the beginning of the 1980s, new industries developed alongside the cultivation of avocado, such as professional pickers, packing houses of fresh avocados, manufacturing of avocado products such guacamole paste and avocado oil, and avocado exporters. Today, avocado constitutes 62% of the agricultural production in Michoacán. It generates 47,000 direct jobs, 70,000 seasonal jobs, and 187,000 indirect permanent jobs (APROAM, 2003).<sup>4</sup>

As a recap, Michoacan producers enjoyed the following set of preconditions that paved the way for the development of the industry: the proper climate and soil conditions for raising avocados, a genetically improved variety resistant to plagues and extreme weather and whose fruit can remain in the tree ready to be picked anywhere from four to six months, a large pool of producers who obtained access to said avocado variety through private and public efforts, and a large domestic market capable of absorbing all avocado production all year long.

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<sup>4</sup> Indirect jobs relate to packing, transport, sale and technical services.

**Figure 1: First Exports of Avacados**

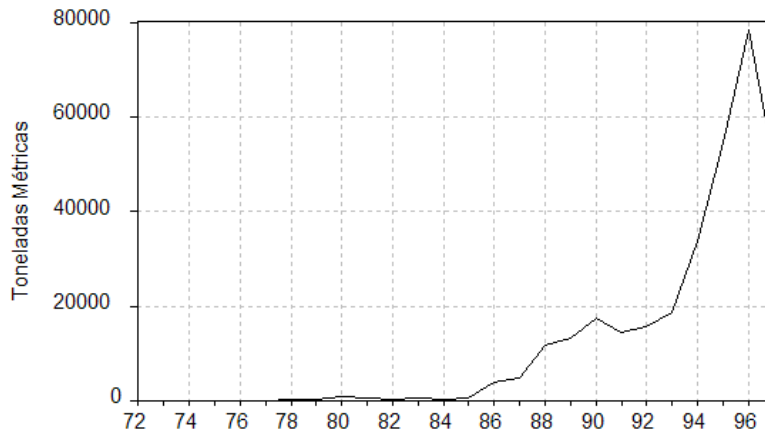


Figura 1. Exportaciones Totales de Aguacate de México, 1972-1997.

Sources: [http://www.avocadosource.com/WAC4/WAC4\\_p393.htm](http://www.avocadosource.com/WAC4/WAC4_p393.htm)

1999. Revista Chapingo Serie Horticultura 5: 393-400.

**LA COMPETITIVIDAD DE LAS EXPORTACIONES MEXICANAS DE AGUACATE: UN ANÁLISIS CUANTITATIVO**

José María Contreras-Castillo

División de Ciencias Económico-Administrativas, Universidad Autónoma Chapingo. Km. 38.5 Carretera México-Texcoco, CP 56 230, Chapingo, Estado de México. México. 5488; Correo-e: [contrera@taurus1.chapingo.mx](mailto:contrera@taurus1.chapingo.mx).

### 3) *The Global Market and the Production Chain*

World-wide avocado production in 2001 was valued at US\$ 2,650 million (FAOSTAT, 2001). Approximately 63% of this production is concentrated in six countries: Mexico, the United States, Colombia, Indonesia, Chile and the Dominican Republic (FAOSTAT, 2000). Peru and New Zealand have recently entered the market. Mexico is the main grower, with its share representing 35.3% of the total production in 2001, or 89.3 thousand tons. Mexico is followed by Chile with 56.2 thousand of tons, and South Africa, who produced 45.6 thousand tons in 2000 (FAOSTAT, 2000).

Mexico is also the main consumer of avocado in the world, with a consumption of around 817 thousand annual tons, followed by the U.S with 296 thousand annual tons. France and U.S are the main importers (10.5 thousand tons and 78 thousand tons, respectively). The Japanese market, however, is increasingly becoming significant (see Table 1). The normal transport of avocados is by sea, which allows low transportation cost and good quality.<sup>5</sup> In Mexico, there are 21,511 producers, 279 packing houses and traders for the domestic market, over 50 packing houses/exporter, and 14 industrialists that process the avocados into guacamole, pulp, halves, frozen products, refreshing drinks and non-refined oil.

<sup>5</sup> For the varieties Hass and Fuerte for example, sea transportation is recommended in refrigerated containers cooled at 5 to 6° C. with controlled atmosphere, with a transit time of 22-24 days. In regard to its cost, the air transportation of avocados is profitable only in exceptional cases, for example when demand is high in an under-supplied market (Agexpront, 2004).

**Table 1**  
**Avocado Production, Exports, Imports and Consumption per Country**  
**(2004; in thousand of tons)**

Country	Production	Exports	Imports	Consumption
Mexico	987.00	142.25	2.62	740.36
US	162.72	9.65	155.61	295.80
France	0.07	13.79	104.41	74.00
Japan	0	0	30.49	27.08
Chile	160.00	121.60	1.07	18.05
South Africa	56.16	30.70	1.15	24.33

*Source:* Own elaboration from FAOSTAT  
 FAOSTAT | © FAO Dirección de Estadística 2007 | 16 enero 2007

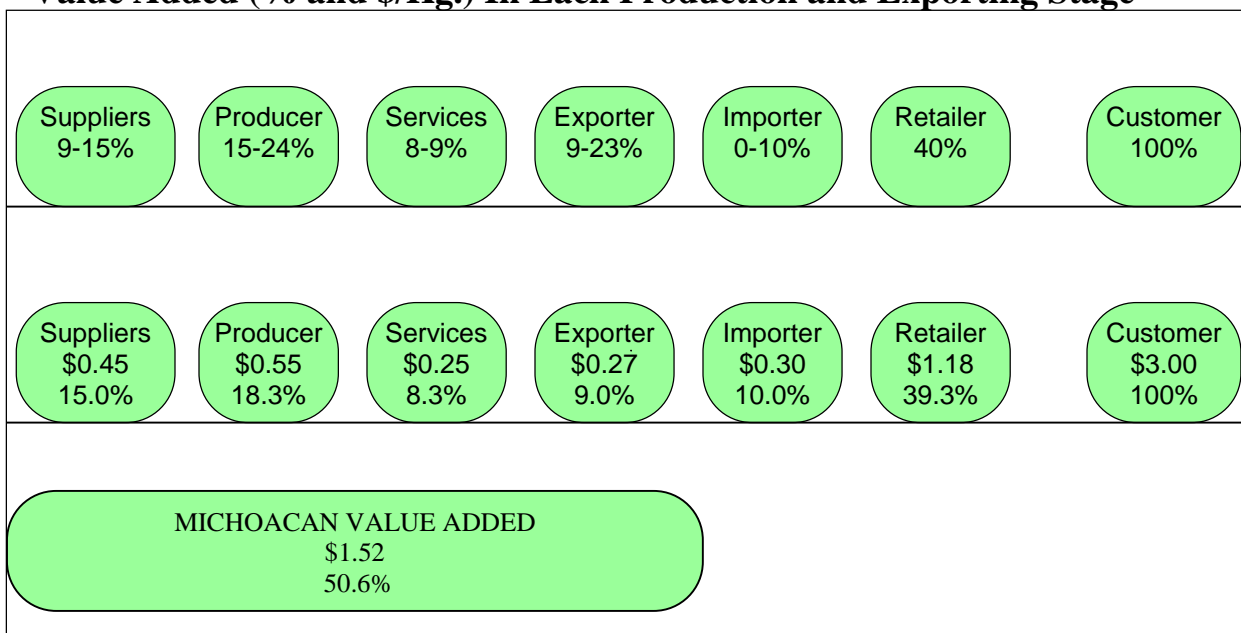
Figure 1 shows the traditional production and export chain from nursing and other production costs up through final sale to the customer. For example in the U.S.<sup>6</sup>, according to Figure 1, the final customer pays one dollar per avocado, or \$3.00 per kilo. Of this, \$1.18 goes to the retailer or supermarket (40%), \$0.30 (10%) for the importer, \$0.31 (10%) to the exporter or packing house, \$0.21 (7%) to services such as APEAM-USAD<sup>7</sup> certification and promotion fees, professional fruit harvesting services and transportation costs, \$0.55 (18%) for the producer and \$0.45 (15%) for other production costs such as nursing, irrigation, fertilizers and so on. In this traditional chain, Mexico's value added sums \$1.52/kg., or 50% of the final value.

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<sup>6</sup> United States of America.

<sup>7</sup> U.S. Department of Agriculture.

**Figure 2**  
**Value Added (% and \$/Kg.) In Each Production and Exporting Stage**



The grower seems to be well positioned in the chain. At the moment, the producer sets the minimum he is willing to receive per kilo, or \$1.00/kg., which includes *other production costs* varying anywhere from \$0.27 to \$0.45 per kilo. That is, the producer can potentially receive between 18 to 24% of the final value of the product. The producer, however, can be forced by the exporter or packing house to pay APEAM-USAD certification and promotion fees of \$0.11/kg. In this case, the producer revenue will vary from 15% (high production cost, full certification fee) to 24% (low production cost-no certification fee) of the final value (see Figure 1).

It appears the exporter or packing house depends heavily on his negotiating power over the producer and the importer. A weak exporter will receive about 10% of the final value (paying full certification fee and facing a strong importer), without taking into account the operation cost of the packing house itself. A stronger exporter with increased bargaining power might double his income up to 20% (facing no certification fee and a weaker importer). If the exporter is capable of selling directly to retailers, such as commercial houses in the U.S., his income might rise to 26%. According to these figures, four additional observations can be drawn from Figure 1:

- Growers appear to realize extra-ordinary profits, showing that the supply control they have been obtained through Juntas and Committees of Sanidad Vegetal has provided them some market power.
- Producers will be unable to become exporters themselves because their only option would be to then negotiate with the importer. Having spent most of their time in the field, it is unlikely that producers would be able to negotiate a good deal in the

international markets. Obtaining the minimum 10% generally paid to exporters may not be sufficient to pay for the operating cost of the packing house if the producer is not efficient industrialist. In addition, growers own small lots, they need to team together with other growers to conduct packing and to transport the fruit abroad (Paz, interview, 27/11/06). Furthermore, one particular grower only harvests certain sizes of fruit, at certain periods of the year, while the market needs constant supplies of all different sizes (Paz, interview, 27/11/06).

- The exporters with strong connections in the final market can avoid the importer and even negotiate a good deal with the retailer, which secures them at least 24% of the final value. Perhaps for this reason, 80% of exports to the U.S. is conducted by U.S. multinational corporations such as Calavo, Mission, Westpac, Freshfruit and Delmonte.
- Exporters need volume to survive; they seem to be squeezed between the powerful U.S. retailers and the organized local producers.

#### 4) *First Movers and Imitators*

##### *4.1 First Mover: Purepecha Group's early start*

The first avocado exports were conducted by Don Leopoldo Vega, owner of the Purepecha Group, in 1970. Don Leopoldo, born in 1935, came from a family of agricultural producer (wheat, corn, and beans) and cattle raisers. When he was a child, the family farm had several avocado trees that were used to provide shade to the coffee plants. When he was sixteen years old, Don Leopoldo began working for a firm in which his uncle was a partner, *Limonos de Michoacan*, farming melons, watermelons and cotton. In the early 1960s, he started the Purepecha Group, farming avocados with improved varieties (see section 2). He started his own avocado nursery and in 1962 and 1965, he planted Fuerte and Hass avocado varieties in his farm. Afterward, Don Leopoldo set up operation of the first mechanical packing equipment in the region, which was acquired from the agricultural state of Sinaloa. Before 1970, he sent the first avocado samples to Europe by plane, and in October of 1970, he sent two containers to Rotterdam by ship. (Vega, interview, 12/05/06)

Don Leopoldo made his initial export contacts through Instituto Mexicano de Comercio Exterior (IMCE<sup>8</sup>), the Mexican Export Promotion Bank now called Bancomext<sup>9</sup>. IMCE covered 50% of an exporter promotion expenses abroad. Technical assistance and production loans were granted at discounted rates by FIRA<sup>10</sup>, the Central Bank branch for agricultural support (see role of development banks in Section 6). The logistics of the Purepecha Group's first shipping were made by Mr. Adalberto Palma, assistant to Agustín Legorreta, the President of the largest Mexican bank Banamex<sup>11</sup> and a friend of Don Leopoldo. One container was sent from Veracruz port into the Gulf of Mexico and the other a week later from Houston, Texas, perhaps to diversify the risk. Both containers arrived at the same time in Rotterdam. Even though the client was located in Paris, Don

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<sup>8</sup> Mexican Institute of Foreign Trade.

<sup>9</sup> Banco Nacional de Comercio Exterior.

<sup>10</sup> Fideicomisos Integrados Relacionados con la Agricultura.

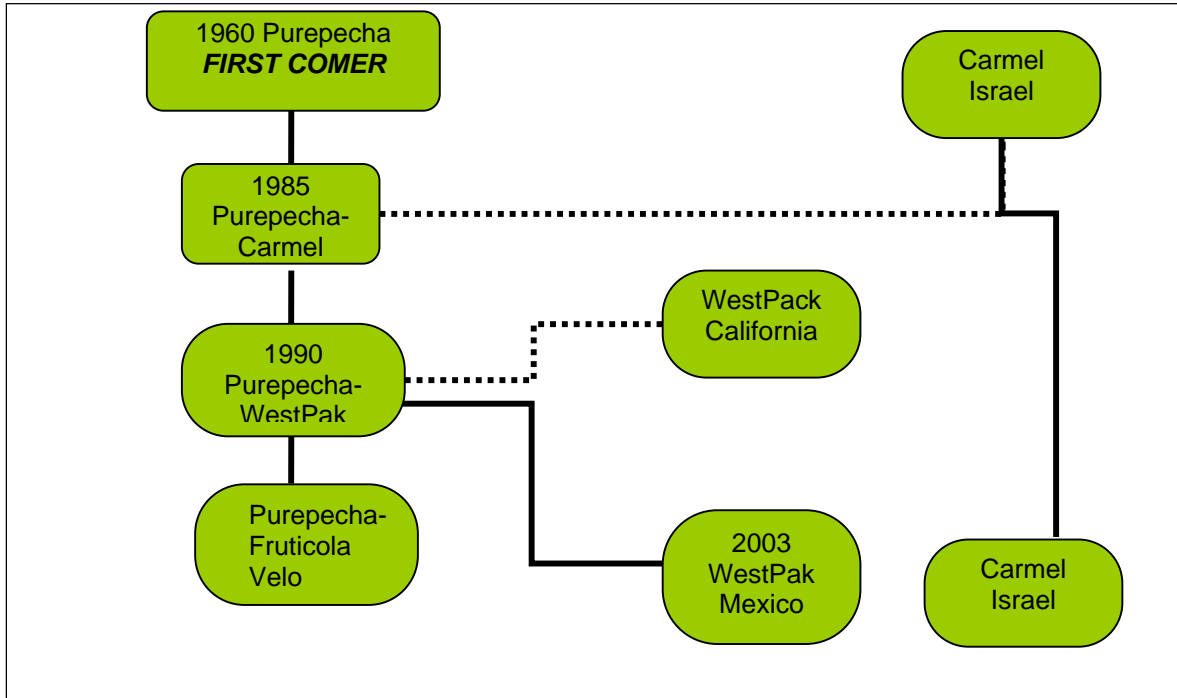
<sup>11</sup> National Bank of Mexico.

Leopoldo saw the opportunity to sell the fruit at auction in Rotterdam at \$2.00 per kilo higher than the price agreed with the client in France (Vega, interview, 12/05/06)

From 1971 until the peso devaluation in 1976, Don Leopoldo exported avocados to France. The 1976 devaluation, however, hindered avocado exports because the federal government kept a restrict control of peso-dollar exchanges. Don Leopoldo was required to sell the dollars obtained through exports to the Mexican government at a discounted price, only to re-purchase them at a higher price in order to make the payment to the shipment firm. Devaluation and currency controls stopped Don Leopold's exportation (Vega, interview, 12/05/06)

The real export incentive for Don Leopoldo came in 1985, when after a long period of failed export attempts of fresh flowers to the U.S., he received full support from the Israeli Agrexco Corporation to conduct avocado exports through out Europe. The contact came though an Israeli engineer who visited Mexico to obtain information and seeds of plants that could grow in dry and salty lands. He met with Mr. Sánchez Collín, former governor of the state of Mexico and founder of the research institute of the same name who in turn introduced him to Don Leopoldo (see development of avocado Hass variety in section 2). After helping the Israeli engineer, Don Leopoldo obtaining from marketing assistance and information about clients in Europe which help to increase its exports considerably. (Vega, interview, 12/05/06)

**Figure 3**  
**Purepecha's Export Associations (1970-2006)**



**Sources:** Author's Elaboration

The Purepecha Group never worked with partners and did not belong to business associations. They only embarked on agreements where “all parties had something to win, including the workers” (Vega, interview, 12/05/06). The Carmel-Purepecha agreement was probably successful because avocado production in Israel and Mexico is complementary. Israel avocado trees hit peak production from October to April, with Hass going from December to April and end right when Mexico’s production starts. In 1990, the Purepecha Group established another business agreement with a foreign corporation, *Westpak*, a Californian base firm, which bought avocados in Mexico to be sold in Europe and in Japan (Paz, interview, 09/05/06).

The main objective of the Purepecha Group was not to export, but to sell to the local market (Vega, interview, 12/05/2005). Due to the size of the Mexican market (see Table 1), the main goal of the Purepecha Group was to capture the Monterrey and Mexico City markets. Their first promotion campaign was carried out in the 1970’s through the then only commercial chain at the time, *Comercial Mexicana*; and was then followed by TV advertising on the popular Raúl Velazco Show on Channel 8 (Vega, interview, 12/05/06).

Don Leopoldo’s son, Ricardo, continues with the family business. He holds engineering and MBA degrees and he represents the second generation which is taking take over the

avocado businesses. With the Purepecha Group being both an exporting and a producing company, Ricardo defends the exporters' perspective, while his father does the same for the producer. For Ricardo, producers should focus on maximizing annual income per hectare and not maximizing price per kilo in each individual sell. He believes producers are not efficient because farms in Michoacan have yields of 9-10 ton/ha (the best farm in Uruapan reaches 25 ton/ha), while in other countries yields are 40 ton/ha. For him, Michoacan producers are even falling behind in quality.

Because producers in Michoacan are not competitive on price, yields or quality, Ricardo's explanation of the avocado success is based only on comparative advantages. In addition, he believes that these advantages will soon expire as new producers in Chile, south Africa, Peru, Australia and New Zealand take over the market. He even predicts that Mexican exports to the U.S. will only last at most eight years. That is perhaps why Ricardo decided to diversify into other products, such as papayas, star fruit and berries. These products, which are managed through Fruticola Velo, a subsidiary of the Purepecha Group, are easy to finance, provide short-term revenue and – together with avocados – provide clients with a package of products. Clients appreciate this service because they prefer to deal with a fewer number suppliers (Vega, interview, 08/23/06).

#### ***4.2. First Mover: Socopaum's trial and error strategy***

Founded in 1977 by a group of thirty producers, the cooperative Socopaum's main objective was to break the informal monopsony created by local buyers who had until that point artificially kept avocado prices down. After having succeeded in stabilizing prices up to 20-30% higher, Socopaum then received an unexpected visit from Agrexco, a public-private Israeli consortium that decided to supply its European clients with Mexican avocados. Israel had suffered from extreme heat that year and it had lost 80% of the avocado crop. Striving to maintain their client bases, Israeli firms such as Agrexco and Hillroom were looking for suppliers in Mexico. However, they were surprised to encounter the austere packing systems and plant facilities of avocado producers, who did not even possess cold rooms for the fruit. Hillroom made an unsuccessful export attempt and Agrexco cancelled the project, giving up the idea to transport Mexican avocados to Europe in Jumbo jets. (Ilsley, interview, 12/06/06)

Intrigued about the idea of exporting avocados to Europe, Socopaum members found a Spanish importer with clients in France, *Pascual Hermanos*. Originally from Valencia, the Pascual brothers had experience handling citrus, such as oranges and lemons, and they were willing to try something new. In November, 1980, Socopaum successfully exported two containers to Europe. Perhaps it was good luck, but with the cold weather, the high quality of the avocados and the right moment in the year, Socopaum sold the fruit at higher prices than expected (Ilsley, interview, 12/06/06). Socopaum members decided to begin exporting in part because of Europe's high demand, and in part because they were interested in diversifying their consumer base. A 1977 forecast study made by FIRA<sup>12</sup>, the Central Bank's agricultural arm, predicted a fall in domestic prices due to the

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<sup>12</sup> Fideicomisos Integrados Relacionados con la Agricultura.

increasing number of avocado farms in Mexico (Illsley, interview, 12/06/06). Both the optimistic news brought by the Israeli firms regarding Europe's avocado demand, and a pessimist study of the domestic market triggered Socopaum's exports.

Tempted by the early success, Socopaum members sent eighteen container (540 tons) to France between January and February of the following year. Unfortunately, the operation was a failure. Either *Pascual Hermanos*, who had limited experience handling avocados, tried to speculate with the fruit and lost it due to improper storage, there were already avocados from Israel and Spain in the market, or the fruit in the eighteen containers just did not arrive well (Illsley, interview, 12/06/06). According to Ramón Paz, an industry consultant and former exporter (Paz, interview, 09/05/06), early avocado exporters had three major difficulties when exporting to Europe. First, the fruit had to arrive fresh to the European consumer, after being shipped from the Mexican west coast, through the Panama Channel, and across the Atlantic Ocean, without using temperature-controlled facilities (the whole operation took 17-18 days versus 5-6 days when shipped from Israel). Second, some technical difficulties had not yet been resolved, such as the black spots that appear on the fruit due to cold weather during transportation. Lastly, new Mexican exporters had no experience negotiating fixed price contracts with European importers, who prefer to sell "on consignment" Adapting their strategy to the local market circumstances frequently resulted in large losses for the Mexican firms.<sup>13</sup>

After the failure, Socopaum decided to establish a committee to research the necessary elements to ensure they would be "well prepared" for exporting. The committee was formed by three of its most active members: Salvador García, Adolfo Barragán and Carlos Illsley (Illsley, interview, 12/06/06). Both Salvador and Adolfo's families were in the agro business. Salvador's family came from Zamora, Michoacan where they cultivated and exported strawberries. Salvador was part of the third generation of strawberry producers (Paz, interview, 09/05/06). Salvador had immigrated to Uruapan (a three hour drive from Zamora) to start an avocado farm. Adolfo's family was also from Michoacan. They cultivated melons in Apatzingan, Michoacán and pineapples in the state of Oaxaca (Paz, interview, 09/05/06).

Carlos' background, though, was a little different. Although he was born in Michoacan and attended school in Uruapan with sons and daughters of avocado producers, he spoke perfect English, had traveled extensively and retained a rich network of international contacts (Paz, interview, 09/05/06). Carlos' father, an American economist and WWII<sup>14</sup> veteran, was interested on the development of local firms in China and Mongolia. He retired in Mexico and acquired an avocado farm in 1964. Carlos' mother, an American free-will thinker of the 1960's, was interested on Mexican local customs and traditions. She and her husband set up a cooperative in Uruapan to run a 1880s textile plant, saving it from being demolished. In 1974, Carlos himself bought a commercial avocado farm and joined the group of producers.

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<sup>13</sup> In the European market, 85% of the fruit and vegetable commerce has been carried out "on consignment" European importers sold the merchandise under the shipper's account, and the producer's final payment reflected product quality and market conditions at time of the sell. The importer then deducted 8-10% commission, as well as transport costs, tariffs, customs inspection costs, taxes, and so on, liquidating a final amount to the sender (Paz, interview, Sep. 5, 2006).

<sup>14</sup> World War II.

While conducting the review of how to prepare Socopaum for exporting, Carlos met an Israeli engineer who came to town with a Colombian delegation working on Michoacan's fresh-flowers-for-export project. The engineer provided him with the business information of a firm that had set up several avocado packing houses plants back in Israel. Representatives of the Israeli firm visited Mexico, and after meeting with the committee, they struck a \$25,000 deal to acquire a business plan with plant specifications and machinery. When the plan was presented to Socopaum members, the businessmen believed the project was too costly and voted against the deal. At that point, Salvador, Adolfo and Carlos committed to conduct the task by themselves, and they promptly headed to Israel to research more about Israeli packing houses and their avocado export operations. (Iillsley, interview, 12/06/06)

What the three men learned in Israel ultimately shaped Michoacan's avocado industry. Among the major innovations observed were (Iillsley, interview, 12/06/06):

(a) Packing machinery that selected avocados per weight, with electronic scales, and classified each individual avocado according to weight ranks. Up to this time, Michoacan's packing houses had relied on experienced female workers who selected and classified the fruit not using scales, but their own hands to figure out the weight ranks (Paz, interview, 09/05/06).

(b) Pre-cooling and cooling systems to maintain the temperature of the fruit constant from immediately after packing, up to the moment it reached the client. Even though the trip from Israel to Europe by sea lasted at most six days, the cooling-systems could maintain the fruit's conditions much longer, ideal for trips across the Atlantic Ocean.

(c) Harvest systems for collecting the fruit on site. The procedure allowed the labor force to be concentrated in the harvesting process rather than in the handling of it. The fruit in Israel was collected in half-ton containers which were manipulated by lift trucks. The fruit was indeed preserved in better condition than with the 20-30 kg plastic boxes used at the time in Mexico. When the Mexican plastic boxes were stacked on top of one another, they crushed the fruit, and the 20-30 kg plastic boxes were easily stolen.

(d) Statistical analysis on the historical production of each avocado plot. Past records were kept for each farm along with the most recent production forecasts.

Salvador, Adolfo and Carlos covered the initial investment for the business plan to set up a packing house with modern machinery. Upon their return to Mexico, they decided to pursue the export project. The total necessary investment reached \$2.8 million, which required they establish a new firm and invite new investors. Unfortunately, the 1982 debt crisis and devaluation put a halt to the project. Four years later, Adolfo and Carlos founded their own separate firm, called *Agrifrut* (Salvador had already left the group, see next section) (Iillsley, interview, 12/06/06).

Adolfo and Carlos invited two new partners into the new enterprise: Jorge Fernández and Pascual Galley. Jorge's entrance was indirect. He was first hired to construct the packing house, and then Jorge himself became a partner when Adolfo failed to remunerate him for the construction and offered him his stocks instead. This carried several repercussions for the new firm because Jorge, a civil engineer and a construction contractor, lacked experience in the avocado industry. Other potential partners canceled their contribution when Jorge became a partner. Carlos introduced the project to Pascual, a Swiss engineer who was in the region because of the fresh flower-to-export project. Pascual liked the avocado business plan and joined the group, providing fresh capital and new marketing channels in Europe. In Switzerland, the Galley family had their own import-export enterprises. (Illsley, interview, 12/06/06)

In 1987, the firm *Agrifrut* began operations with the first exporter, Carlos Illsley, and the two newcomers, Jorge and Pascual. *Agrifrut* acquired the Israeli business strategy and equipment as planned. Pascual Gally opened an importing firm in Switzerland, *Sunfresh* to buy avocados from *Agrifrut* (Illsley, interview, 12/06/06). *Sunfresh* would then re-sell the fruit to other Gally family enterprises. For the partners, *Sunfresh* represented an additional cost because it only received the fruit, but *Sunfresh* was indeed selling 26 avocado containers (520 tons.) per week through out Europe (Illsley, interview, 12/06/06). When Carlos and Pascual left the firm, Jorge took over *Agrifrut*, and remains its CEO<sup>15</sup> up to the present time (Paz, interview, 09/05/06)

For *Agrifrut*, the avocado business learning curve was laborious (Fernández, interview, 08/25/06; Illsley, interview, 12/06/06). There were a number of unknown skills to be mastered:

- Master how to make the pallets of boxes
- Learn the cooling process
- Determine how to transport the fruit by sea for 18 days
- Deal with technical problems (black spots on the fruit, which was still not solved, although it is now preventable)
- Reach the distribution platforms of clients
- Learn about product presentation (4 kilo boxes, such as in South Africa)
- Deal with being a one product supplier versus selling several products
- Take the price of the fruit when containers reached Europe
- Work with the structure of the firm itself (partners with different backgrounds and interests)

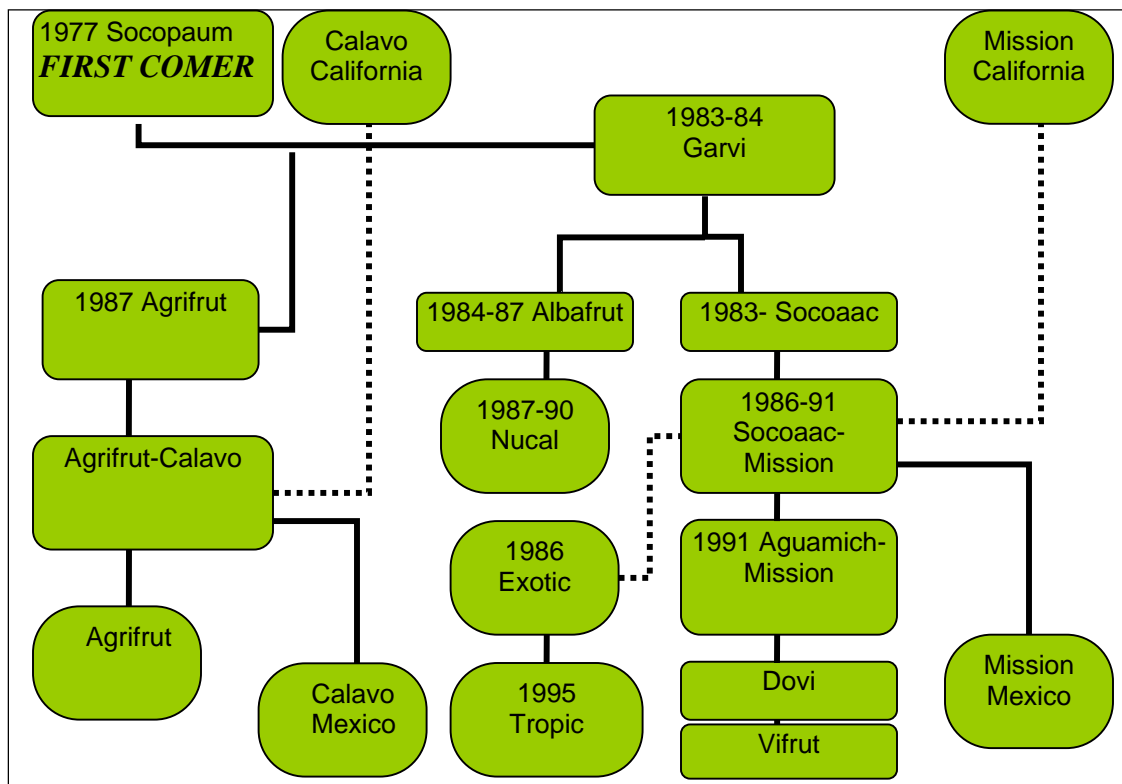
## 5) *Imitators go after the feast: Garvi, Socoaac, Aguamich, Dovi, Vifrut...*

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<sup>15</sup> Chief Executive Officer.

Right before the trip to Israel, Salvador García de Alba invited his friend Antonio Villaseñor to join to group. Antonio, who would become a large exporter himself, did not have experience in agro business; he ran a furniture store, but possessed good business sense. Even though Antonio did not attend the business mission to Israel, he covered his share of the cost in order to buy into the business (Villaseñor, interview, 12/05/06). Due to differing interests, Antonio and Salvador split from the rest of the group. Antonio and Salvador then founded *Garvi* firm and adopted the business plan to set up a packinghouse. (Villaseñor, interview, 12/05/06)

**Figure 4**  
**Socopaum and Its Followers (1997-2006)**



Sources: Author's Elaboration

*Garvi* was the first modern packing house set up in the state of Michoacan intended principally for exports (Fernandez, interview, 08/21/06).<sup>16</sup> *Garvi* owners, who even set up their own brand “*Garvi*”, exported the fruit to the *Socopaum* former client, *Pascual Hermanos* in France.<sup>17</sup> José María Pascual, came to Mexico and personally supervised the operations (Villaseñor, interview, 12/05/06). The firm, however, experienced some

<sup>16</sup> Another packing house, *La Tarazca*, started operating near Morelia, the state capital. It was even inaugurated by the then state governor, and former presidential candidate Cuauhtemoc Cárdenas . *La Tarazca*, however, did not export because the domestic market was rather strong, and all production was sold domestically before hand. (Antonio Villaseñor, interview, Dec. 5, 2006)

<sup>17</sup> Pascual Hermanos was later sold to Chiquita (Paz, interview, Sep. 5, 2006).

problems with the shipments. While some arrived well, others did not. The main technical problem seemed to be the previously mentioned black spots that appeared on the fruit when humidity and temperature changed (Paz, interview, 09/05/06). Other reasons might have included the lack of experience Pascual had in selling avocados “on consignment” (Villaseñor, interview, 12/05/06). The losses were too heavy to be handled by two people. As a result, *Garvi* closed down a year later, in 1984. Salvador kept title to the land and the building, and started a third firm named *Albafruit*. Antonio kept the machinery and joined the *Socooac* Cooperative (Antonio Villaseñor, interview, Dec. 5, 2006).

Salvador’s newest firm, *Albafruit*, came to a tragic end. After 3 years of operation, the firm was bought by Jewish Iraqis established in Switzerland. Mr. Sushnani, an Israeli technician, and Mr. Abraham Cohen, a retired general, ran the new firm, which they renamed *Nucal*<sup>18</sup>, or “New California.” In 1990, one member of the board, who was personally involved in the Iran-Contras scandal, died in a plane crash. This episode was known internationally as the “Guacamolegate.” The firm did not pay its debts and ultimately the plant was turned over to the workers and creditors, mainly avocado growers themselves. (Paz, interview, 09/05/06)

Antonio’s new venture ran with better luck. *Socooac*<sup>19</sup> (Sociedad Cooperativa de Agricultores de Aguacate del Cupatitzio) was formed by a group of twenty new producers in 1983. The following year, Antonio Villaseñor joined the group and sold them the machinery acquired in Israel. *Socooac* bought it through a credit from Bancomer, a commercial private bank. The same year *Socooac* became a SCL<sup>20</sup>, a private rural firm, and Antonio sold his furniture store to obtain *Socooac* stocks. Antonio became the firm’s general manager and by 1985, *Socooac* began to sell avocados in the domestic market. In 1986, *Socooac* received a visit from *Mission*, a California’s based Avocado Corporation that was interested in indirectly exporting Mexican avocados. *Socooac-Mission* exported avocados to Rotterdam to a new firm called *Exotic*, run by Francois Teisstre, a former fruit dealer in a French corporation with experience in handling avocados from Israel. *Socooac-Mission* shipments increased from 1-3 containers per week (20-60 tons.) to 3-6 containers per week (60-120 tons). Six months later, *Socooac-Mission* started exporting one container per week to Japan. (Villaseñor, interview, 12/05/06)

The relationship with *Mission* formalized and expanded *Socooac* knowledge in the packing and exporting processes. Even though Antonio felt that a significant amount had been learned from *Pascual Hermanos* (the Spanish importer that manage citrus), they learned the specifics of the business from *Mission* (see below). The diffusion of knowledge was carried out though *Mission*’s local manager, Ezequiel García, who was working full time in the operation section of *Socooac* packing house. When Ezequiel encountered doubts or questions on any specific issued, he would forward the question directly to *Mission*’s headquarters in California (Villaseñor, interview, 12/05/06). Thanks

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<sup>18</sup> New California.

<sup>19</sup> Sociedad Cooperativa de Agricultores de Aguacate del Cupatitzio

<sup>20</sup> Limited Liability Corporation.

to Ezequiel's follow-up, dramatic improvements were implemented in the Mexico *Mission* Plant. These included:

- Changing harvesting tools to improve quality
- Establishing uniform weight ranks for the avocados
- Using waxed boxes that repeal humidity
- Afixing plastic corners to secure the boxes in the pallets
- Utilizing precise wood platforms for pallet bases
- Storing fruit in cold rooms after packing it and not after harvesting it
- Maintaining cold rooms at specific temperature during cooling stages
- Negotiating fixed price contracts with importers

*Mission* also bought avocados from *San Lorenzo*, owned by Don Joaquín Barragán, a local grower that also became exporter (*Frutas del Sol* in Tinguindín). *Mission* also bought fruit from Don Joaquín's nephew, Mario Rivas (*Global Frut*). The fruit from these packing houses was then exported to Japan (Paz, interview, 09/05/06). Mario also sold fruit to *Fresh Directions*, another Californian based firm (Rivas, interview, 08/21/06). Today Mario is the largest exporter to Japan. According to Mario Rivas, he learned from *Mission* and *Fresh Directions* practically the same business specifics as those mentioned by Antonio, *Socoaac*'s general manager. The California-based corporations acted as disseminators of production and export knowledge.<sup>21</sup>

By 1991, after eight years in operation, *Socoaac* had proven to be a sustainable firm, and the partners decided to make it a fully private corporation, changing its name to *Aguamich*,<sup>22</sup> S.A. de C.V. (Villaseñor, interview, 12/05/06). With sales booming, the partners, mainly avocado producers, became more interested in becoming involved in management decisions. For example, they felt they should be included in setting the price at which *Aguamich* would buy the avocados from their own farms. Not being a producer himself, Antonio (now *Aguamich* general manager) did not understand why it would be necessary for *Aguamich* to pay a higher price when the same product could have been supplied by other producers in the region at a lower price. As a result, Antonio left the company in 1993, only to found another new one, *Fruticola Dovi*, S.A. de C.V.,<sup>23</sup> with the Doddoli family (Villaseñor, interview, 12/05/06). *Aguamich* had financial problems and workers kept the plant and uptoday it remains closed (Villaseñor Jr., interview, 12/05/06).

The Doddoli family owned sawmills and managed the harvesting services of pine tree plantations. They then became involved in the avocado industry through farms, packing houses, harvesting services and guacamole exports. In fact, two Doddoli brothers eventually became Antonio's brothers-in-law. Therefore, the new firm, *Dovi* (owned 75% by the Doddoli's and 25% by Antonio) was a family business. *Dovi* operated for 2 years

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<sup>21</sup> Like in the *Socoaac-Mission* experience, *AgriFrut* developed a relationship with *Calavo*, the largest avocado corporation in California. *AgriFrut-Calavo*.

<sup>22</sup> Aguacates Michoacanos.

<sup>23</sup> Company's name.

because tensions emerged among the producer family, who was interested on selling their fruit to *Dovi* at a high price, and the commercial interest of Antonio who wanted to buy the fruit from local producers at lower prices and better quality. (Villaseñor, interview, 12/05/06)

In 1995, Antonio left *Dovi* to start a new firm, *Vifrut*<sup>24</sup>, this time with his own sons and no producers. Antonio Villaseñor Jr. moved to Paris to run *Vifrut*'s marketing operations from there. That year, *Vifrut* was exporting 10 containers (200 tons.) per week to France, England, Sweden and Spain, and one to Canada (Villaseñor, interview, 12/05/06).<sup>25</sup> However, the market conditions for fruits in Europe quickly and radically changed. The Eurogap norm required that farms exporting products to Europe comply with a set of food security, innocuous, ecological and social security regulations (Villaseñor Jr., interview, 12/05/06). Some of these norms in fact depended on the will of the grower and not of the packing houses, or exporters. In addition to these tougher regulations, new comers entered the avocado market. Perú, Chile, Spain, Israel, South Africa, Kenya, Algeria and Turkey all became competitors for *Vifrut*. For these reasons, and because NAFTA<sup>26</sup> opened the U.S.<sup>27</sup> market to Mexican avocados in 1997, *Vifrut* decided to supplied the fruit exclusively to North American markets. Today, *Vifrut* exports 15-20 containers (300-400 tons.) per week to the U.S. (Villaseñor, interview, 12/05/06)

## 6) *Exporters conquered other Markets: Japan, US and Korea*

### **6.1. *Grabbing the Neighbor's Treasure: Japanese Highly Valued Market***

Introducing a new fruit to an Asian market, a rather difficult task, was originally conducted in 1980s by a group of Californian (U.S.) producers and packers organized through a Consortium called *Avocal* (Paz, interview, 09/05/06). They supplied Japan with Californian avocados from April to August and, several years later, with Mexican avocados during the off season, from August to March.

When California suffered from cold weather, its companies turned to Mexican packing houses who could provide fresh avocados throughout the year. That is, Mexican packing became a "maquila" industry, in which packing houses bought the fruit, and selected, harvested, packed, and shipped it through *Avocal* to customers of Mexican packers: Calavo, Mission, Index, and so on. The operation was carried out according to the technical and phytosanitary specifications provided by the buyer and the Japanese importer.<sup>28</sup> The Japanese consumer preferred Mexican avocados to California avocados. After this, all avocados shipped to Japan by Californian (and Mexican) producers came from Mexico. California producers faced no difficulty in selling their fruit in the protected and expanding U.S. domestic market. The avocados were exported by the Mexican subsidiaries of these California companies (Mission and Calavo), as well as by some newcomers supported by foreign investment (Fresh Directions). Fresh Directions

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<sup>24</sup> Company's name.

<sup>25</sup> In 2005, *Vifrut* even exported avocados to Chile (Villaseñor, interview, 12/05/06).

<sup>26</sup> North American Free Trade Agreement.

<sup>27</sup> United States of America.

<sup>28</sup> Regulations were not high because there are no avocado growers in Japan.

Mexicana was the first company to export Mexican avocados to Japan on a year-round basis, in the 1998-99 season.

One of these maquila packing houses, *Global Frut* who had previous experience exporting to Canada and France, obtained information from the Mexican shipping company TMM about a Japanese importer who was seeking Mexican suppliers of avocados. Rivas, the owner of Global Frut, the main exporter to Japan, found the Japanese market lucrative, and wanted to expand his operation beyond the constraints of the highly competitive domestic market. (Rivas, interview, Aug. 21, 2006). Having learned about “quality parameters and the ways to handle and pack the fruit” from its maquila operations for the Californian firms *Mission* and *Fresh Directions*, *Global Frut* started shipping avocados directly to Japan (Rivas, interview, 08/21/06). Soon after, Rivas established a commercial relationship with second Japanese importer whom he met at an Agricultural Trade Fair. Today, Rivas is the main avocado exporter to Japan (Rivas, interview, 08/21/06).<sup>29</sup>

From a logistical standpoint, exporting fresh avocados to Japan was not at all different from exporting them to Europe; the transit time to Japan from the West Mexican shore is shorter. The Japanese market has few importers who tend to be loyal to their suppliers and are dedicated to building long term relationships with both the supplier and wholesalers in Japan. In a way, exporting to Japan represents a more stable business compared to exporting to France, for example. The challenging aspect of engaging in business in Japan was understanding what Japanese buyers wanted; “understanding the way they think, they way they act, how they make decisions” (Rivas, interview, 08/21/06). Other difficulties included securing the selling price a week before harvesting the fruit. Since most packing houses do not grow the avocados they export (or if they do, the quantity represents less than 10% of their export operations), securing an export price before buying the product from local producers represents a risk which, in this case, *Global Frut* is taking.<sup>30</sup> Lastly, the Japanese consumer demands better presentation of the fruit. They accept no dark spots or any other alteration (Rivas, interview, 08/21/06). The followers incorporated these procedures within their own processes. The Japanese market quickly became the second most important for Mexico (2,270 tons in the 2003-04 season) (Salazar et. all, 2004).

## **6.2. Breaking the impossible: the U.S. market**

In Michoacán, the primary harvest season is October to February, although production is year-round. Therefore, there exists some complementarity between the Mexican and U.S. production cycles; the peak season in California and Florida is usually from March to August. However, Mexican avocado has traditionally faced great challenges in meeting USA standards of product quality and safety. In 1914, California avocado producers claimed that Mexican avocado were infested with different insects, particularly the avocado seed weevil, and the USA imposed the phytosanitary ban that prevented

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<sup>29</sup> Today Rivas exports 7-8 containers to Japan per week (Rivas, interview, 08/21/06). That is about 23,000 ton per year or about \$35-40 million worth annual exports.

<sup>30</sup> Nowadays, all exporters do the same, for all international markets (Paz, interview, 09/05/06)

Mexican avocado exports into the USA market for the next seventy years (APROAM, webpage). In the 1970s, continuing requests for import permits were submitted by Mexican producers. The detection of seed weevils during some of these surveys resulted in continuance of the prohibitory regulatory policy of the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APROAM, webpage).

According to the California Avocado Society (Bellamore, 2002), trade liberalization and the harmonization of sanitary and phytosanitary (SPS) measures have, over time, altered the backdrop against which governments examine animal and plant health issues as they relate to the movement of agricultural commodities across national boundaries. For most of the last century, the protection of plant health was maintained through a policy of pest exclusion. Beginning with trade liberalization in 1990, these rules have since changed.

Debate over the North American Free Trade Agreement (NAFTA) in the late 1980s and early 1990s placed trade between the U.S., Canada and Mexico at the top of the Mexican national agenda. While the primary goal was the phased removal of most tariffs by 2004, the legislation also provided the setting for the harmonization of sanitary and phytosanitary (SPS<sup>31</sup>) measures between trading partners (Bellamore,2002).

The California Avocado Society (Bellamore, 2002) also states that NAFTA confirmed the right of each country to establish the level of SPS protection that it considers appropriate, provided that SPS measures are applied only to the extent necessary to achieve the chosen level of protection, and that they are applied in such a way that do not constitute discriminatory restrictions on trade. The NAFTA members have also agreed to accept one another's SPS measures as equivalent, provided that the exporting country makes available scientific evidence that objectively demonstrates its measures achieve the importing country's appropriate level of protection.

In addition, with the implementation of NAFTA, the U.S. government came under increased pressure to facilitate the importation of agricultural commodities from Mexico and Canada. Maintaining an exclusionary policy had become untenable for the U.S. government. The consequences of maintaining the such a policy provoked claims from Mexico and Canada, that the U.S. was not complying with NAFTA provisions.(Bellamore, 2002).

USDA<sup>32</sup>'s Animal and Plant Health Inspection Service (APHIS) is the primary government branch charged with implementing the phytosanitary provisions of NAFTA and other trade agreements. In May 1992, APHIS rejected a draft work plan prepared by Mexico for the importation of Hass avocados into the U.S. (Bellamore, 2002).

During the period 1992-1993, Mexico sent three work plans requesting the importation of Mexican avocados into the U.S. In July 1993, one of their proposals was approved. The entrance of Mexican avocados into Alaska was authorized under specified conditions (APROAM, web page). During the next two years, Mexico conducted further research

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<sup>31</sup> Sanitary and phytosanitary.

<sup>32</sup> U.S. Department of Agriculture.

and pest surveys. In June of 1994, new data were submitted to U.S., this new work plan specifically requested that Mexico be allowed to ship to nineteen northeastern states from October through February. On July 3 of 1995, a proposal was published to allow the entrance of Hass avocado destined for certain U.S. states under additional phytosanitary requirements. The imports were restricted to the period of months between November and February (APROAM, web page).

Avocado producers in California and Florida opposed the entrance of the Mexican avocado, arguing that the import was an intolerable risk of pests to the domestic avocado industry. Other producers in U.S., demonstrated their concern when Mexico adopted similar restrictive regulations for products such as apples, peaches, wheat, and other agricultural products. It took an army of specialists (Mexican trade representatives, avocado association lobbyists hired by producers and packers) to overcome the U.S. avocado tariff barrier.

On July 15 of 1997, Mexico and the U.S. signed an agreement in which avocado exports from the Mexican state of Michoacan were allowed into nineteen U.S. states: Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, Maryland, West Virginia, Virginia, Ohio, Michigan, Wisconsin, Illinois, Indiana and Kentucky. Imports into the District of Columbia were also permitted. Only imports from certain producers were allowed into these states, and only from November to February, when the cold temperature was sufficiently low to eliminate any pest that may have survived the phytosanitary control treatments. Later, the number of states permitting Mexican avocado imports increased to thirty-two (APROAM, web page). The price of avocado in approved states diminished between 8 and 41 percent, in comparison with the rest of the states in which the decrease was between 1 to 3 percent (APROAM).<sup>33</sup> Exportations of Hass avocado to the USA increased from 6,031 tons in the 1997-1998 season to 42.607 tons in the 2003-04 season. The value of exports in 2003-04 was 93.7 million dollars (FASSTAT, 2005).

With the opening of the U.S. market to the Mexican avocado, California-based avocado corporations sent their own packing operations into Michoacan (some of these operations, such as *Mission*, were established well before the opening of the U.S. market; others, like Calavo and West Pak, already had Mexican subsidiaries, although they were not packers yet), importing Mexican avocados themselves into the U.S. using the distribution channels they already possessed in the U.S. Among the firms that set up locations in Mexico were *Calavo*, *Mission*, *Fresh Directions*, *Westpak* and *Del Monte*. The establishment of large American corporations in Michoacan had several impacts in the region (Morales, interview, 21/08/06). First, the new plants provided approximately 2,000 jobs in the region.<sup>34</sup> Second, they benefited local producers by paying for the crops with cash on the same day of the operation. In contrast, local packing houses which were

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<sup>33</sup> Before NAFTA, the general tariff applied to avocado was 13.2 cents by kilogram, then with the agreement the *Agricultura de la Ronda de Uruguay (AARU)*, tariffs were reduced to 11.22 cents by kilogram on a 6 years period that it would initiate in 1995; due to NAFTA this tariff was reduced for the Mexican avocado too, but to a period of 10 years (Orden, 1994). Mexico loaded a tariff of 20% to avocado imports. Under NAFTA, this tariff has been eliminated gradually in a period of 10 years. In the case of Canada, this country doesn't impose tariffs to avocado imports because it doesn't produce it at all (Orden, 1994).

<sup>34</sup> Many of the workers, though, come from Mexican owned packinghouses currently in operation or from the ones that went bankrupt (Paz, interview, 09/05/06).

paying with a lag of 7-14 days. Third, U.S. firms pressured local packing houses to improve their relationship with local producers to stabilize and secure supply of the fruit. Lastly, they also subcontracted local packing houses to conduct maquila operations for them when their own packing houses reached full capacity. (Morales, interview, 21/08/06)

How likely is it that other Mexican states be granted permission to export avocados into the U.S.? Producers would need to first comply with the norm NOM 066 FITO 2002, which is challenging if they do not cooperate among one another.<sup>35</sup> Other states do not pose a threat to Michoacan, which is by far the largest grower of avocados, with 84,000 ha. Michoacan is followed by Nayarit (2,400 ha.) and Morelos (2,300 ha.) (Torres, interview, 22/08/06). In addition, setting up export operations destined for the U.S. requires time. For example, it would take at least four years for a new grower who buys land and plants avocado plants, to export to the U.S. Trees do not provide fruit until their third or fourth year, and the certification process alone lasts over a year (Torres, interview, 22/08/06).

The process of approval to export avocados to the U.S. is the following. First, officials from Juntas Locales (a public-private local sanitary association, established according to the Mexican Phytosanitary law) inspects and approves the farm. Second, officials from USDA do the same. Third, to prevent the farm from obtaining and spreading diseases, producers are required to adhere to culturally foreign activities such as picking up the fruits that fall onto the ground, eliminating all the dry branches from the trees, and keeping the trees clean from any other plants that grow in the wild. When the fruit is ready, producers request harvesting approval from Juntas Locales and the USDA (the Juntas are not supposed to “approve” harvesting; they are responsible of issuing documents for transporting the fruit harvested from orchards previously approved; however, they use this mechanism to control the actual volumes of fruit harvested in the whole region) officials. (Torres, interview, 22/08/06) If the fruit goes to the United Kingdom, additional measures need to be taken, such as avoiding forbidden agrochemicals (e.g. Ethyl-parathion) and passing inspections on social and legal compliances (Torres, interview, 08/22/06; Paz, interview, 09/05/06)

## **7) *Spin-offs: Guacamole (avocado paste), Avocado Oils and the New Harvesting Industry***

### **7.1. *Guacamole (avocado paste)***

Guacamole exports from Mexico began in 1990s with the efforts of three multinational corporations, *Calavo*, *Avomex*, and *Simplot*, and one local grower, *Avomex* (Doddoli, interview, 08/22/06).

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<sup>35</sup> To eliminate a plague, growers need to set up a coordinated plan because if one plot is not treated, the plague will disseminate again. For one plot, it takes at least 3 years to be clean up, when there is no coordination among the owners of the plots next to it, it might never comply with the norm (Torres, interview, 08/22/06).

The original idea behind beginning guacamole production was to add value to the local agricultural products before exportation, taking advantage of the then low avocado prices. Because it is not necessary for avocados destined for guacamole to possess “market” presentation, or be a specific size, guacamole producers have access to avocados at lower prices than the packing business. Years earlier, the price for one kilogram of avocado was around U.S.\$ 0.10. By transforming the fresh fruit into guacamole paste (and sometimes also adding onions, peppers and tomatoes), it could be sold frozen at a considerably higher price. Unfortunately, recently avocado prices have increased to US\$1.40 per kg, while guacamole paste prices have remained steady in the U.S.. As a result, guacamole producers have found themselves facing low margins and large fixed costs (Doddoli, interview, 08/22/06). Producing guacamole was attractive when exports of avocado fruit were forbidden, and when prices were low.

## **7.2. Avocado Oils**

Regarding avocado oils, the Mexican manufacturers’ experience has encountered mixed results. One of the first movers to export fresh avocado, Mr. Joaquín Barragán (who was also involved in several other business areas) also began manufacturing avocado oil, although he had yet to secure a buyer. He probably saw potential to place avocado oil in the Cosmetics industry. As the containers of oil piled up, Mr. Barragán hired a French engineer, Mr. Charles Guillard (who was living in Mexico and who had recently made some shipments of fresh avocados to colleagues in France) to market the avocado oil in France (Guillard, interview, 08/23/06)

Mr. Guillard traveled to France but was unsuccessful marketing the product. Months later, a French pharmaceutical corporation contacted him to buy avocado oil, but requested that it be produced differently (pressed, as opposed to mashed through centrifugation). The production of such oil demanded the establishment of an entirely new plant. The French engineer obtained investment funds and initiated the project. After several misunderstandings, he established his own plant to manufacture this particular avocado oil for the French pharmaceutical corporation. (Guillard, interview, 08/23/06)

The French pharmaceutical corporation extracts a molecule from the pressed avocado oil that is then transformed into an active component of the medicine PIASCLEDINE, which is used to relieve arthritis pain. The corporation holds the patent of the extraction process as well as the patent to transform it into medicine (Guillard, interview, 08/23/06). The medicine is pending approval in the U.S. and Mexico. Large quantities of avocado oil will be required to produce sufficient PIASCLEDINE for the consumer market in the U.S. The French engineer, with the support of the corporation, has established a production plant four times larger than the original plant in anticipation of future demand.

Why did the corporation support the manufacturing of avocado oil in Mexico as opposed to any other country? Previously, the corporation depended on one single avocado oil grower, who is based in South Africa. By owning two locations dispersed geographically, the corporation reduces the risk of a breakdown, or of a supplier price increase. The producers are sufficiently distanced to prevent collusion, price setting and acquisition of monopoly power. Both understand that the corporation is also the monopsony buyer. In

sum, it is unlikely that another firm begins manufacturing this medicine in the near future. Therefore, it is unlikely that imitators set up additional plants of avocado oil for pharmaceutical use.

### ***7.3. Harvesting or Picking firms***

As a last spin-off on avocado-related exports, some service businesses have been developed in Mexico. For example, there are new companies that specialize in the harvesting of avocados according to size, color and maturity of the fruit. That is, the workers only pick the type of avocados demanded by specific clients (smaller for Texas, larger for Japan and so on). The rest are left on the tree to be picked in 2-3 months, when they are ready for exports to other markets or domestic consumption.

These harvesting companies hire their own workers, train them, and group them in “cuadrillas” (crews) which are sent to the plantations to pick the fruit one by one off the trees. They are considered spin-offs from packing house operations because the first harvesting companies were founded by former employees and family members of packing houses involved in exports. The first harvesting firm was set up by Mr. Antonio Villaseñor. After Mr. Villaseñor began his harvesting company, the majority of the other packing houses also decided to subcontract their harvesting operations (Paz, interview, 09/05/06).

According to the President of the Harvesting Firms Association (SUMA), the success of a harvesting firm depends on the firm’s knowledge of their clients, understanding of where each specific avocado farm (and plot) is located within the region, and to the expertise of their workers in selecting the fruits to harvest. The work, though, is quite dangerous. People die each year, due primarily to falls from trees, touching a high voltage electrical cable, or traffic accidents occurring while they ride in the back of the fruit collection trucks. The danger is perhaps one of the reasons packing houses, specially long-standing companies and transnational corporations, hire harvesting firms. They avoid assuming any kind of responsibility for accidents during this part of the production chain. Today, this industry employs over 5,000 people, who earn U.S.\$18-20 a day for six hours of work which is 3-4 times the minimum wage. (Doddoli, interview, 08/22/06)

### ***8) The Government gets its act together***

Government participation in the development of the avocado industry has taken place in five different areas: (a) production and distribution of avocado trees through CONAFRUT, the National Commission of Fruit Growing; (b) access to funds through the development banks FIRA<sup>36</sup> and BANCOMEXT<sup>37</sup>; (c) provision of a regulatory framework to control the use of pesticides and chemicals; (d) establishment of certification bodies such as the state committees and local Juntas de Sanidad Vegetal to

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<sup>36</sup> Fideicomisos Integrados Relacionados con la Agricultura.

<sup>37</sup> Banco Nacional de Comercio Exterior.

ensure compliance with standards; and (e) active support through the NAFTA<sup>38</sup> negotiations to open up the U.S. market.

Production and distribution of the new Hass variety of avocado was carried out by both a government agency, CONAFRUT, and by private entrepreneurs in the 1960s (see Section 2 above). CONAFRUT's director Dr. Sánchez-Colín, an agronomist and former governor of the state of Mexico, allocated resources to the improvement of plant varieties with potential for growth, which included avocados. CONAFRUT established its own commercial nurseries early in the 1960s with the support of the Sánchez-Colín Foundation, an agricultural research institute located in the state of Mexico. CONAFRUT and the foundation helped farmers obtain access to the Hass variety through the donations of Hass avocado trees. (Villaseñor, interview, 08/05/06)

Access to funds for both cultivation and international trade of avocados were provided by FIRA and BANCOMEXT (Paz, interview, 09/05/06; Vega, interview, 12/05/06). FIRA, a second-floor bank, is the branch of Mexico's Central Bank for agricultural development. FIRA provides both the collateral and the funds to first-floor banks who in turn lend the money to producers. FIRA then provides business and technical assistance to producers to secure maximum return on investment. BANCOMEXT, the import-export federal development bank, acted primarily in the promotion of Mexican products abroad in order to increase exports. This bank, which has office representations in Mexican embassies, seeks out potential clients abroad and assists Mexican exporters develop their commercial networks with these new contacts. Once the contract has been signed, BANCOMEXT, provides a loan to exporters for business operations. Both FIRA and BANCOMEXT lend money to producers and exporters at reduced interest rates.

In terms of regulatory framework, federal laws were to be administered under the Phytosanitary Law of Mexico, which also regulated production, pesticide use, and imports of agricultural chemicals. Specific articles within this legislation required producers to register their use of insecticides, herbicides and fertilizers with the Ministry of Agriculture (SAGARPA). The Phytosanitary Law established the legal and normative procedures for the standardization of avocado production in the industry. At the same time, the legislation provided some teeth for local and state authorities to enforce compliance of these standards through the issuance of mandatory certification permits for producers planning to sell their crops to local packing houses for export. Certification permits are currently issued only by the local Plant Health Boards and State Committees of Sanidad Vegetal, a public-private regulation agency set up under the supervision of the Agricultural Federal Ministry (Mejía, interview, 08/22/06).

A Junta de Sanidad Vegetal (or Plant Health Board) is a local body formed by both, producers and public agricultural officials. Decisions are made by consensus or majority vote. The boards are usually headed by a local grower, giving producers a real voice in the decision making process. State committees are formed by a representative from each local board and of public officials at the state level. The president of the Committee is designated by the members of the twenty-six local boards (Perfino, interview, 08/22/06).

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<sup>38</sup> North American Free Trade Agreement.

The president is generally one of the producers in the region with leadership skills. The committee's budgetary resources are tapped from the producers themselves (40%), the Federal Agricultural Secretariat (30%) and from the state government (30%) (Perfino, interview, 08/22/06).<sup>39</sup> Boards and committees look after the compliance of the phytosanitary standards. Their decisions and resolutions are official and binding. Thanks to the juntas and committees' efforts, a large production area in Michoacán is now free of pests, an essential requirement to qualify the avocados grown there for avocado export. (Perfino, interview, 08/22/06)<sup>40</sup>

While the phytosanitary regulations are overseen by the Agricultural Ministry, the Economics Ministry supervises the compliance of export Norm 016 for avocados. Norm 016 establishes the quality standards of the fruit, including color, size, texture and so on. Courses for certifying officials on Norm 016 have been given at a local university in Michoacan, during which, approximately one hundred officials were trained. In a political maneuver, the boards and committees of plant health hired these officials to provide Norm 016 certification to their farms. Currently, boards and committees manage both, phytosanitary and Norm 016 certifications. (Paz, interview, 11/27/06)

The elimination of pests in the avocado region of Michoacán was considered a striking success.<sup>41</sup> However, by regulating the weekly permits, which specify the name of the orchards and the quantity of tons that can be sold to packing houses for exports, juntas and committees, are in fact regulating supply. Packing companies, which are not represented in the plant health boards and committees, often complain that producers use these organizational bodies to reduce output and reach their target price-floor of \$1.00/kg. The producers, who do not feel pressured to sell the avocados quickly (because they can remain on the avocado tree for several months ready to be picked, without spoiling), are willing to wait to harvest until the price is right. Ultimately, both the producers and packing companies agreed that despite their differences, regulating supply was not detrimental because prices have remained stable in the U.S.

Boards and committees are not the only institutions charged with enforcing phytosanitary standards. As part of the NAFTA negotiation, the Mexican government allowed the U.S. Department of Agriculture (USDA) the establishment of an office in Michoacán to issue phytosanitary certifications to each container of avocados shipped to the U.S.<sup>42</sup> This office manages a network of thirty certification USDA officials; each one assigned to a packing house that exports fruit to the U.S.<sup>43</sup> Instead of dealing individually with each grower and exporter, the USDA demanded the creation of a local Mexican organization that would handle the relationship and cover USDA personnel and certification expenses. Local producers and packing companies founded the Association of Producers and Exporters of Avocado from Michoacan, AC (APEAM) as well as a collecting mechanism

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<sup>39</sup> Each Grower must pay for the cost of certification, which is currently around U.S.\$90 per hectare. (Mendoza, interview, 12/04/06).

<sup>40</sup> The total area of the twelve municipalities declared pest-free by SAGARPA-USDA is 34,754.51 hectares. (Comité Estatal, 2006).

<sup>41</sup> It would take at least two years for growers from another state, such as Jalisco or of the state of Mexico, to eradicate pests after they began to follow the advice of Michoacán growers and "do what they have to do." Otherwise, the pest problem in these states will never be abated (Mendoza, interview, 12/04/06).

<sup>42</sup> This was not a new practice for the USDA, which had been running the USDA program for mangos and citrus in Mexico since the 1980s (see Counterfactual section below) (Paz, interview, 11/27/06).

<sup>43</sup> USDA certification officials and board officials work side by side in the packing facilities (Paz, interview, 11/27/06).

to pay for the certification services (Scheidt, interview, 08/21/06). The role of APEAM and other local organizations will be reviewed next.

## 9) *Local Organizations*

The Michoacán avocado industry has gone through a series of organizational periods. The first associations were founded by private land owners who sought to defend their property against government land re-distribution programs. Subsequently, organizations themselves began to play a role in federal and state politics. The organizations then evolved to confront the needs of the market and foreign trade, where producers, pickers, transporters and packers needed to work together to eradicate pests and increase productivity. Specialized organizations were included to provide technical support. Lastly, in an effort to channel resources toward long-term projects, the federal government set up the *Sistema-Producto Comites (Production System Committees)*, an umbrella forum for supplier, grower and exporters' organizations to negotiate the direction of the industry.

Conflicts about the ownership of land arose in 1940s when a volcano eruption instigated migrations of native people out of certain areas. When they returned, they found their land occupied. Land ownership conflicts continued through the 1970s, especially during President Echeverría's land re-distribution programs. As a result, a set of organizations were created to defend property from expropriation, communal redistribution and *ejido* enlargements. In the 1970s, the majority of avocado orchards were privately owned. Therefore, most organizations created during that time in the avocado industry were producers' associations, such as small property owners associations and local grower associations. Beyond defending property rights, these organizations took it upon themselves to conduct common purchases and set minimum prices for the fruit. The 1936 law of agricultural associations (Ley de Asociaciones Agrícolas) provided the legal framework for organizations to operate, and belong to the social political branch (CNOP<sup>44</sup>) of the PRI, the party that governed Mexico for over seventy years. (Paz, interview, 11/27/06)

Local associations became a political target when former Michoacan PRI governor Cuauhtémoc Cárdenas Solórzano (1980-1986) became the presidential candidate of an opposition leftist party, PRD. As Michoacán was the home state to Cuauhtémoc as well as his father (former president General Lázaro Cárdenas, who was famous for his nationalization of oil industry), *Cardenismo* had deep roots in the area. Concerned that local organizations would support the *Cardenista* platform, Luis Martínez Villicaña, the then PRI state governor (1986-88) and former Land Reform Minister, updated the *Unión Agrícola Estatal* in 1987 (Paz, interview, 11/27/06). The role of the State Agricultural Union was to eradicate *Cardenismo* ideals in rural Michoacán. Advised by a former avocado grower and exporter, Ramón Paz, the president of the Union, Guido Doddoli, set up among other things three committees: the Technical Research Committee (*Comité Técnico de Investigación*), for conducting applied research; the Foreign Trade Committee

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<sup>44</sup> Confederación Nacional de Organizaciones Populares.

(*Comité de Comercio Exterior*), for dealing with foreign trade; and the Domestic Sales Committee (*Comité de Comercializadora Nacional*), for marketing avocados into the domestic market. (Paz, interview, 11/27/06)

While the original idea of controlling *Cardenismo* in Michoacán was not successful, the committees set the basis for the formation of independent associations more interested in the development of the avocado industry.<sup>45</sup> The Technical Research Committee established an independent body, or *patronato*, to channel state resources toward avocado research. It coordinated activities with the then national institutes for agricultural, forestry and stockbreeding (currently merged into the INIFAP<sup>46</sup>). INIFAP and *Fundación Sánchez-Colín*, which runs a bank of avocado gene plasma (see Section 4 above), are today's main avocado research institutes in Mexico. The Foreign Trade Committee set up the first export association, ASEEAM<sup>47</sup>, or *Asociación de Empresarios Exportadores de Aguacate de Michoacán* (see ASEEAM role below). Lastly, the Domestic Sales Committee tried to found a similar association to the ASEAM, but the large number of packing companies for the domestic market did not see the need for it. By the late 1980s and early 1990s, however, the increasing market power of domestic supermarket chains and falling avocado prices hit producers hard. As a result, an independent association of packers for the domestic market, titled UDECAM<sup>48</sup> (The Michoacan Avocado Packers' Union for its English translation), was indeed formed.<sup>49</sup> (Paz, interview, 11/27/06)

By the mid 1990s, the new PRI governor, Victor Manuel Ticono Rubi (1996-2002) again believed the political growth of the PRD, the left political national party formed by Cuauhtémoc Cárdenas and others, should be stunted. The new governor "modernized" the 1936 Federal Law of Agricultural Associations, drafting Michoacan's own legislation for agricultural associations. The new 1998 law forced rural firms in a municipality to join one association linked to a state-controlled umbrella organization.<sup>50</sup> The avocado industry in Michoacán, however, was already organised at the local level. In the municipality of Uruapan itself there were four avocado producers' associations. In addition, the 1984 federal law, Ley de Sanidad Vegetal (Phytosanitary Law), set up the local plant health boards and committees, where avocado producers, together with SAGARPA officials issued phytosanitary permits (see section 7 above). Consequently, the avocado associations registered at the federal level registered with the state-controlled organism with the same name and with the same members, such as in the case of AALPAUM<sup>51</sup>, the Local Association of Avocado Producers of Uruapan, Michoacan.<sup>52</sup> (Paz, interview, 11/27/06)

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<sup>45</sup> Even though Cuauhtémoc Cárdenas officially lost the 1988 presidential election against Carlos Salinas de Gortari, he obtained the majority of the votes in Michoacán. Luis Martínez Villlicaña was then forced to step down ([http://es.wikipedia.org/wiki/Luis\\_Mart%C3%ADnez\\_Villica%C3%B1a](http://es.wikipedia.org/wiki/Luis_Mart%C3%ADnez_Villica%C3%B1a))

<sup>46</sup> Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias.

<sup>47</sup> Business Association of Avocado Exporters of Michoacán.

<sup>48</sup> Michoacan Avocado Packers' Union for its English Translation.

<sup>49</sup> UDECAM, a sixteen year-old packer's union based in Uruapan, has a membership of sixty-one (out of 325) state packing companies. In addition to proving loans to its members, UDECAM is a forum for packers to exchange information on quality improving methods, prices, payment periods, types of packing materials, and so on (Morales, interview 08/21/06).

<sup>50</sup> The idea was to set up one association for each product in each municipality (Paz, interview, 11/27/06). Growers of agricultural products, such as avocado, mangos and potatoes established their own local associations (Mendoza, interview, 12/04/06).

<sup>51</sup> Local Association of Avocado Producers of Uruapan, Michoacan.

Again, the state attempt to control local associations proved unsuccessful, but set in motion the development of an independent avocado state organization.<sup>53</sup> In September 27, 2004, the local avocado associations, more concerned with the industry development with politics, founded their own independent state umbrella commission, COMA<sup>54</sup>, AC (Michoacan Avocado Commission). The idea was for associations to obtain their own resources, make their own decisions and select their own members. For example, COMA is now working on a state grower census that will be used to derive a yearly output and price forecast. In addition, it is working on setting up a collective brand and to looking to market the brand at the national level, together with other organisms, such as PRO-AGUACATE. Even plant health boards and committees joined COMA. (Mendoza, interview, 12/04/06)

When NAFTA negotiations commenced, a more sophisticated grower and exporter organization was needed. The old ASEEAM, the association of packing-exporting companies which originated from the Foreign Trade Committee of *Unión Agrícola Estatal* (the State Agriculture Union), was a good candidate. Since its formation in 1987, the ASEEAM had been working to reduce the cost of exporting by signing collective contracts with the shipping industry, negotiating discount prices with the carton providers, and obtaining preferential contracts for harvesting services (Paz, interview, 11/27/06). ASEEAM, however, also attempted to create barriers to entry to new avocado exporters (Paz, interview, 11/27/06). That is, the ASEEAM represented exporters' interests, while leaving producers out, a situation difficult to accept for both state and agricultural ministry officials. It was determined that an entirely new organization should be set up, in which exporters held 75% of the vote and producers 25%, to conduct NAFTA negotiations on behalf of the avocado industry. The new organization was named the *Avocado Commission* (Mendoza, interview, 12/04/06).

When NAFTA negotiations finished, and the USDA<sup>55</sup> demanded the formation of a local organization to deal with certification expenses (see Section 7), the *Avocado Commission* was now the favored candidate, but producers still held only 25% of the votes and they demanded an even 50-50 representation. When exporters denied their petition, producers left the Commission (Mendoza, interview, 12/04/06). Facing a 9:00 am deadline the next day by which the organization was to be established, producers and exporters finally agreed (at 3:00am!) to create a new organization, APEAM<sup>56</sup>, with a 50-50 vote representation for producers and exporters. APEAM was formed by two producers, Rito Mendoza and Gonzalo Moreno, and two exporters, Jorge Fernández Barragán (*Agrifruta*) and Ricardo Vega López, son of Don Leopoldo Vega (*Grupo Purépecha*). Most of the exporters who belonged to ASEEAM switched into to APEAM

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<sup>52</sup> AALPAUM, a forty year-old organization, was the second growers association to emerge in the state. One of the original objectives was to defend property rights during the time of uncertainty. Nowadays, the one-hundred member association provides technical assistance (plant nutrition and diseases) to their members and conducts common purchases of inputs. (Torres, interview, 08/22/06)

<sup>53</sup> Lázaro Cárdenas Batel, a PRD member, son of Cuauhtémoc Cárdenas and grandson of General Lázaro Cárdenas, won the 1992 state election. Lázaro Cárdenas Batel is the current governor of the state of Michoacán (2002-08). As for the local associations representing a diversity of products, only 5% of them remain active (Mendoza, interview, 12/04/06).

<sup>54</sup> Michoacan Avocado Commission.

<sup>55</sup> U.S. Department of Agriculture.

<sup>56</sup> Association of Producers and Exporters of Avocado from Michoacan.

(Paz, interview, 11/27/06). Exporters, though, were able to impose an entrance fee for new exporters (\$160,000) as an entrance contribution for what the organization had already accomplished (Paz, interview, 11/27/06).

As mentioned in the previous section, APEAM's main goal was to deal with USDA on behalf of avocado producers and exporters, and to set up a collecting mechanism to pay for USDA permits (see Section 5). To pay for USDA certification documents, packing companies in Michoacán must provide APEAM \$0.06 per each kilo exported to the U.S. Beyond covering USDA's operating costs, APEAM provides the funding to promote consumption of Mexican avocados in the USA (TV campaigns, trade fairs, tasting events, and so on). APEAM then collects an extra \$0.05 per kilo exported from their packing house members for promotion purposes. (That is, APEAM collects in total \$0.11 per kilo from packing houses to cover certification and promotion activities.) To date, APEAM has spent over U.S. \$7.5 million on promotion (Scheidt, interview, 08/21/06).<sup>57</sup> Due to significantly increased exports, APEAM now has a surplus of over \$10 million (Paz, interview, 09/05/06). APEAM members are debating how to utilize their excess funds, and are contemplating investment in R&D rather than short term spending (Paz, interview, 09/05/06).

The new Mexican federal agricultural policy includes the establishment of System-Product National Committees (*Comité Nacional Sistema-Producto*), or S-P Committees. These committees are a national forum to bring together representatives, or associates of the firms involved in the production and marketing processes of specific products. S-P National Committees are formed by committees at the state level.<sup>58</sup> Both committees at the national and state levels are headed by government and non-government officials. For example, the Avocado S-P National Committee brings together the avocado S-P State Committees from Michoacán, Nayarit, Puebla, Mexico and Nuevo León.<sup>59</sup> Michoacán's avocado S-P State Committee, CESIPRO<sup>60</sup> (*Comité Estatal del Sistema-Producto Aguacate*), brings together nurseries, producers, pickers, packers, transport companies, avocado-processing firms, business chambers and other service providers. Michoacán though, concentrates 90% of the avocado business, as mentioned before (Zamora, 12/04/06; Mendoza, interview, 12/04/06)

The main goal of S-P Committees is to map out the direction for the industry through a *Plan Rector* or Strategic Plan. There is one *Plan Rector* at state level and one at the federal level. The relevance of the plans is that any action must be already laid out in the plans if it is to be supported by the federal and state governments. This provides an incentive to all associations to meet and draw up their own short and long-term plans. The federal government grants up to U.S.\$45,450 annually over a period of three years to cover costs of drafting the plans. So far, the avocado S-P Committees have identified

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<sup>57</sup> In addition, the federal government matched APEAM funds for promotion through ASERCA (SAGARPA). To date, the federal government has contributed a total of U.S. \$4.0 million (Mendoza, interview, 12/04/06).

<sup>58</sup> In Michoacán there are S-P State Committees for products such as avocado, coconut, mango, guava, potato, strawberry, sorghum, wheat, and so on (Zamora, 12/04/06; Mendoza, interview, 12/04/06).

<sup>59</sup> Avocado growers even found a new association to represent them in S-P National Committees: CONAPA, or *Consejo Nacional de Productores de Aguacate* (the National Board of Avocado Growers) (Zamora, 12/04/06; Mendoza, interview, 12/04/06).

<sup>60</sup> Comité Estatal del Sistema-Producto Aguacate.

eighty projects.<sup>61</sup> The S-P Committee strategy does have some shortcomings. To begin with, the committees themselves do not hold legal status, and the decisions agreed upon are not enforceable (Zamora, 12/04/06; Mendoza, interview, 12/04/06). Second, not all industry-related associations take part in the committees. For example, the National Association of Wholesale Markets, the National Association of Supermarket and Department Stores (Walmart, Comercial Mexicana, HEB, and so on), and APEAM itself, that is the Association of Producers and Exporters of Avocado from Michoacan, are not members (Zamora, 12/04/06; Mendoza, interview, 12/04/06). Lastly, key avocado exporters do not always agree with the resolutions of S-P Committees, such as the construction of more packing houses (Ortiz, interview, 12/04/06), and at times simply do not comprehend the benefits of a S-P policy at all (Vega, interview, 08/23/06).

Lastly, associations of producers, packing houses and service providers have played a key role in the promotion, and dissemination of information about exporting activities and other production issues. Some of these associations are: PRO-AGUACATE, SUMA, or *Servicios Unidos en Materia Agrícola* (harvesting services); CESIPO (harvesting group); SOCOAAI<sup>62</sup>, *Sociedad cooperativa Agrícola de Cupatitzio*; AMIMEX, *Aguacateros de Michoacán, México*; CONASIPRO; and UEAP, AC, *Unión de Empacadores de Aguacate de Peribán*.

#### **10) Counterfactual: mangoes, too sweet, too cheap**

Most interviewers mentioned mangoes as the Counterfactual (again, wording) case of avocados. Many interviewees mentioned attempting and failing to export mangoes. (Paz, interview, 09/05/06; Villaseñor, interview, 08/23/06; Perfino, interview, 08/22/06; Ortiz, interview, 12/04/06). Even the current president of the State Board of Plant Health (Comité Estatal de Sanidad Vegetal), Mr. José Luis Gallardo is transforming his company Anguiano's mango plantations into avocado orchards (Perfino, interview, 08/22/06). But why is mango a Counterfactual? Why can't even the multinational corporations succeed in exporting this fruit? Compared to avocados, mango exports seem to have failed because of: (a) short-term life of the fruit; (b) dispersed mango producers; (c) lack of production controls; (d) heavy expense of infrastructure required for pest elimination; (e) grower-exporter contracts not enforceable; and (f) lack of industry organization.

Compared to the avocados, the short life of the fruit renders more difficult the jobs of producers and packing companies. While avocado trees can maintain fruit fresh up to six months once it is ready, mango trees hold the fruit for less than a week. Producers then have to be ready to sell the fruit to packing houses who in turn need to process it and sell

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<sup>61</sup> Among the projects identified in the plans are: construction of cold room facilities; updating technology in nurseries; building new packing facilities; learning about how to maximize fruit production (with the support of Michoacán State University and Chapingo University); use of different seeds, according to the climate and soil conditions; establishing integral pruning packages (smaller trees to reduce harvesting, watering, spraying expenses); trips to Peru to identify potential competitors; publishing current research before it becomes obsolete; developing a data base with types of climate and soil per orchard; creation of mathematical forecasting models; and further supporting Integradora (what are Integradora firms?) firms to confront multinational corporations (business vision; improve production techniques, create own brand, build packinghouses and export), among others (Zamora, 12/04/06; Mendoza, interview, 12/04/06).

<sup>62</sup> Sociedad Cooperativa Agrícola de Cupatitzio.

it rapidly in international markets. They must accept whatever the current price is (Paz, interview, 09/05/06, Ortiz, interview, 12/04/06). Prices can easily drop as whole mango regions come into full production. In addition, Mexico's mango market is small, unlike its market for avocados, which makes it difficult for producers and packers to recover lost revenues by releasing surplus quantities into the market.<sup>63</sup>

In contrast to avocados, there are several mango producing regions in Mexico. The main producers of mango are the states of Nayarit, Guerrero, Colima and Michoacan (Torres, interview, 08/22/06). The season starts in the southern states of Chiapas and Oaxaca and ends in Sinaloa in Central West Mexico. This means that packing houses in each region are only active two months per year, making investment in packing houses unprofitable, and pests hard to control. Some have attempted establishing their packing operations in a more central location, such as Guadalajara, with little success (Paz, interview, 09/05/06).

Avocado producers and exporters from Michoacan comply with norms, while mangoes which are produced in a diversity of regions lack operation and quality controls. While avocado production procedures have been standardized and pesticides and chemicals controlled; mango operations do not have standardized procedures that would secure the same quality levels throughout the harvesting months of each region and across plantations (Ortiz, interview, 12/04/06).

The most common mango disease that threatens exports is eliminated by treating the fruit with hot water, right at the packing house (Paz, interview, 11/21/06). This process damages the fruit and adds sufficient additional cost to the packing companies' bottom line that it renders mango processing unprofitable. The cost of pest control efforts for mango productions have been shared by producers (cleaning, pruning, spraying) and packing companies (harvesting, transporting, managing).

Multinational corporations, such as Calavo, have an annual business plan to follow, with specific export volumes to meet. Calavo found it difficult to comply with its mango export program because even though agreements had been reached with producers, they found producers would not honor the contracts (Ortiz, interview, 12/04/06). In other words, contracts are not enforceable. For example, close to the harvest day, the grower would receive offers from outside (American) firms that would pay slightly above what Calavo had agreed for the purchase price in their contract. When Calavo would arrive to pick up the fruit, it would be gone, "Contract agreements in the Mexican countryside do not mean much" (Ortiz, interview, 12/04/06). In the case of avocado, an outside firm can not simply come, buy the product and export it to the U.S. Only packing companies certified by both the plant health boards and committees and the USDA are able to export. Regarding other markets, it is unlikely to have French or Japanese buyers show up at avocado orchards to buy the fruit. However, avocado producers are free to sell the fruit to the domestic market when the price is right, where shortages can set the domestic price at higher levels than the international going rate.<sup>64</sup>

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<sup>63</sup> A possible solution would be to find a way to maintain mangoes fresh during the final export stages, before they reach the consumer; such as in the case of kiwis and apples, which once harvested can be stored for months (Paz, interview, Nov. 21, 2004).

<sup>64</sup> Avocados in Monterrey, Mexico were sold to the final consumer at \$4.00/kg, while the price in Japan was 3.00/kg during the same period. Monterrey even had to import avocados from California during the fall 2006. (Ricardo Vega, interview, Aug. 23, 2006)

Mango Producers are not organized as in the case of avocado producers. Producers do not even participate in EMEX<sup>65</sup>, the mango organization that covers the expenses of the USDA inspectors (the equivalent of APEAM in the avocado industry). That is, “mango packing houses look out only for their own individual interest” (Perfino, interview, 08/22/06). As seen in the avocado case, the organization of producers was essential, not only to eradicate pests and to isolate the production region against potential phytosanitary threats, but also to keep prices stable.

Lastly, it seems that some mango producers and packers are involved in money laundering (Paz, interview, 09/05/06), buying the fruit at high prices and selling it cheap, eroding margins and making the mango business unattractive for potential new investors. In the avocado export industry, most producers and exporters know each other and organizations such as APEAM are constantly monitoring the prices in the U.S. with representatives stationed there. If an exporter is selling at a lower price than the rest (dumping or money laundering), he will soon be detected.

## ***11) Conclusions and Policy Recommendation***

Michoacan soil, climate and rainfall provide the adequate conditions for avocado growing. Other Mexican states such as Puebla and Jalisco are also proper for growing avocados, but only Michoacan growers have been able to set up large scale export operations. Today, Michoacan exports 90% of all avocado exports from Mexico and Mexican exports represent 40% of the world exports, or approximately \$400 million per year. Local growers obtain two thirds of this sum and exporters and service providers (harvesting, sanitary fees and transportation) the rest. Importers and retailers abroad generate another \$400 million a year in their home country. That is, nearly 50% of the final value added of avocado remains in Michoacan. In addition, this export activity has promoted the development of other services such as harvesting and cold chain systems, and the development of other manufacturing activities such as guacamole (avocado paste), avocado oil and cosmetics.

The first formal avocado exports from Mexico took place in 1970, when Don Leopoldo Vega owner of *Purepecha Group* (first mover) sent 2 containers (about 40 ton) to Rotterdam. This operation had little diffusion due to Don Leopoldo’s policy of not having business partners. For this reason, we considered the next exports which took place ten years later also as first mover. They were the members of the Socopaum cooperative who started exporting to France in 1980. Their export motivation responded to: (a) a FIRA report that the local market would soon be saturated; (b) the 1983 fall of Israeli avocado production; (c) high prices in France and Rotterdam markets; and (d) because “it was fashionable.” Contacts with both an Israeli exporter and to an Israeli manufacturer of packing houses provided the means to learn about export markets and new technologies.

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<sup>65</sup> Mexican Association of mango exporters that organize USAD services.

Initially, dissemination of export know-how was conducted by Socopaum first movers themselves, by transnational corporations and lastly by the workers themselves. Because first movers needed partners to set up modern packing plants (nearly a \$2 million investment), growers got together and formed cooperatives or association, sometimes inviting other friends or relatives from the region.<sup>66</sup> When the first movers formed new firms, export know-how was disseminated to their new partners. Associations with foreign firms (Calavo, Mission, Fresh-Directions) brought the discipline of quality control and new harvesting and packing processes needed by local firms to go into large scale operations. Lastly, local workers, who move frequently from one company to another, have the operating knowledge of how to select avocados, how to operate and fix American and Israeli machinery, and how to find the orchard that had avocados with the features demanded by foreign clients.

We identified several market failures during the first exports and dissemination process. For example, several public goods were generated in the region such as avocado improved varieties resistant to cold weather; regions within Michoacan declared plague-free and export certified; and a pool of workers who move from company to company. Exporters enjoyed some positive externalities generated by government such the free distribution of avocados in the 1960s, creating with time a diversity of avocado growers (14,000 growers) enough to provide the product for the local and export markets; and promotion support through a federal matching fund of \$4 million and the direct involvement of BANCOMEXT, the foreign trade support bank. Assymmetric information generated between growers potential plans of expansion and private banks were solved through the branch of the Mexican central bank, FIRA, which provided with collateral to private banks, and technical assistance to growers. Lastly, coordination failures generated by the need to follow strict measures to prevent plagues dissemination in orchards and packing houses were dealt with through the formation of APEAM, and the work of the public-private run state and municipal Juntas and Committees of Sanidad Vegetal

A diversity of governmental agencies participated in the development of the avocado export industry. At the federal level, support was provided by federal banks and through the ministries of Agriculture and Economics, and through the recent System-Product Committees. Bancomext and FIRA, as mentioned above, provide loans to growers and exporters at discounted rates and provided both technical assistance and export information (market trends, fair space, meeting arrangements to potencial clients and so on). The Ministry of Agriculture foresees the compliance of phytosanitary standards through state and municipal Juntas and Committees of Sanidad Vegetal, a public-private organization. The Ministry of Economics took the lead regarding NAFTA negotiations on avocado exports and on establishment of quality norms, which compliance is obligatory for exporters. Lastly, the avocado System-Product Committee integrates the participants of the avocado production, marketing and export chain. The Committee identifies key projects for the industry, and whenever federal and state governments wish to provide their support, it must be to one of the projects already identified by the Coommittee as priority.

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<sup>66</sup> First movers also realized that sharing the risk of export failures, due to the perishable feature of the avocado, was necessary, especially during the early *trial and error* phase of long distance avocado transportation.

We found that government had performed properly in meeting avocado growers and exporters needs, except for two issues. First, the compliance of the norm is conducted also by the state and local Juntas and Committees of Sanidad Vegetal and not by independent consultants as it was originally intended. Having both, norm compliance and the phytosanitary control provide sufficient power to Juntas and Committees to regulate avocado supply. Second, the System-Product Committees do not seem to be working properly for two reasons. First, key members in the chain have not been integrated, such as the powerful avocado growers and exporters association itself, APEAM; the national association of warehouses; and the national association of retailers (Walmart, HEB, Soriana, Comercial Mexicana and so on). Second, the System-Product Committees do not have a legal structure; therefore, the commitments made by participants are not mandatory.

Local organizations played a key role in the shaping of the avocado industry. After a period of land ownership uncertainty and political cooptation, organizations focused on specific tasks such as plague elimination, compliance of fees charged by USDA, credit union, access to the U.S. market, and so on. Some organizations like Juntas and Committees of Sanidad Vegetal and the System Product Committees are run by public-private entities and have been dealt with above. The most relevant organization today is perhaps APEAM, the association of growers and exporters that work together with the USDA to secure the compliance of phytosanitary regulations. APEAM collects \$0.11 (recently reduced to \$0.07) per kilo exported to the U.S. to pay for the USDA inspectors and for promotion in the U.S. APEAM also charges \$160,000 to new exporters that want to have access to the U.S. market. It represents the cost to the first exporters to the US had to go through, otherwise known as “internalize the externalities.”

Regarding the counterfactual, the case of mango exports sheds some light on the factors that allow avocado exports to be successful. First, having a harvest season 4-6 months long provides avocado producers and packing companies with an advantage over other agricultural products: supply can be regulated throughout the year. Second, the standardization and regulation of avocado selection and classification has been key to provide the international market with a consistent product, even when the fruit comes from dozens of different producers during all twelve months of the year. Next, distributing the cost of pest control to producers and packing companies during year long operations has diffused the cost and allowed all production chains to continue to be profitable. Fourth, having a restricted number of buyers for exports allows the avocado industry to avoid the risk of confronting outside firms with short-term views. Finally, the industry participants are tight-knit in Michoacán, which has assisted in mitigating the entrance of money laundering operations in a state which, on a whole, is highly permeated by organized crime.

Avocado trends for Michoacan growers and exporters look good for the short term and uncertain for a longer term. In February 2007, Mexican exporters will be able to export avocados to all U.S. states, expecting a 20% increase in avocado exports. The medium and longer term seem more complex. On the one hand, market conditions in the avocado

industry are getting tougher. For example the Eurogap norm requires that orchards exporting to Europe comply with a set of food security, innocuous, ecological and social security regulations. Even though Juntas and Committees of Sanidad Vegetal look for some of these issues, not all Eurogap regulations have been covered by current procedures. After Europe, it is likely that other countries follow such as Japan, putting exporters in a difficult position because measures must be taken place by at the orchards, which implies the commitment from growers. On the other hand, new entrants such as Peru, with state-of-the-art technology and favorable soil and climate conditions will not only put pressure to Mexican growers and exporters in the international market, but for the domestic market aswell.

#### Policy recommendations to increase the pace of discovery

The avocado case shows that the way to let the public sector know about the market failures that slow the pace of discovery is to let the private sector direct public organizations. In the case of Michoacan, the Juntas and Committees of Sanidad Vegetal run partly by public official and by local growers were able to eliminate plagues and certify for exports some regions.

However, groups within the private sector must be equality represented. In the case of APEAM, the association of avocado growers and exporters to the U.S. market, both growers and exporters have 50% of the votes. In the case of the counterfactual, EMEX, the mango exporting organization that works with USDA, is formed only by exporters, leaving out growers, who in turn have been blamed of not honoring their contracts with exporters.

Lastly, the organization must have a legal structure. The System-Product Committee for avocados brings together the participants of the production, marketing and export chain of the avocado industry. However, even though the Committees are represented by “official” and “not official” members, the lack of a legal structure makes their agreements not enforceable.

## ***Bibliography***

### **1) Books and Articles**

Aguilar, Conrado. 2003. *Sistema Nacional de Innovación: una aproximación teórica para la agricultura: El caso del cultivo de aguacate*. Michoacán, Universidad Tecnológica de la Mixteca, Temas, may-august.

AGEXPRONT. 2004. *Estudio de oportunidad de negocios sobre el aguacate*. Guatemala: Depto. de Información de Mercados.

Asociación Agrícola Local de Productores de Aguacate de Uruapan Michoacán. Retrieved from <http://www.aproam.com/CULTIVO/produccion.htm>

Bellamore, Tom. 2002. "Mexican Avocados: History...The Full Story." *California Avocado Society Yearbook* 86: 51-57

Comité Estatal Sanidad Vegetal, Michoacán. *Informe Bianaual del Comité Estatal de Sanidad Vegetal de Michoacán* (March, 2004 to February, 2006). SAGARPA, Gobierno del Estado de Michoacán.

Food and Agriculture Organization of the United Nations (FAOSTAT), 2000-2004. Agriculture Statistics. Retrieved September, 2006 from <http://faostat.fao.org>

Morales J.L, Estrada L., Gutiérrez M. *El cultivo del aguacate en Michoacán, 25 años de investigación del M.C., Ramón Martínez Barrera*. México: Facultad de Agrobiología, Universidad Michoacana.

Orden, David. 1994. "The Results of the Uruguay Round of Multilateral Trade Negotiations: The Legal Texts, GATT Secretariat". *Mexico-U.S. Avocado Trade Expansion, World Trade Organization*. Geneva, Switzerland.

Téliz, Daniel. 2000. *El aguacate y su manejo integrado*. México: Ediciones Mundi-Prensa.

Salazar, Samuel; Zamora, Luis, Vega-López, Ricardo. 2004-05. "Update on the Avocado Industry of Michoacán, México". *California Avocado Society Yearbook* 87: 31-44.

Zamora, Magdaleno, Bontemps-Cajuste J., Colina-León, Santacruz. 1999. "Efecto de los daños mecánicos sobre el comportamiento postcosecha del fruto de aguacate". *Revista Chapingo Serie Horticultura* 5: 319-328.

## 2) Interviews

Doddoli Villaseñor, Humberto; Owner, Agribusiness Azteca (harvesting firm), and Presidente, Servicios Unidos en Materia Agrícola (SUMA), August 22, 2006, Uruapan, Michoacán

Doddoli, Guido; Owner, Avoking (Guacamole firm), August 22, 2006, Uruapan, Michoacán

Fernandez B. Jorge; Presidente, Asociación de Productores y Empacadores de Aguacate de Michoacán, A.C. (APEAM), and Owner, AgriFrut (packing house); August 21, 2006; Uruapan, Michoacán.

Guillard, Charles; Owner Oil Manufacturing Plant, August 23, 2006; Uruapan, Michoacán.

Morales Sierra, Jorge; Gerente; Unión de Empacadores de Michoacán (UDECAM); August 21, 2006; Uruapan, Michoacan.

Padilla, Andrei; Co-owner; Compra y Venta de Aguacate; August 22, 2006, Uruapan, Michoacan.

Paz Vega, Ramón; Managing Director, Coliman Group, International Business Unit; (Consulting firm) former grower, packer and ex-partner of Fresh Directions, September 5, 2006; Monterrey, Nuevo León.

\_\_\_\_\_ ; Managing Director, Coliman Group, International Business Unit; (Consulting firm) former grower, packer and ex-partner of Fresh Directions, November 21, 2006; Monterrey, Nuevo León.

\_\_\_\_\_ ; Managing Director, Coliman Group, International Business Unit; (Consulting firm) former grower, packer and ex-partner of Fresh Directions, November 27, 2006; Monterrey, Nuevo León.

Perfino Mejía, José G.; Gerente General, Comité Estatal de Sanidad Vegetal en Michoacán (public-private regulation agency); August 22, 2006; Uruapan, Michoacan

Rivas, Mario A; Owner, Global Fruit (packing house); August 21, 2006; Uruapan, Michoacan.

Scheidt, Marcos; Director General, Asociación de Productores y Empacadores de Aguacate de Michoacán, A.C. (APEAM); August 21, 2006; Uruapan, Michoacán.

Torres Corona, Salvador; Gerente Técnico, Asociación Agrícola Local de Productores de Aguacate de Uruapan, Michoacán (AALPAUM); August 22, 2006; Uruapan, Michoacan

Vega Esquivel, Leopoldo; Presidente, Grupo Purepecha Corporativo Hass Avocados (packing house and grower), December 5, 2006; Uruapan, Michoacán.

Vega López, Ricardo F; Gerente General, Frutícola Velo (packing house), August 23, 2006; Uruapan, Michoacán.

Villaseñor, Antonio; Owner, Aztecavo (packing house), August 23, 2006, Uruapan, Michoacán.

\_\_\_\_\_; Owner, Aztecavo (packing house), December 5, 2006, Uruapan, Michoacán.

Villaseñor Zurita, Antonio; Director de Comercialización, Aztecavo (packing house), August 23, 2006, Uruapan, Michoacán.

Zamora, Cecilio; Gerente y Facilitador, Comité Nacional Sistema-Producto, Dec. 4, 2006), Uruapan, Michoacán

## Acronyms

AALPAUM	Local Association of Avocado Producers of Uruapan, Michoacan
Agrexco	Israeli firm name
Aguamich	Aguacates Michoacanos
APEAM	Association of Producers and Exporters of Avocado from Michoacan
APHIS	Animal and Plant Health Inspection Service
ASEEAM	Business Association of Avocado exporters of Michoacán
Banamex	National Bank of Mexico
Bancomext	Banco Nacional de Comercio Exterior
CEO	Chief Executive Officer
CESIPRO	Comité Estatal del Sistema-Producto Aguacate
CNOP	Confederación Nacional de Organizaciones Populares
COMA	Michoacan Avocado Commission
CONAFRUT	National Commission of Fruit Growing
Dovi	Company's name
EMEX	Mexican Association of mango exporters that organize USAD services
FIRA	Fideicomisos Integrados Relacionados con la Agricultura.
IMCE	Mexican Institute of Foreign Trade
INIFAP	Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias
NAFTA	North American Free Trade Agreement
NGO	Non Government Organization
Nuca	New California
SAGARPA	Ministry of Agriculture
SCL	Limited Liability Corporation
Socoaac	Sociedad Cooperativa de Agricultores de Aguacate del Cupatitzio.
SOCOAAI	Sociedad Cooperativa Agrícola de Cupatitzio
Socopaum	Firm name
SPS	Sanitary and phytosanitary
SUMA	Harvesting Firms Association
UDECAM	Michoacan Avocado Packers' Union for its English Translation
UEAP	Unión de Empacadores de Aguacate de Peribán
U.S.	United States of America
USDA	U.S. Department of Agriculture
Vifrut	Company's name
WWII	World War II

## II. Medical Equipment: the case of catheters

The medical equipment (ME) is an industry that has had a boom in the last 5 years in the United States and other developed countries. The increase in sales is closely related to the discoveries and advances in medicine and health care services. Health care and related industries include health care services, pharmaceuticals, government hospitals, drugstores, medical equipment and supplies and health-insurance providers. Although biotechnology has played a main role in the life sciences field, other related products such as mechanical equipment have had an increase in demand in the last decade.

Other industries have reduced the employment demand in the US; whereas the health sector has grown in about 1.7 million jobs between 2000 and 2005. One interesting point about this growth is that medical equipment and supplies, as part of the health sector, added no jobs in this period. One possible reason for this is that big consortiums producing ME have moved out to other countries. According with PricewaterhouseCoopers-National Venture Capital Association MoneyTree Report (2005), the medical technology sector has positioned itself as a stable engine of innovation and economic growth. The successful commercialization of new medical devices has fostered new investment and also venture capital. From 2004 to mid 2006, 44 medical technology companies in the US completed initial offerings (IPO's). In addition, mergers and acquisitions have also been a usual activity in the sector; a main target of the larger medical technology companies are small companies located in US but also in countries like Mexico.

Besides the fact that the life span of a venture capital fund is 10 years, the investment seeks for regions that can create and sustain a healthy venture-investment environment. Some of the strongest regions in the US are Northern and Southern California, which possess some of the elements that help to create a critical mass to reduce investment risk:

- a) strong infrastructure including capital and professional services;
- b) entrepreneurial culture supported by local government;
- c) large established companies from which can recruit talent and expertise and;
- d) University communities that support research and provide the knowledge base for innovations.

Despite good prospective, the ME industry faces a number of challenges that affect companies inside and outside the US related to pricing, expanding global markets, industry consolidation and evolving regulatory requirements:

**Regulation.** American ME firms have to fulfill the Federal Drug Agency (FDA) regulations. Some of them are very complex and imply high costs, affecting smaller companies more.

**Reimbursement.** A bigger consumer of ME and medical services, such as a prestigious medical center, can affect the level of market prices according with the amount that they

are willing to pay. Therefore, when small companies launch a product, they have to look for the best channels of commercialization.

Consolidation. The tendencies in the last years, the merging of big companies, force the small ones to remain independent and as consequence need of financing and drive down overall returns.

### ***1) Medical Equipment exports in Mexico***

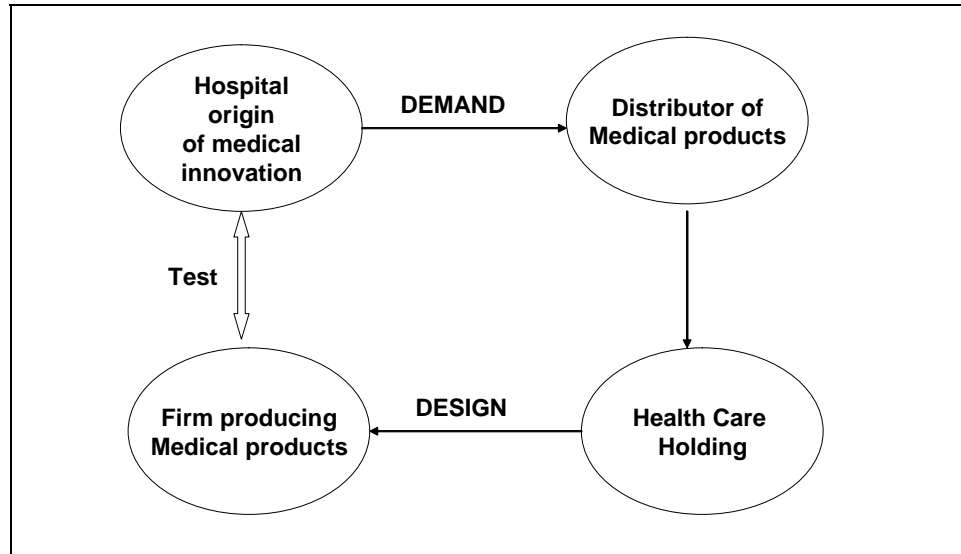
For classification purposes, the term “medical instruments”, or “medical devices”, has a broad definition. According to the Global Harmonization Task Force, “medical device” (9018) means any instrument, apparatus, implement, machine, appliance, implant, in vitro reagent or calibrator, software, material or other similar or related article, intended by the manufacturer to be used, alone or in combination, for human beings for one or more of the specific purposes of:

- diagnosis, prevention, monitoring, treatment or alleviation of disease;
- diagnosis, monitoring, treatment, alleviation of or compensation for an injury;
- investigation, replacement, modification, or support of the anatomy;
- physiological process;
- supporting or sustaining life;
- birth control;
- disinfection of medical devices; and
- providing information for medical purposes by means of in vitro examination of specimens derived from the human body and which does not achieve its primary intended action in or on the human body by pharmacological, immunological or metabolic means, but which may be assisted in its function by such means.

We can distinguish two types of medical equipment producers in Mexico: Those which produce short use devices such as disposable rubber gloves, and those which produce long use mechanical devices such as catheters in the heart valves. Most of the main firms produce several devices, at least 3 or 4 families of products which means that a firm must have a wide variety of production processes. In order to reduce costs, ME consortiums are organized in different divisions; according to the products such groups are distributed in different countries, being cost reduction the main criteria for allocation. The ME industry does not imply a direct contact with the final consumer, the demand for a specific product or device is generated in the medical procedure or treatment. The physician or the hospital department requests the product from a distributor of medical equipment who has the commercial relationship with the producer. The main producers of ME devices are well-organized big corporations with a long tradition in the industry. The headquarters send the specific requirements to the specific division to produce the supply. Sometimes, the device is a new product or implies a new design which develops a discovery. The corporations have R&D departments with high technology to supply this kind of demand. Once the design is developed the production process is implanted in the

factory to start the production. We can distinguish a three phases in the ME production as shown in Graph 1:

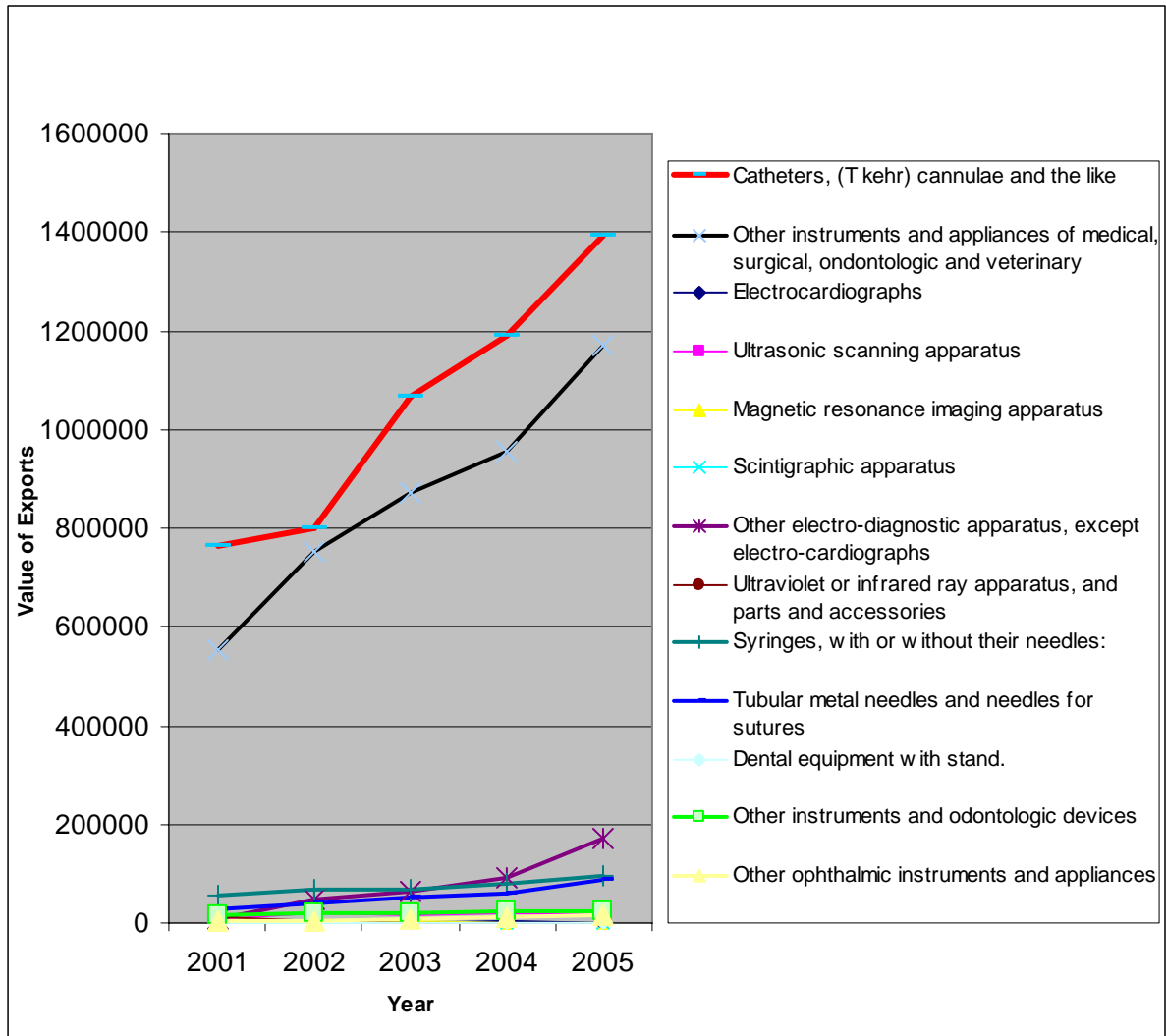
**Graf 1:  
Process in the ME Production**



*Source:* Author's elaboration

In Mexico, annual exports of Medical Instruments (9018) increased from US (million) \$394.4 in 1995 to US\$ 2,967.1 in 2005. Graph 2 shows the 6-digit medical products that had the larger increase in exports. These are 901839 catheter (sonda) T-kehr; 901890 other instruments and appliances of medical surgical, deontological and veterinary and; 901819 other electro-diagnostic apparatus, except electro-cardiographs. Catheter T-kehr had the larger export value with US (thousands) \$ 1,999,916 in 2004. At the 8-digit level, the products under 90183999 classifications represented the 57% of the total amount. The products in this classification are a wide diversity of catheters, from very standard devices, such as a simple plastic tube, to a very sophisticated catheter with laser ray included.

**Graph 2**  
**Annual Exports of Medical Products, 2001-2005 (US\$ Million)**



*Source:* Author's elaboration

## 2) *Antecedents of the Medical Equipment and Services in Mexico*

The production of medical products in Mexico existed well before the Spaniards arrival. Traditional medicine was a very common practice for the indigenous groups settled in the Mesoamerican region. This tradition continued during the Colonial Period and after the Independence in the XVIII Century. Around 1930 some companies from the United States producing medical products, mainly medicines, were established in Mexico as subsidizers of the US headquarters. One of them was Merck Sharp & Dohme which was, at the beginning of 1900, a small filial of a German producer of chemical substances. By 1932 the Mexico's firm worked as a distributor but by 1950, after important discoveries in this branch of medicine, the company started to produce hydrocortisone and dexametason, substances of more easy use in Mexico.

The medical product industry and medical services started to grow after the creation in 1943 of the “Instituto Mexicano del Seguro Social” (IMSS, Medical Insurance Institute of Mexico), a tripartite institution (government, entrepreneurs and workers) which provides medical services for everyone who has a formal job. The IMSS is one of the three health care systems existing in Mexico. A second one is the “Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado” (ISSSTE, Medical Insurance for Government Workers) which offers medical services such as work compensation for the Federal Government’s workers. The third system is run by the Health Secretariat, the Secretaria de Salud y Asistencia Publica SSA, which provides public health care services for people in the informal sector, the unemployed and the poor. In addition, there exists private medical providers that work with private health insurance; these services are usually very expensive.

All these health care systems have a whole infrastructure of hospitals, clinics and medical offices which require medical equipment such as hospital beds and other sophisticated devices. A study made in 1992 (Arredondo, *et al.*) about the medical equipment supply in Mexico showed that in spite of the requirements of the medical infrastructure of the IMSS and ISSSTE, only 3.8% of the companies in the sector were producers, 67.7% were distributors, 19.2% were producers-distributors and 7.2% provide prevention and repair services. Most of producers had a strong dependence of inputs from foreign companies, such dependence was an obstacle to growth and expansion as a national industrial sector.

### **3) *Key reasons to choose Mexico to produce or to manage medical equipment***

Different from other Latin American countries, Mexico has had a stable political and social environment in the last years. Even though in 1995 Mexico suffered one of the worst economic crises in XX Century, a big effort was made by the federal government to rescue the key economic activities.

Ever since opening to international trade in 1986, when Mexico crossed from a much protected economy to become one of the countries with more trade agreements, some critical phenomenon regarding international trade has characterized the Mexican economy.

In the economic aspects, the reduction of tariffs and restrictions brought benefits for those firms which where prepared to play in the international market; most of them being big consortiums with monopolistic characteristics. Big companies such as Telmex, the main and for a long time sole provider of telephone services in Mexico; and CEMEX, one of the two main providers of cement in Mexico, were firms that took advantage of the new interchange conditions setting in the international trade agreements.

On the other side, small and medium firms which were not prepared for the international competition had their market participation reduced or lost completely, some had to close and others survived but suffered serious financial problems. The increase in the demand

of urban services and products, consequence of the population concentration in urban areas and of some monetary strategies, required a supply that the Mexican firms were unable to provide. The main Mexican firms were concentrated in some specific products and the rest which accounted for more than 92% of the total firms were not organized and inefficient.

Under these conditions, the scenario was prepared to receive foreign firms to produce what the Mexican consumers required. With the incorporation of Mexico to the GATT, the federal government set a very aggressive policy to attract foreign investment. During the 1975-1985 decade, Mexico had been a very attractive country to invest given the oil discoveries on the Gulf of Mexico; however, restrictions to international trade still were effective. Once tariff and barriers started to be reduced, foreign investors considered Mexico as an attractive option. At the same time, indirect investment was accepted under very flexible conditions, short term capital arrived to Mexico, producing an increase in the demand and creating a false illusion of monetary power.

Around 1990, the foreign firms arriving increased, some to supply the deficit in the production of the Mexican producers, some looking for new markets. The Mexican government, at federal and state level, helped them build industrial parks and provided them with facilities and promotions such as temporary tax exemptions. The maquila regime that started decades before was the perfect framework for the establishment of foreign firms, mainly along the border between Mexico and the USA, most of them belonging to American consortiums.

Some of these foreign firms, besides the cost reductions by hiring cheap labor force, took advantage of the relative flexible regulation in the use of dangerous inputs or production process that caused environmental contamination.

Some of the first firms that were established in Mexico in the medical equipment sector used plastic or silicon as inputs, which at the time did not have the technological controls to reduce pollution at a low cost.

The first firms producing medical equipment were established in Baja California. This state is located in the extreme northwestern part of Mexico, sharing the border with the American state of California. The economies of the Mexican city of Tijuana and the American city of San Diego had been tied for centuries. Both share similar natural resources and an ancestral culture and traditions. In spite of the differences in language and level of development, both cities comprise an economic region and are complementary of each other.

For years Tijuana was the Mexican border city where more firms under the maquila regime existed. The fact of a good road infrastructure to communicate with San Diego, and therefore with Los Angeles, California, attracted many American corporations that wanted to take advantage of the tax exemptions and the cheap labor force. To enjoy Mexican privileges and at the same time to be close to their main distribution centers was an excellent opportunity that many firms took.

Around 1980 some firms producing medical equipment were established in Tijuana. Most of them were small factories using very simple production processes. The corporation headquarters were located in the American state of California, a few driving hours from the production plants. Supervision was an important factor in monitoring directly the whole process that some devices required. To be close was a key factor for the American managers that in this way kept quality under control.

As the maquila firms increased in number, Baja California state authorities started to provide legal and infrastructure conditions in order to attract more firms and to retain those that provided many jobs. A flow of immigrants started to move to Tijuana, some of this population took this city as a step to go into the USA, and the maquila companies provided them a short-term way to survive. Cheap and abundant labor force reinforced the attraction of Tijuana as a maquila city.

In the specific case of the catheters production we distinguish some of the most important firms according with their arrival date.

**Table 2**  
**Main Catheter Producers in Baja California:**

TIJUANA				
Firm	First year of operation	Investor country	Number of employees	Products
Dime-Pack S.de R.L de C.V. (ONIX IND)	2000	USA	228	Assemble and package of surgical products
Coastline de México, S.A. de C.V.	1993	USA	230	Medical products (staple guns for veins and arteries), electronics (coils and boards)
Block Medical de Mexico, S.A. de C.V.	1993	USA	250	Assemble and manufacture of portable plastic bombs for serum application, disposable antibiotics and accessories for plastic bombs
Del Mar Biotecnología S.A. de C.V. (Integra Biotechnical)	1997	USA	300	Assemble and package of medical products for hospitals and laboratories (catheter, and plastic pipette)
NPA de México, S.A. de C.V.	2001	USA	380	Assemble of medical products
Smiths Healthcare Manufacturing, S.A. de C.V.	1996	U.K	500	Manufacture of medical products
Medimexico S. de R.L. de C.V.	1993	USA	550	Disposable medical products
Ensatec S.A. de C.V. (Pall Medical)	1983	USA	600	Manufacture of medical filters
Sistemas Médicos	1997	USA	600	Medical assembly

Alaris, S.A. de C.V.				
Medtronic México, S. de R.L. de C.V.	1998	USA	1000	Manufacture and assemble of catheters for vascular uses
Pacific Device de México S.A. de C.V.	1993	USA	1500	Bags for surgical waste, white coats and catheters
Tayco Healthcare	1985	USA	1800	Surgical equipment
Nellcore Purittan Bennet México S.A. de C.V. (Tyco Nellcore Healthcare)	1996	USA	2232	Catheters, oxisensors, urinal bags, surgical products, scissors and syringes.

ENSENADA				
Firm	First year of operation	Investor country	Number of employees	Products
BMP de México, S.A. de C.V.	1998	USA	498	Assemble and manufacture of medical equipment
Industrias Hudson, S.A. de C.V.	1988	USA	1000	Electronic equipment, disposable medical equipment for respiratory therapy and masks

MEXICALI				
Firm	First year of operation	Investor country	Number of employees	Products
Martech MDI Wets Shelter	1991	USA	270	Assemble of medical products
Martech Medical Products	1992	USA	270	Medical products

TECATE				
Firm	First year of operation	Investor country	Number of employees	Products
Kenmex de México S.A. de C.V. (from Tyco Healthcare)	1995	USA	30	Manufacture of medical products
Industrias Hudson, S.A. de C.V.	2002	USA	270	End tracheal tubes and catheters

*Source:* Baja California Government State. Secretariat of Economic Development. 2005.

Some economic characteristics of Baja California (BC) have fostered the activities of the medical equipment cluster. Some of the most important are:

- a. The economic activity in Baja has increased in concentration. 50% of the Gross Added Value from the Economic Census 2003 has decreased from 39 economic sectors in 1998 to 27 in 2003.
- b. Of the total priority clusters of BC at least four coincide with those setting as priority for the city of San Diego.
- c. There are programs that seek to improve the higher educational level.

- d. A high percentage of the population is between 20 – 30 years of age, the most productive stage.
- e. The State government supports the legal structure to assure the urban development.
- f. BC has four local divisions (municipalities), each one has its own urban development plan.
- g. There exists a good diagnosis of the uses of land to regulate the installation of factories.

#### **4) *Characteristics of the first mover and some followers:***

##### **4.1. *The first mover: Nellcore Puritan Bennet Mexico***

The main producers of medical equipment are part of big corporations, with a long development as business. As seen in table 1, one of the first firms to arrive to Baja California was the Nellcore Puritan Bennet Mexico, a company whose headquarters are settled in Massachusetts. This company is part of the Tyco Int., Ltd. Corporation whose roots were the Kansas Gas Company established in 1913. This company later was named Puritan. In 1940 Puritan acquires Bennet to form Puritan Bennet Corporation.

In 1981 Nellcore started to produce the first pulse oximetry sensor. In 1995, Nellcore acquired Puritan Bennet Corp. Later Mallinckrodt purchased Nellcore Puritan Bennet which in 2000 was acquired by Tyco to become Nellcore Puritan Bennet Mexico. This corporation has several divisions; one of the most important being medical equipment. Tyco has about 240,000 employees around the world. In Mexico there are 57 firms belonging to this corporation, three of them in the health area, being the most important the Tijuana factory with 3,400 employees.

In 1984, Nellcore's corporative CEOs made the decision to establish a firm in Tijuana, Baja California to produce the silicon parts of pulse oximetry sensors. At that time the Mexican Federal Government gave a lot of support to attract foreign firms in order to generate jobs; most of the foreign firms were established along the border as part of a government policy to concentrate the maquilas out of the main industrial centers. One of the most successful sectors was the electronic industry, which produced TV cabinets and monitors. Through this industry an infrastructure of skilled labor force was created in Tijuana. In addition, facilities were developed fostering an environment to produce devices related with the electronic industry.

One of the main reasons for Nellcore to be in Mexico was the cost of labor force and also that the firm was under the maquila regime, in which it still remains. The advantages to be in this regime were: 1) tax exemptions to introduce inputs; 2) No quotas on imported inputs; 3) government support to rent land and to build industrial areas. Some preconditions were important in Nellcore's arrival to Tijuana, some of them are internal to the consortium: investors willing to put capital in this specific sector, at that time (70's) some important discoveries were made, such as the heart transplant creating big expectations in the sector. But other preconditions were in the countries where

subsidiaries were located; in the case of Mexico: the maquila system and the access to cheap inputs such as gas and plastic, besides the labor force.

During the first years in Tijuana, Nellcore had to face some uncertainties whose solution helped to strengthen the firm: a) unskilled labor force, the first firms in Mexico had to implement training programs or to look in other regions for better prepared workers; b) delays in the input supply, custom regulations caused delay in the crossing of inputs, this was in part solved by choosing Tijuana which is one of the main urban centers in the US border, and; c) quality of public services, some services had to be supplied by the firm itself as water supply, electricity, and public transportation were of poor quality.

The maquila system has been under strong criticism by Mexican politicians, the main reason being the low added value to Mexico that these industries have. As an example, Nellcore exercised the “Regla Octava” (the eighth rule) of the Mexican fiscal system. Under this rule a firm can import inputs not paying taxes, if they prove that such goods are not produced in Mexico, and this exemption can be renewed every six months. In this way Nellcore could import inputs from China without paying taxes. However, the presence of Nellcore had positive externalities for Tijuana and for the ME industry in Mexico:

1. To develop well trained intermediate employees. At Nellcore’s arrival in 1981, there was a good flow of workers from other Mexican regions looking for a job in Tijuana; however, they were unskilled and with low formal education. In the case of Nellcore they had to look for workers in the Southern state of Chiapas (in the very opposite geographical location from Baja). Being peasants, Nellcore offered them all the travel expenses and housing in Tijuana. These workers received training and started to work in very simple activities, and according with improvement in their skills they moved to more complex duties.
2. To build trust in the Mexican managers. At first all the decisions were made in the corporation’s headquarters, managers were Americans and monitored closely all the production steps made in Tijuana. It took about ten years to develop managerial skills in the Mexican administrative employees to allow them to take important decision in the administrative and production processes.
3. To start a cluster in the medical product sector in Baja California. By 2000 the Economic and Planning Department of the Baja California State decided to implement an economic plan where the entrepreneurial development was of high priority. Through different studies the main economic activities of the state were identified, a portfolio of key activities was designed with the consensus of authorities and businessmen. As a result, the Baja California Entrepreneurial Development Plan arose. In this Plan several economic clusters were selected, one of them was the medical equipment production. Table 1 shows the main catheter producers and number of employees in this cluster.
4. To use high technology in the production processes. If a new medical procedure or treatment requires a very sophisticated device, it pushes a technological change or innovation. Along with the increase in production volume and value of the Nellcore factory, the use of high technology in products like ventilators forced to develop local skills or to bring high trained professionals from other regions.

In 1984 Nellcore had a production plant of 12,000 square feet; by 2006 they are established in an area of 38,000 square feet. During the first years in Tijuana, and according with the demand of medical devices in the USA, the company produced different medical products such as catheters and syringes. Being a “maquiladora”, the headquarters made all the decisions about the production and administrative processes. Around 1995 they started to concentrate on blood pressure bombs but still producing other products including standardized catheters, those that require machinery with low technology.

The main products in Nellcore Tijuana are: 1) the oxygen sensors that still are the main product, with an annual production of 35 million units. Other important products are: 2) urinal disposable bags; 3) surgery kits, which is very specialized and it is produced depending on its use, as it can be used in heart, kidney or other kind of surgeries, and; 4) urology catheters, which have had an increase of 3% in demand during the last year.

Different from the first years, now all the administrative activities and control of the factory are done in Tijuana. Some changes are suggested by the headquarters but the design and implementation are made in Tijuana. They have a formal program to reduce costs and organize training courses for the workers in order to improve productivity.

Another important phenomenon has occurred. Now direct clients, for example a distributor of a medical product in the US or France asks the Tijuana factory to develop the whole process starting from the design to build the sample model. Once the model device is complete, the distributor takes the sample to test it in patients (in hospitals and clinics) and returns it to Tijuana for final adjustments. This process had attracted very specialized professionals from different parts of Mexico. New generations of well qualified young immigrants are arriving to the city, receiving higher salaries than in their home cities. A main concern is the procurement, as Nellcore has relations with about 800 providers, and only one is Mexican and provides a very low added value product: the tags for the bags.

Big changes came around 2002 when the demand of some special medical products started to increase. Changes in surgery procedures require some specific medical devices such as surgery kits which must include all the required instruments in the medical procedures. Also the demand for special instruments increased. As an example, heart surgery requires specific scalpel and valves that are now produced in Nellcore Tijuana. However, the firm had a slow response to the technological change regarding catheters; Nellcore continues producing the traditional ones, those which are made with very low technology. In addition, they have not moved to take the opportunity to offer a very important step in the ME production: the sterilization process. All the ME products require, according with the FDA rules, to be sterilized, and the lack of risk capital to build a provider in Tijuana forces all the ME firms to take the products to any sterilization firm located in the US.

## **4.2 Followers**

### ***a) Main follower: Medtronic***

The most important follower of Nellcore is Medtronic which was established in Tijuana in 1998. It is part of the international corporation with the same brand name, which has annual sales of 12 billion dollars and 35,000 employees around the world. By 1997, Medtronic had a factory producing catheters for aneurisms in San Diego; a federal law was approved in the US restricting the use of the patent of this type of catheters. The headquarters looked for a place where to avoid such restriction and to obtain low-cost labor force. The CEO in San Diego received the advice of some international consulting firms to choose Tijuana, and recommended hiring a Mexican manager for the new factory.

The manager chosen has played an important role of the firm's development in Mexico. He knew the market well because he had been a businessman in Mexico City. Some conditions were settled by this manager to work in the consortium, such as to have all the control in the administrative aspects. At first a shelter was hired to look for workers, but after a while this duty was under the manager's hands. It is important to say that most of the diffusion process was made under the shelter's actions. Even though many medical products are produced under patents, there are a lot of important administrative and distribution aspects that are key in the success of a firm. Shelters are firms that help solve all the bureaucratic steps to locate a firm in Tijuana, including the selection of the place to build the factory. The knowledge obtained by the shelters through consulting and assessment is an important base in the Baja California Medical cluster.

The factory started to produce catheters for aneurisms in January 1998, with 150 workers and with the ISO 9000 certificate. Around 2000 the heart devices division of Medtronic Corporation in the US was losing money because of obsolete technology. From 14 factories around the world 10 were closed and moved to Tijuana, being incorporated into the local factory. The strategy of Medtronic Tijuana differed from the headquarters, since the local manager had a more aggressive strategy, both in production and in distribution. Since the beginning the goal was to expand the products and not to concentrate in just a few. They provided products to other areas of the medical division, not only catheters for aneurisms. Now they produce the whole kit for heart surgery.

The factory started to produce in an industrial plant that was part of a Panasonic factory of TV monitors that went into bankruptcy. Now Medtronic has several plants in the same industrial area. The average number of workers is 1,500 and the annual sales are around 400,000,000 US.

Medtronic Tijuana is a high tech factory, with the most advanced technology in clean room (given that these devices are used in surgery, all have to be very aseptic). However when they require a very special technology the device is sent to Ireland where a maquila is done and the device sent again to Tijuana to complete the process.

Three are the most important problems: 1) procurement, all the inputs are imported, they have tried to develop providers in Mexico but the investment is high therefore so is the risk and; 2) workers rotation, even though Tijuana has a flow of immigrants, these workers just stay a few months and then move to another factory or to the US and, 3) lack of a sterilization plant where to take the final products.

#### ***b) Block Medical***

Block Medical is the case of a small factory also located in Tijuana. It is part of Inflow Corporation with headquarters in California. They produce different medical equipment products. Since the plant was established in 1985, they have specialized in local anesthetic kits and portable infusion bombs.

This factory fits more the model of a maquiladora. All the processes are made in the headquarters, including the design, the sample tests and distribution. Different from the above firms, Block Medical does not have direct relation with the client.

However, they also have experienced a big impulse in sales in the last two years. In 2003 their sales were 80 million dls and this year will be 120 million. This increment was mainly because of the increase in the demand of catheters. Even though the star product is the elastometric bomb, for which they have the patent, they are planning to expand in order to produce catheters.

Because it is a relatively small factory, Block Medical does not have problems to hire workers. They have around 300 workers which receive three times the minimum legal salary in Mexico.

#### ***c) Del Mar***

Del Mar is a factory that was established in Tijuana in 1997. This is a plant of a sole American owner, who travels two or three times per week from his hometown in California to Tijuana. They began with a small plant located in one of the oldest industrial parks in the city with 200 workers. The administrative issues are made locally but under the supervision of the owner.

Also they have experienced the increase in the demand of catheters whose production is about 150,000 units per month, even though they have about 400 varieties of disposable products, from syringes to scalpels. Given the increase in demand they rented more space to build two clean rooms, one to make tests and the other to produce the surgery kits, and now they hire 800 workers. This year they plan to have sales around 100 million dls.

### ***4.3. The Nuevo Laredo Cluster***

In the last 2 years a new cluster is developing in the city of Nuevo Laredo, which is located on the border with the Texan city of Laredo. Nuevo Laredo is one of the busiest crossings along the Mexico-US line because is the entry port to the US that is used by

many freight-line companies. The “carretera nacional” (the national highway 54) connects to the US 35, linking Mexico City and Monterrey to the border.

***a) Medline***

This company has its headquarters in Chicago, Ill; its Nuevo Laredo factory started in 1988 producing generic catheters and was located downtown (at that time Nuevo Laredo was still a small city). Three years ago, in 2003, they had to move to an industrial park a thirty-minute drive from Nuevo Laredo. They have 1,000 workers and three main products lines: stock, which they have for the market’s sudden changes; catalog purchases, and direct clients.

The main product of Medline is surgery kits, which includes everything required in the surgery room, from scalpels to baby cloths (in the case of a delivery). Regarding urinary catheters, until recently they had to buy them in the US and include them in the kit; now they produce part in Nuevo Laredo and the rest in the Chicago factory. An important aspect is that this company does not have direct contact with the clients.

Given that this plant faces strong pressure from the headquarters, they are very actively looking how to reduce costs. Recently they found a provider that prints the instructions brochure in Monterrey. In addition, the company receives local government support through training courses for the workers in order to improve productivity.

***b) Teleflex***

Teleflex Inc. is a big corporation with several divisions, one of them in the medical branch. The corporation established a subsidiary in Nuevo Laredo in 2004. It is located on 400,000 square feet in one of the new industrial parks along a main highway that connects the carretera nacional with the international bridge No. 2. Among others, one objective of the Medical Teleflex’s arrival to Nuevo Laredo was to look for an opportunity to enter with a very aggressive policy in the medical devices market and to take advantage of the market boom in urinary catheters.

Teleflex’s strategy is to consolidate several well-known medical brands in one consortium. In doing so, they bought 5 companies including their patents and brand names. The factory is located next to the automotive factory of Teleflex but they have a different management system. Regarding the catheters production, Teleflex Inc. did not have the molds to produce the catheter as this part of the production process is very expensive; so instead of buying new machinery and learning by themselves the process, the headquarters decided to buy the Hudson company located in Baja California, where it had two plants, a big one located in Ensenada and a small one in Tecate. In 4 weeks, the Teleflex people learnt the production process to produce standardized catheters from the Ensenada factory, then fired all the 1,100 workers, closed the installation and moved the machinery to Nuevo Laredo. However, the transference faced a lot of problems. While in Baja catheters were produced with silicon, in Nuevo Laredo they were made of pellets (which is an obsolete technology), and as a result the general manager was fired and now the Baja California community has a bad opinion of the corporation. Teleflex produces several types of catheters, more of the generic type (different from the case of Medtronic

which specializes in a very sophisticated type). The catheters are packed under the name of Hudson; in this way they retained the clients, who in this market segment are very sensitive to quality.

The same strategy that was used in the Hudson case was implemented with the Rusch Company in the respirator and syringe production. According with the manager of quality production, they are expecting to have sales in 2006 for about 110 million dollars (this amount seems pretty low compared with other companies) which seems a low amount given that the initial investment in that factory was about one billion dollars. Another goal of this factory is to produce enough products to be sent to Germany, and in addition to increase the offer for the US market.

Different from Baja California, Nuevo Laredo does not have problems to hire blue-collar workers or employees with college degrees, as most of the intermediate level workers come from Monterrey, this is located at a two-hour drive from Nuevo Laredo. In addition, this location has the advantage that right after crossing the border it is easy to access the highway to Dallas, Texas, where the sterilization plant is located and all the products have to be sent for the final process of sterilization.

#### ***4.4. Shelter role***

The shelter is a figure that arose in 1980 in Baja California along with the maquila boom. One of the first firms was Offshore Promotion Inc. This company was located in the same industrial park that some of the most important maquilas. The objective was to help the American corporations to have an easy landing in Tijuana. Foreign firms unknown the Mexico's legal procedures to establish a firm so in order to facilitate their arrival, they took the option to hire the services of the shelter. At first, the clients were small companies that did not have the financial support to face strong risks in their transference to Tijuana. One way to minimize costs was to obtain a whole kit of services from the shelter:

- 1) Location. The shelter looked for a space to set the factory, either in an industrial park or in a well located plant.
- 2) Legal services. The shelter did all the legal requirements such as propriety permissions (in Mexico urban plans determine the use of city land and is mandatory to build in the right space), access to public services, tax payments, environmental permission, custom documents, etc.
- 3) To look for and to hire employees, mainly blue-collar workers. Tijuana is located in a border cross where migrants enter the USA without a legal passport, as a consequence a continuous flow of unskilled workers look for temporal work in Tijuana. The shelter helped select the best workers and reduce the turn over; as a strategy to attract workers it is common practice to offer 10% above the salary of other firms.
- 4) Administrative duties, accounting, pay roll and back office activities were also provided by the shelter.

Some shelters still continue providing the whole services, but some others have moved to offer just a few and changed to an outsourcing mode. Some others such as Bucher Industries, which started in 1986, shifted to establish a warehouse in San Diego, being

there is easier to provide custom tramits and transportation for raw materials to Tijuana. They have twin factories, one in San Diego or in another place in California, but close to the border, and another in Tijuana. In addition, they make alliances with American firms to provide logistic services.

Bucher Industries started in 2006 providing incubation for small firms; through joint ventures they connected small entrepreneurs with big companies, such as H Steel or Hilfinger.

#### 5) *Counterfactual: Stem cell bank*

The counterfactual analysis for the case of medical equipment is the business of cord blood banks. This medical service offers the collection and preservation of newborn babies' umbilical cord blood stem cells in order to safeguard families from many life-threatening diseases. Stem cells are the master cells normally in our bone marrow and found in the baby's cord blood; they treat over 70 diseases such as non-Hodgkin's Lymphoma, leukemia, sickle cell disease and have been used in many transplants worldwide. The collection process consists in taking the cord blood immediately after a baby's birth, but generally before the placenta has been delivered which is the only opportunity to harvest a newborn's stem cells. Within 38 to 48 hours of collection, the blood is processed, tested and its stem cells cryogenically stored (frozen method).

In Mexico, there are few stem cell banks offering this type of services. One of these is Cryo-Cell. In 2001, Cryo Cell International established its first affiliate in Mexico and rapidly got the ISO 2001-2000 official recognition to become the first private blood bank to obtain it. The high-tech laboratory located in Guadalajara has automatic systems for fires, electric failures and floods, sophisticated control access and cryo-tanks protected inside an anti-earthquake bunker; also, the state-of-the-art video surveillance systems monitor all building entrances, laboratory and the cryogenic storage.

The laboratory where the cells are stored is in Guadalajara, and the headquarters are settled in Monterrey. The main reason is that Monterrey represents the highest demand and where physicians and hospitals exist who are able to perform the medical procedures to collect the cells. In addition, Monterrey is a city with a health sector that has been growing in the last years.

José Cohen, owner of Cryo Cell made a high investment taking risk capital from relatives; the business had a fast success obtaining the capital return in less than a year. Mr. Cohen has looked to export the services of Cryo-Cell Mexico to clients in Texas, but has faced the lack of trust in the medical techniques applied by a Mexican firm. In addition there are some conditions that limit the possibilities to export:

- 1) The laboratories cannot be settled in every city. Guadalajara was chosen because it fulfilled the requirements to build and to maintain the cryo-tanks, the most relevant condition is "the correct round year temperature" and only this city matched this

criterion. Also, population density is the highest at Guadalajara. Thereby, trying to export this business has its boundaries and has not grown as much as the owners would have liked.

- 2) Approximately, Cryo-Cell gets 120 clients per month; however, according to Mr. Cohen there still exists a “cultural barrier” that has a negative effect in this business. People tend to have different ideas (or ignorance) from what stem cells are and how they can help them. This service is extremely new in México and only few people can afford it. Moreover, Mexican couples cannot observe this product work as a medical insurance. All these slow down the process of export to other countries.

As seen before, Nellcor, Medline and many others medical firms have found customers in California. High amounts of capital have been invested by these firms, the latest technology in clean rooms and machinery is part of their business and sales are growing faster. This is not the case at stem cell banks where the diffusion process is not the same and is much slower due to the reasons explained before. In Mexico, the stem cell bank markets are still limited along with Cryo Cell’s only 3 firms which offer this service: Cordon Vital, Concesión de Ginecología Guadalajara, and a small hospital in Mexico City.

#### **6) *Policy Recommendations***

According with socioeconomic characteristics Mexico can be categorized as an emergent country. Even though it had big improvements in the macroeconomic aspects, where it reached stability (the rate of inflation closed around 3% in 2006 and the exchange rate variation was around 1%) on the microeconomic side 90% of the firms are small with financial problems and low productivity.

The health sector looks as an opportunity to develop some important competences in Mexico’s economy:

1. To hire and to train blue-collar workers in productive methodologies with high technologies.
2. To use and develop natural resources, such as raw materials used in the production of medical equipment and medicines.
3. To attract direct foreign investments and to look for partners in joint ventures.
4. To develop value chains in specific regions.
5. To promote innovation and technical change.
6. To improve the balance of payment through increase in exports

To reach these goals it is necessary to apply some public policies, some of the most relevant are:

##### **6.1. *Education and technical training***

Universities and technical schools have to improve the quality of the students. Federal authorities in the education sector have to establish programs to develop research abilities. The medicine schools in Mexico are recognized by the quality of diagnosis and

patient attention, but the students do not have research abilities and neither scientific curiosity. Most of the students in higher levels are in administrative areas causing a deficit of professionals in the engineering and technical areas.

### ***6.2. Legal aspects***

Federal and local authorities have to reform the legal procedures to establish a firm. Some of the requirements to open a firm are very complicated, sometimes it takes six months to start a business. In the case of medical equipment that uses special substances, the health secretariat and the environmental department have to supervise all the productive processes to approve the firm, delaying the starting of the production.

### ***6.3. Facilities provision***

Industrial parks and designed industrial areas with access to public services are key in to facilitate the arrival of foreign firms or the decision to establish local investment in medical equipment production. An important aspect is to identify the most important elements in the health cluster to promote in those regions the development of a health sector. This revision of the medical equipment production in Mexico shows that Baja California, Nuevo Leon, Chihuahua and Mexico City are the areas with high concentration of firms in the sector. Catheters are the devices with high market value but there are about 2,000 products that also can be part of the export potential of the country.

### ***5.4 Financial support***

Federal government can provide special funds to promote research and development on the sector and to support investment in special areas. As the managers set in the interviews, lack of risk capital is an obstacle to build a sterilizer plant in Mexico. If they have access to sterilize their products in Mexico the time and costs of production can be reduced in an important way.

## *Interviews*

Bandala, Carlos; Quality Production Manager, Nellcor Purittan Bennet Mexico S.A. de C.V. (Tyco Nellcore Healthcare), Tijuana, México

Cohen, José; General Manager, Cryo-Cell, Stem Cell Banking, Monterrey, México.

Concha de la, Gerardo; Manufacturing Manager, Medtronic México, S. de R.L. de C.V., Tijuana, México

García, Miguel Ángel; Marketing - Customer Service, Offshore Promotion Inc., Tijuana, México.

Garza, Jose Luis. Manufacturing Manager, Teleflex Medical, Nuevo Laredo, México.

Hernández, Octavio; General Manager, Bucher Industries, Tijuana, México

Herrera, Jaime; Vice-president, Productos Medline, S.A. de C.V., Nuevo Laredo, México.

Moreno, Omar; Senior Manufacturing Engineer, Block Medical de Mexico S.A. de C.V., Tijuana, México.

Rico, Manuel; Manufacturing Manager, Del Mar Biotecología, S.A. de C.V. (Integra Biotechincal), Tijuana, México.

Rocha, Natacha; Coordinator of the health cluster, Secretaria de Economia del Estado de Baja California.

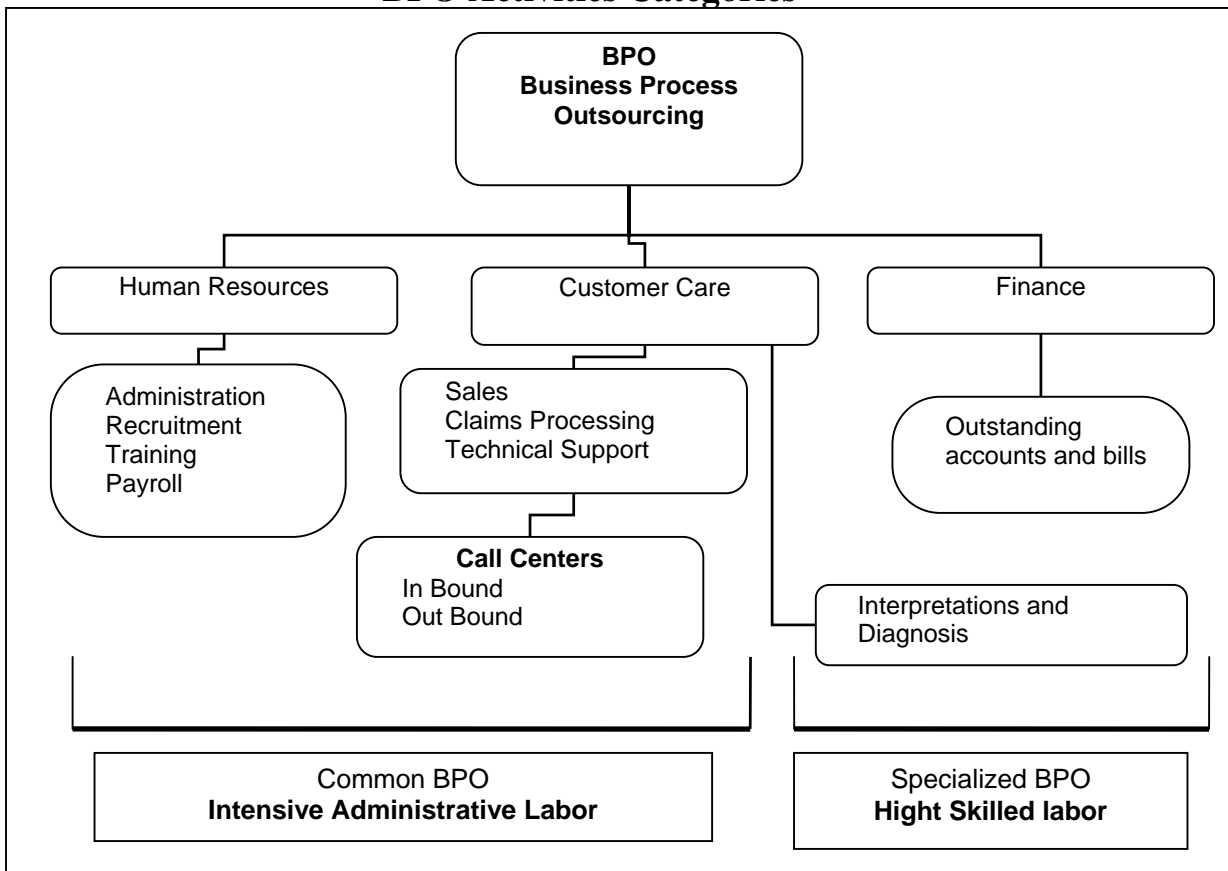
### **III. Outsourcing Call Center Services from Mexico**

To increase their productivity and focus in their core competencies many companies have resorted to outsourcing of both manufacturing and services operations. This trend has opened up opportunities for developing countries, including Mexico. Before going into the details of the Mexican case, the following section will examine this issue at the international level focusing on Business Processing Outsourcing and the Call Centers industry in order to assess the scope and potentiality of this new phenomenon.

#### ***Business Processing Outsourcing***

Business Processing Outsourcing refers to the outsourcing of business processes and functions in the areas of administration, finance, human resources, distribution logistics, manufacturing services, sales, marketing and customer care to locations that can provide these services at a lower cost through high-speed data communication links, which guarantee timely delivery of the data and services (UNCTAD, 2002). Figure 1 shows the different activities under the BPO sector. As can be observed, the Call Center sector which will be examined in this paper is located under the Customer Care branch of BPO.

**Figure 5:  
BPO Activities Categories**



*Source:* Author's Elaboration

***The Case of Call Centers***

The call center sector emerged in the 1960s from the need to develop a strong and lasting relationship between customer and enterprise. This relationship was supported by marketing techniques and customer services. The innovation resided in the end of the anonymity in what used to be a pure mercantile relationship between customer and enterprise (Micheli, 2004).

There are four key stages in the development of the sector according to the Call Center Association (2004): the first one, taking off in the mid-1980s, was aimed at cutting back costs and increased marketing efforts and direct sales. The second stage began in the early 1990s and was fed by the growing demand of customer services on the one hand, and by the expansion of financial products facilitating consumption credits. The third stage began in the second half of the 1990s, and saw the expansion and growth of telemarketing businesses and outsourcing enterprises which emerged from the growing needs of outsourcing certain parts of administrative tasks.

The gradual specialization of the call centers led to the creation of companies specifically devoted to provide these services that ranged from customer services to searching for new

clients. This is the fourth stage, started in the 21<sup>st</sup> century and characterized by a cost-reduction motivation and an increase in offshoring to regions and countries with low wages. Technological development and the spread of communication technologies have facilitated relocation. Call centers moved first to North Africa, India and South Africa, to supply the French and English-speaking markets in Europe and North America. Later on, the Hispanic market in the United States propelled the emergence of call centers in Latin America to serve this niche.

The development of call centers in Mexico is situated in this stage. There are economic, cultural and geographical advantages underlying Mexico's success as host country for call centers. First, cost reduction is mainly based in low wages that make labor from 50% to 75% cheaper than in developed countries (Martino, 2004: 6). Second, it's NAFTA membership which facilitates the installation of operation centers and sets up an enabling legal framework. Another important factor is language. The United States has experienced a considerable increase in its Spanish-speaking population which has surpassed 40 million people.<sup>67</sup> Thus, call centers agents need to be bilingual to serve this market. Finally, geographic proximity is also important. Sharing 2,000 kilometers of border with the United States allows enterprises to keep a closer contact with the centers providing the services. And, contrary to India's position, Mexico shares time-zones with the United States which can be an advantage in certain services.

The next section will examine how the call center services exports emerged and developed. Specifically it presents the case of the pioneering company: Hispanic Teleservices.

### ***1) Breaking ground in the Hispanic customer services market: Hispanic Teleservices Corporation***

The Mexican Hispanic Teleservices was the first firm to export in the customer services sector targeted at the Hispanic market in the United States. The growing potential of the Spanish-speaking market in the United States was the idea spurring the development of this company.

The Hispanic Teleservices case, is the story of a young individual entrepreneur, not that of an existing firm, which makes it relevant to examine his personal career in order to have a better understanding of the evolution, strategies and lessons of this case.

#### ***1.1. A young bicultural Mexican entrepreneur and how he found a niche***

Hispanic Teleservices was founded in Monterrey, Mexico in 1999 by the young local entrepreneur Alberto Fernandez. Fernandez holds a BA on Economics from Notre Dame University and an MBA from Georgetown University.

It was precisely during his stay in the US that Fernandez realized the need and potentiality of servicing the Hispanic market, a group with a purchasing power estimated at around US\$475 billion. What sets apart this market in the United States is that Hispanics keep

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<sup>67</sup> There are 41.8 million Hispanics in the U.S., that is about 14.5% of the population. Hispanics are the first minority in the US. Only 16 years ago, the population was half: 22.4 million (US Census Bureau, 2005).

very strong links with their countries of origin and thus, with their mother tongue. One must also recall that a large part of the Hispanic population in the US is either Latin America-born or first generation immigrant. This creates a huge need of bilingual (Spanish-English) customer services.

Born in the midst of an entrepreneurial family, Fernandez had always the objective of developing his own business; however to do so, he needed to gather the required skills, experience and contacts.

### ***1.2. Gathering the experience needed to develop a business of his own...***

In 1994, after having completed his BA studies in the US, Fernández returned to Mexico in a moment when the country was suffering a deep financial and economic crisis. One of the hardest hit sectors was banking which had passed from a nationalization process in 1982 to one of reprivatization and liberalization in the early 1990s. To deal with the crisis, the sector was restructuring its management and services processes. This created opportunities to recently graduated professionals, who were selected to replace senior managers that had been fired in the attempt to cut payroll costs. Being 24 years old, Fernández was hired as branch manager by the Confía Bank, of the Abaco Group.

One of Fernandez first contributions was to develop a special box for bank clients to perform some basic transactions avoiding long waiting lines. In a short period of time he sought new challenges and was transferred to the re-engineering and process improvement department. In that time the bank had no distance banking services, partly due to the fact that the telecommunications sector was still a public monopoly with very high costs. Yet new communication technologies were starting to emerge.

Wanting to improve banking services, Fernandez made a proposal based on the use of communication technologies. This would be his first contact with this sort of activities. The proposal led to the creation of an area called ABASER with 3 call centers operating in Monterrey, Guadalajara and Mexico City. Through the use of a toll-free line the bank began providing distance services, first allowing its clients to check their account balance with only a telephone call. The main difficulties that Fernandez and his team faced were two: high technology costs and budget restrictions to hire personnel. To overcome such difficulties and take advantage of economies of scale, they provided outsourcing services to Abaseguros (another company belonging to the Confía Group) and GM Mexico. With GM Mexico it was agreed that ABASER would provide services in exchange of having GM Mexico absorbing the payroll costs. It was also agreed that the recruitment, selection and training would be under the direct control of Fernandez.

While Fernández was working at Banca Confía he also started up his own business. With a group of friends he opened a small manufacturing enterprise to manufacture luxury ties. However the enterprise failed because of the extremely high costs of silk and the equipment needed to tailor the ties.

In 1997 Fernandez left Mexico once again to study an MBA in Georgetown University. By that time, he had already learned several lessons that would later prove useful for his

next enterprise, both from his experience in ABASER and from the failed enterprise. Both would be key for the creation of his future business.

### ***1.3. Implementing the business idea***

When he arrived to the US to pursue his masters' degree Fernandez had already in mind a business idea: a call center to service the Hispanic market. And he used his courses from the MBA program in Georgetown (1997-1999) to build up his idea. Specifically, he took advantage of two courses: Emerging Companies and Entrepreneurship. Fernandez recalls that at the very beginning he faced his classmates' skepticism: for the Entrepreneurship course students were required to develop a business plan in groups. It was the Internet and IT boom and everyone wanted to develop online businesses. Fernandez pitched his call center idea but no one wanted to join his team. Fernandez argued that the need to serve the Hispanic market was inevitable and had great potential; plus, his project would go beyond a class project because he wanted to materialize it. He was able to convince Kit Cooper, who became not only his teammate but also his real-life business partner. Both completed their studies and agreed to develop and execute their business plan.

The call center would be based in Monterrey because Fernandez believed this Mexican industrial city, settled in the North of Mexico and close to the US border, had the required labor force: bilingual and bicultural. Since Fernández and his family were from this city he had a valuable social capital network. Nevertheless this did not guarantee him the access to the financial capital required to start operations.

The main obstacle was the lack of economic resources, which took one year to overcome. There were no investors willing to take the risk in Mexico. "Many Mexican businessmen had their capital offshore and they did not want to invest in innovative ideas. If they showed some interest they wanted to have a 100% return rate for themselves... some businessmen like Alfonso Romo [from Pulsar] had venture capital yet it was a very limited amount" (Fernandez, 2006) That is why Fernandez and his partner looked for funding abroad, specifically in the United States.

Besides the business plan, to win some credibility vis-à-vis American banks, he created an advisory board comprising some of the most prominent Mexican and Hispanic businessmen. Among them were Carlos Abascal (Afianzadora Insurgentes), Armando Garza Sada (Grupo Alfa), Eduardo Garza T. (Frisa), and José Niño (ex-president of the Hispanic Business Chamber and ex-advisor of President Bush Sr. and Dany Villanueva (a Hispanic businessman from California). Except for Eduardo Garza T, the members of the advisory board gave Fernandez their moral support but no financial capital.

The way the entrepreneur managed to access funding among the US investors was interesting because he used not only his professional skills but also his social capital. Throughout his undergraduate and graduate studies in the US he had made some friends, who would later on work in finance and banking firms like JP Morgan and Morgan Stanley. It was these friends who in 2000 helped Fernandez to get some appointments with investment banks and some of them even provided part of the capital needed for the project.

Fernandez and Cooper found investors interested in their project in San Francisco, CA: JP Morgan Latin American Partners Venture Capital. Since the funding was granted under very strict conditions the entrepreneurs decided to offer/sell just 40% of the enterprise value.

Besides the financial conditions, there were three other conditions: 1. to have a Technology Director, 2. to look for a Senior Director instead of having Kit Cooper in this position, because he was too young, and 3. to hire a Mexican Operations Director selected by JP Morgan.

To meet the first condition, Fernandez resorted to his longtime contacts from Banca Confía and hired Alejandro Jaimes as Technology Director. Jaimes had participated in the creation of the ABASER customer service center and was working for a telecommunications company called Alestra (partly owned by AT&T). Finding the Senior Director was harder, and it took them more than a year to fill the position. And the third condition was immediately met by hiring a person from the banking sector in Mexico recommended by JP Morgan.

To sum up, the first and biggest obstacle was obtaining the financial capital needed to start up the business. Besides the originality of the idea, the obstacle was overcome with the application of business expertise gathered so far and a thoughtful use of Fernandez' social capital in Mexico and in the US.

Once they had the capital needed and the managerial team, Hispanic Teleservices began operations in Monterrey, specifically in San Pedro Garza García renting two floors of a building where they set up 30 working stations. Surprisingly, when Fernandez tells the story, the handling of technologies does not appear as a problem. This might be because he was backed up by people who had wide experience in the field. For example, a former colleague from Banca Confía, Daniel Aldrete was appointed Network Architecture Director. Aldrete was an expert in voice-network technologies and had managed the predictive dialer systems for Banca Confía. Later on, Noel Orozco, another former Banca Confía colleague would join the team as head of Technology and Information. Kit Cooper also had experience in Business Processing Outsourcing acquired while he worked for Fritz Companies in Houston.

#### ***1.4 Getting the first clients***

The main uncertainty in the planning phase was related to the first clients. Hispanic Teleservices' objective was to go beyond simple telemarketing, providing a more complex service to its clients. As Sales Director, Kit Cooper looked for clients in the US using a door-to-door strategy. He visited many companies that had Hispanic customers and offered them HTS services. Even if it did not want to do telemarketing, their first client, UPS, hired them to do a project of this type: a telephone sales campaign. This allowed the newly created company to begin operations in the year 2000 using 50% of its capacity, for which they hired 15 employees.

Another important uncertainty was to prove if the human resources available in Monterrey were in fact adequate to their needs. They knew that people in Monterrey were bilingual

and bicultural so in theory, labor wouldn't be a problem, however, they did not know if the available pool was suitable for conducting telephone conversations and servicing the Hispanic customers. With their first projects they realized that the labor force was in fact suitable and they just needed to implement an adequate and careful recruitment and training process.

The desired client appeared a few months after the UPS project: Sage Telecom. In the sales effort, HTS had contacted Sage Telecom but it was not until 2001 that the company signed a contract with them. Fernandez recalls that Sage had visited other well established Mexican companies servicing the domestic market, yet they chose Hispanic because they liked their organization and their human resources approach.

The project involved higher levels of training, security and quality control. The operation costs were so high that after six months of the contract with Sage, Cooper and Fernandez realized they only had resources to cover the fixed costs of two more months of operations. JP Morgan offered them additional funding but at high rates so they decided to visit Sage's director, explained him the situation and asked him for support. Fernandez was really surprised to find out that the director agreed to lend them the funds without asking large concessions in the interest rates or the buying/selling prices set up in the services contract that Hispanic had with Sage.

Another round to increase the financial capital required to expand operations was undertaken by mid 2001. It was then that JP Morgan along with Citicorp Venture Capital acquired an additional 11% of the company value, summing up 51% of the assets. Since then, HTS financed its growth with its own capital using its operation flows and profits.

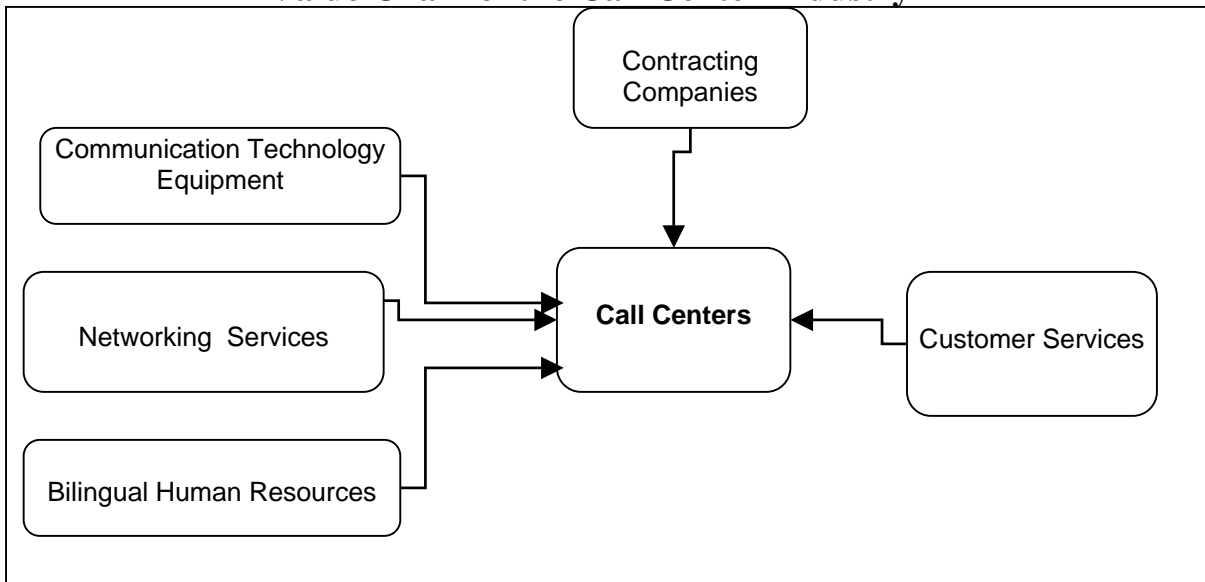
In 2002 they got another important client, America Online (AOL), for which they now offer 100% of their customer services in Spanish in the US market.

### ***1.5. Description of the call center operation***

The call service industry inserts itself globally in a production chain comprising a wide range of technological services, beginning from the most essential ones (such as computers and web access) up to the most sophisticated services that develop new technology. In between those extremes, a series of software for call management is included.

The value chain of the call center industry is quite limited. There are three basic inputs which allow call center operation: communication technology equipment; networking services providers and bilingual human resources which frequently come from local universities. The contracting companies provide the client databases and the guidelines for the specific services that the outsourced call center will provide. The call center thus is in charge of processing the information and the resulting output are customer services.

**Figure 6:  
Value Chain of the Call Center Industry**



*Source:* Author's elaboration

It is worth noting that in the case of Mexico the Call Center industry has few local providers and the rest of it is hired in the US. The companies that set up operations buy their communication technology equipment and the networking services needed abroad. The bilingual human resources are sourced locally most of the time coming from universities and sometimes helped by job fairs organized by public entities. The contracting companies are mostly American and the customer services provided are exported.

From an internal level, the activity developed by the call center is incorporated, as we have stated in the introduction, in the development of outsourcing, which comprises several options: marketing, sales, customer services, insurance policy management or the management of relationships between a company and its suppliers, or its clients. The operation of a call center is basically divided in two different processes: inbound calls and outbound calls.( See Table 3)

**Table 3  
Inbound / Outbound Calls**

<b>OUTBOUND CALLS</b>	<b>MOST FREQUENT SERVICES</b>
<ul style="list-style-type: none"> <li>Offering of a product or service</li> </ul>	Known as the “cold” calls. Probably the most emblematic part of telemarketing. An example of these, are calls to produce commitments to pay debts.
<ul style="list-style-type: none"> <li>Market Research</li> </ul>	Calls to know the political or consumption preferences of people. They can be linked to the offering of certain products.

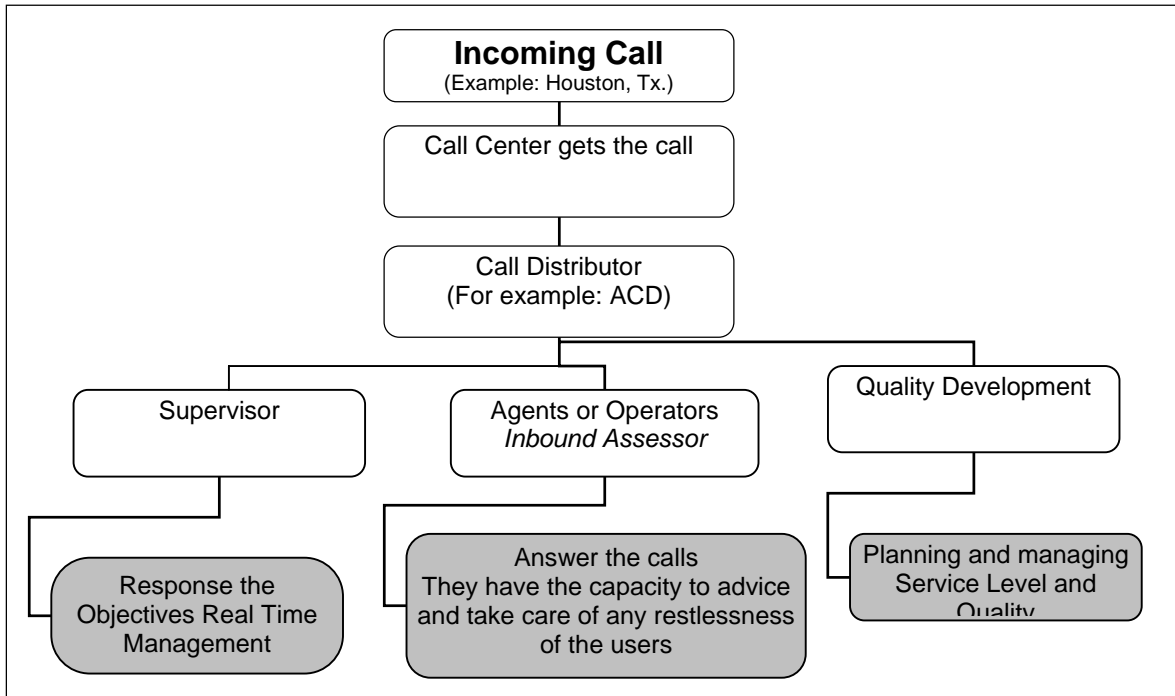
<b>INBOUND CALLS</b>	
<ul style="list-style-type: none"> <li>• Fulfillment of information needs</li> </ul>	Calls to request information to a company as part of a post-purchase service. Calls to ask for information or social support. Emergencies. Hot lines
<ul style="list-style-type: none"> <li>• Purchase of a product or service</li> </ul>	Calls to purchase merchandise or services after having seen some kind of advertising
<ul style="list-style-type: none"> <li>• Customer care service</li> </ul>	Calls to request technical support, invoicing or payment.
<ul style="list-style-type: none"> <li>• Credits and insurances</li> </ul>	Activation of an insurance or credit account

*Source:* Author's elaboration based on Michelli (2006)

Given the available technological infrastructure HTS chose to specialize in inbound call services. An inbound call center is a customer service system where calls from customers of the outsourcing client arrive to be handled by agents or operators.

The process of an inbound call center starts with the call from the customer of the outsourcing client. This call gets directly into the call center and is channeled to an agent. This first step needs a call distributor such as the ACD (Automatic Call Distributor), which is able to keep a record of the time needed by each agent to process every call. Because of this record, the ACD is also capable to assign the incoming call to the agent with the longest idle time. Some inbound machines also have an interactive voice response, where the calls that do not need an agent are processed by the ACD itself. A critical issue is to keep the correct balance between the number of agents and the volume of calls.

**Figure 7:  
Inbound Call Process**



*Source:* Author's Elaboration

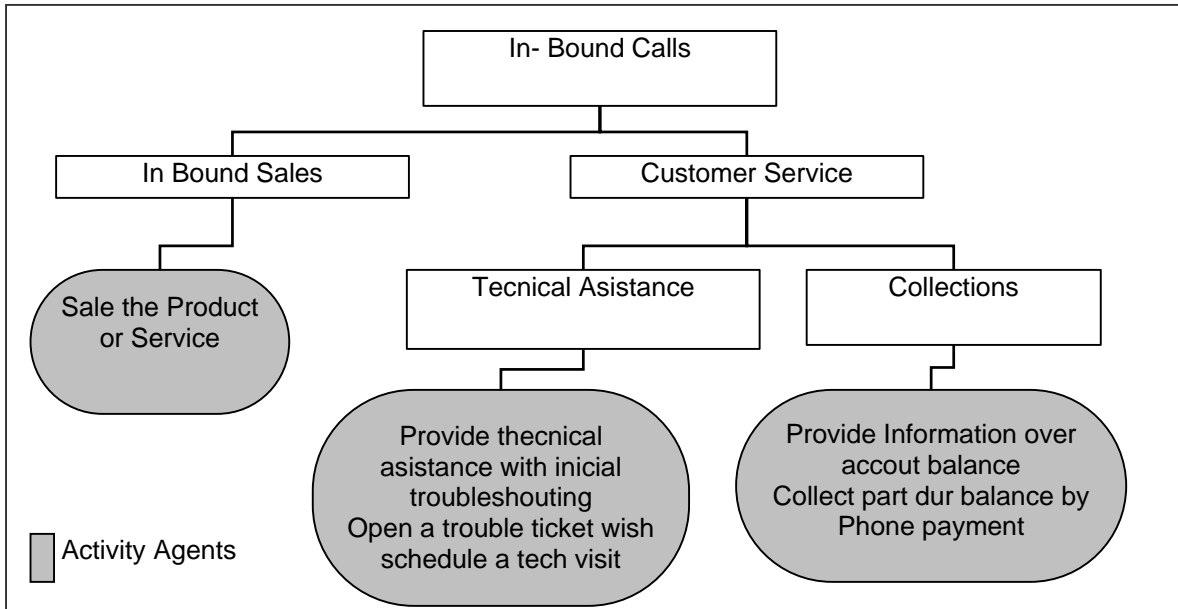
When agent takes the call, two fundamental challenges appear: service level and response time objectives. Supervisors have to plan and set up these objectives. The call center has some specific tools to help supervisors with the management of the time, like the *answering speed average* which provides the time average that a caller waits on line and the *average call duration* presenting the amount of time that the call took. The quality development department is in charge of controlling the quality level of the call, establishing and managing quality service level agreements. Inbound call center work around the key issues of time and quality.

**Production organization**

HTS handles different kinds of clients that have a strong influence in the way the work is organized. Agents' activities change according to the sort of activity and the call demands. The range of actions to be performed goes from selling a product, to fixing a technical problem or registering an insurance policy, for instance. We can take three different clients as examples: Sage US Telecom, AOL and a company from the credits and insurance sector.

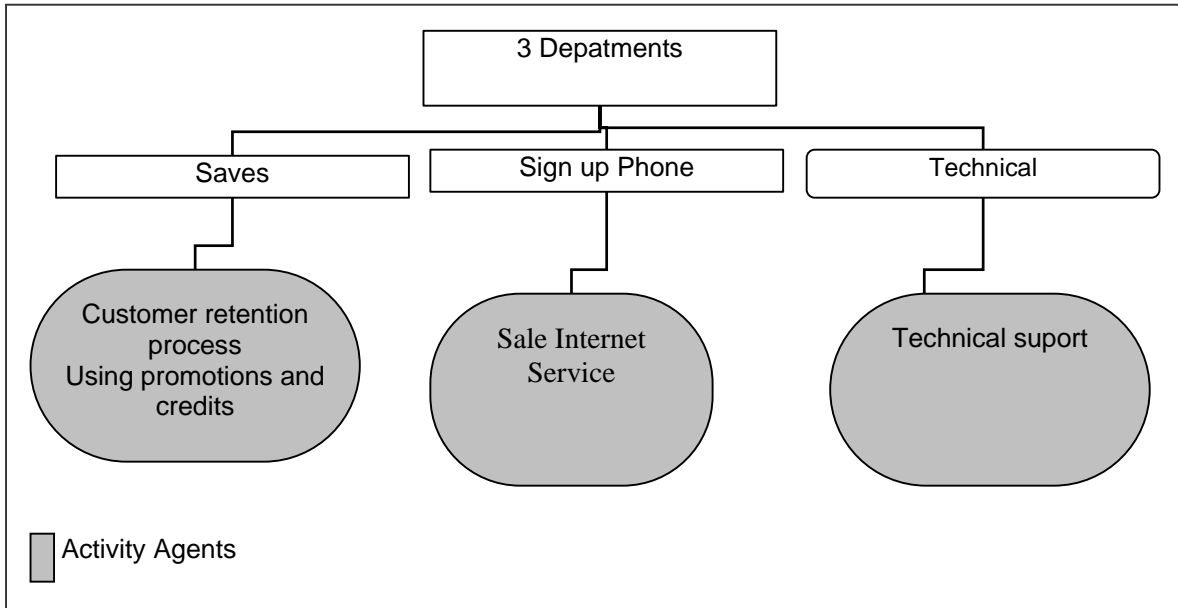
In the cases of SAGE US Telecom and AOL, the operator needs to have the following skills: to the ability to sell the product to a prospective client when the client calls to ask for basic information and second the technical language and knowledge to provide technical assistance (see Figure 9 and 10).

**Figure 8:  
SAGE US Telecom Call Process**



*Source:* Author's elaboration based in interviews

**Figure 9:  
AOL Call Process**

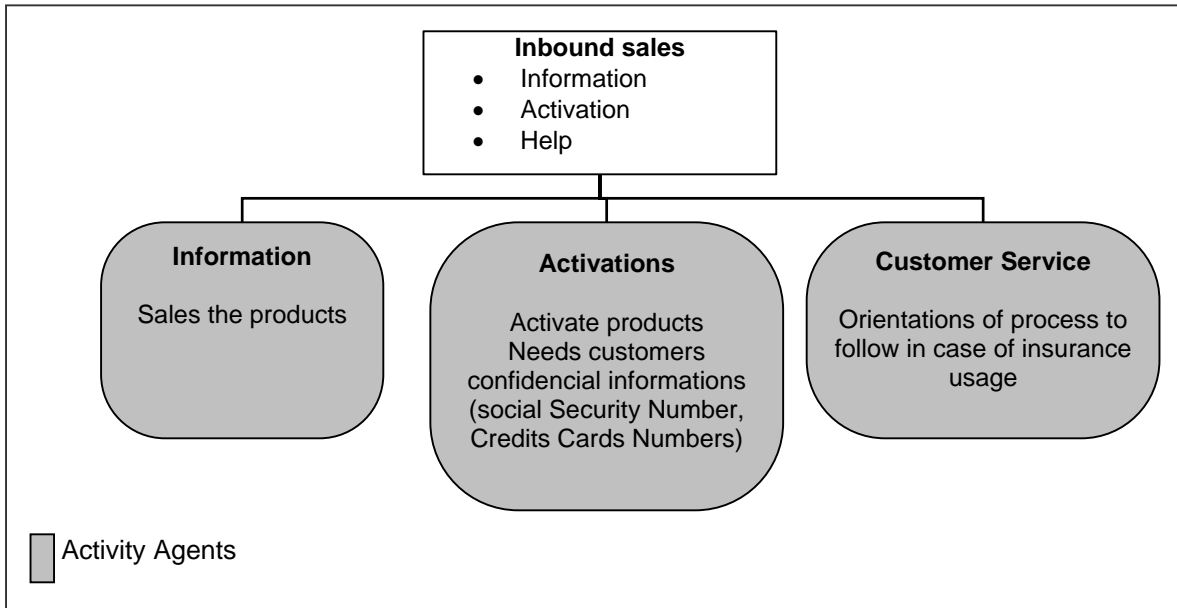


*Source:* Author's elaboration based in interviews

In the case of the client from the credits and insurance sector, this company requests the Call Center supplier a guarantee of strict confidentiality of the customers' personal data,

which required the company to certificate its procedures in the ISO27001 norm (see figure 11). This can represent an important entry barrier for other competitors.

**Figure 10:  
Credits and Insurance Company Call  
Process**



*Source:* Author's elaboration based in interviews

### **Training process**

To solve the uncertainty of whether the labor force was suitable or not, HTS developed a recruitment and training process of agents that is key to its success. There is an internal “university” with a long and meticulous recruitment and training system. The nature of the activity, providing services through a telephone, requires not only English language and information technology skills. It also needs a strong control of emotions from the call agents. The training processes developed by each company help to improve labor skills and are a key differentiation factor.

HTS recruitment and training process is made up of four stages: the first one is an interview to filter the candidates. Once they pass this filter, candidates begin a second stage where their English fluency is assessed through a simulation of a conversation involving five people at a same time. After this, the agents begin a full-time training session for two weeks. During this time, in which they start receiving a reduced salary (50%) role play is one of the most frequent training methods, as well as short courses about the working philosophy of the enterprise. The fourth stage is an in-situ training that lasts 4 to 8 weeks facing real cases. This phase consists of three sub-stages: the first one is to practice the use of IT systems, in the second they have to imitate the communication process of the more experienced agents and in the third sub-stage they begin to answer

real-life calls with the help of their supervisor and the more experienced agents. This third sub-stage lasts 2 weeks.

### ***1.6. Overcoming coordination difficulties***

The toughest coordination difficulty was technical and it was related to the handling of incoming calls from the US and how to transfer them into Mexico to be responded by agents in Monterrey. To solve it they created a co-location in Houston which received the calls in a toll-free US line. They had to hire a private network between Monterrey and Houston to transmit the data without using the public telephone services because long distance calls were extremely expensive. The private network allowed large amounts of data transmission through cables. The installation was smooth thanks to a close collaboration with the provider of the service, called MCI –Avantel. This American company had arrived into the country in the mid 1990s after the liberalization of the telecommunications sectors in Mexico and had operations in the US as well as in Mexico.

Once operations took off, another problem emerged: HTS did not have a back up network so when the primary network was down the service had to stop and they couldn't answer incoming calls. This problem was eventually solved after the number of clients increased and the company was able to absorb the costs. Yet the solution represented a significant amount of resources so HTS implemented state-of the art technology: an MPLS network in close cooperation with its network providers. They even conducted simulations in a lab to test the performance of the new network configuration. Once adopted it largely improved the company's performance and allowed it to open up new call center facilities in other Mexican cities.

To wrap up this section we can emphasize that the solution of the coordination difficulties relied not in governmental support or industry associations but in the capacity that these entrepreneurs had to develop a close collaboration with their suppliers and their capability to hold simultaneous operations in Mexico and in the US.

## ***2) Monterrey: A Preferred Destination for Call Centers Aimed at the Hispanic Market***

Imitating companies have emerged in the years following Hispanic Teleservices' creation. Some of them are companies which have made greenfield investments to service the Hispanic market in the U.S. from Mexico and others are companies which were already servicing the domestic market and decided to reorient part of their production to export. In 2006 the sector had around 15 thousand agents and there were around 6 main enterprises (IMT, 2006), most of them based in Monterrey.

The main spillover from the first mover was to reveal the potentiality of providing services to the Hispanic market from Mexico and proving that the Mexican labor force was suitable to do so. Perhaps high entry barriers, particularly the high costs of technology and equipment have prevented more domestic companies to go into the same business.

Interestingly it was the multinational enterprises that set up operations in Monterrey through the acquisition of domestic firms or through direct investment. An example of the former is in Teleperformance who bought Merkafon and an example of the latter is Client Logic.

From the top five companies of the call center sector in the world, two already have operations in Mexico, specifically in Monterrey. Table 2 summarizes the main features of Hispanic followers.

**Table 4**  
**Followers in the Call Center Sector in Mexico**

<b>Firm</b>	<b>Export Activities Year</b>	<b>Creation Year</b>	<b>Capital Country of Origin</b>	<b>Workers</b>	<b>Export \$US million</b>
<i>Hispanic Teleservices</i>	1999	1999	Mexico-USA	1 300	50 \$ (2005)
<i>Merkafon-Sr. Tele Performance</i>	2002	1996	France	4 500	SD
<i>Clientlogic</i>	2003	2005	Canada	830	32 \$ (2005)
<i>Telvista-Compu USA</i>	2003	1997	Mexico-USA	2500	SD
<i>Sutherland Global Services</i>	2006	1986	USA	SD	SD

*Source:* Author's Elaboration

### **2.1. Teleperformance**

Teleperformance, is the fourth-largest call center company in the world and in 2002 it took over Merkafon to service the Hispanic market from Mexico. Merkafon was the most important local company in the call center sector and was created in 1996 by Pulsar group to provide customer services to its own clients. Then it began servicing other local companies. Since its origins, Merkafon directors recognized the emerging importance of the Hispanic market and they wanted to serve it. Yet they chose to enter the U.S. through an acquisition of a similar company in American territory instead of trying to serve this market from their Mexican facilities. In May 2000 they bought Access Worldwide's call center in Plano, Texas. Access Worldwide was an American direct-marketing company. The operation was renamed Merkafon Internacional with 300-workstations.

Yet in 2002 Pulsar Group went into financial trouble so it had to sell many of its companies, among them Merkafon. The buyer was Teleperformance, a French-company

with worldwide operations. The ownership change allowed a reorientation of the company to the international market not only Hispanic but also European and Latin American. Currently 65% of Teleperformance's profits in Mexico are generated in the US market and the rest comes from local clients (Mc Keary).

### ***2.2. Client Logic***

Client Logic began operations in 2003 in Monterrey attracted mainly by cultural proximity. Amit Shankardass, one of the top executives of the company, says he likes to visit malls around the world in locations where the company is planning to set operations. After visiting Monterrey's malls he was impressed by how much they were like the ones in California. Under the premise of "if consumers in Monterrey behave in a fashion similar to the US one, he believes local employees will better understand the services that the American clients are expecting (Lyons, 2006). At the Monterrey center, the company handles a large number of reservations for American companies both in all of Latin America and for Spanish-speakers in the United States (Sternlieb, 2005).

### ***2.3. Telvista***

Telvista is a company owned by Carlos Slim, the Mexican telecommunications mogul of TELMEX and Grupo Carso. Telvista was originally created to give internal support to Grupo Carso companies in 1998. But in recent years it has began to explore opportunities in the U.S. selling its services to clients like Verizon. As part of its strategy, Telvista bought Comp USA in 2001 to penetrate the U.S. market from its own territory, yet it did not envision any services to the Hispanic market until 2005. They have used their facilities in Tijuana to do so; however it has also an important part of its operations based in Dallas.

### ***2.4. Sutherland***

Sutherland began its Mexican operations at the Monterrey facilities in May 2006. Idania Quintanilla (2006) explains that the company undertook a study to evaluate the feasibility of investing in Monterrey. They were attracted by the presence of competitors and the existence of a bilingual labor pool; however they soon realized that labor supply was scarce. Thus they decided to offer more benefits to their personnel. Specifically they have sought to retain employees by offering them a full-time contract after three months. As one can observe, in Monterrey there are no technological obstacles, rather the availability of labor has become limited forcing companies to develop new strategies to manage their human resources.

## ***3) First movers' reactions to competition***

The emergence of competitors has increased service exports. With regards to the first mover, competition did not affect sharply its sales. HTS mentions that the Hispanic market in the U.S. is huge and there is still a large amount of companies that will require bilingual customer services.

To prevent a negative effect in its sales, HTS has looked for differentiation and has acquired the ISO 27001 quality standard.<sup>68</sup> This enabled the first mover to preserve its clients and attract firms that have confidentiality requirement. The company has also tried to get contracts with very demanding clients which require accomplishing a certification process that secures a certain amount of fidelity given the high costs involved. It also developed a consulting service to provide feedback to clients using the information gathered in the calls HTS handles.

Nonetheless, competition has affected HTS by reducing the pool of human resources available in Monterrey. Many of the companies that set up operations in this city went straight to get HTS workers offering them higher wages. Thus they benefited from the intensive training process developed by HTS. This affected the first mover in the following ways: 1. considerable increase of turnover levels<sup>69</sup>, 2. rising labor costs and 3. creation of recruitment/training costs losses that are not recovered by the company. As a result HTS had to open new facilities in Guadalajara. Yet its imitators have also followed it.

The biggest limitation faced by HTS in its expansion process was the technological infrastructure it had. In the year 2005 the company undertook a very important upgrading project in collaboration with its network providers which allows it to serve many more clients as well as to set up operation in many different locations.

#### **4) *Public Policy***

In the early stages of the development of the call center industry in Mexico there were no public policies encouraging the emergence of services exports. What did facilitate the process was the privatization and liberalization process in the telecommunications sectors, particularly the arrival of foreign providers that brought with them new technologies in the early 1990s. Another positive factor linked to liberalization, specifically of the long distance services is that the arrival of new companies also involved the improvement of infrastructure and the introduction of optic fiber in the main cities of the country.<sup>70</sup> NAFTA also set up a regulatory framework which gave legal certainty to US businesses, providing a specific chapter for cross-border services: Chapter 12.

The first mover took advantage of the fact that there was a U.S. company with the ability to provide networking services in Mexico and in the US, yet he did not receive direct support from the government. Alberto Fernandez from Hispanic Teleservices recalls that in 2000 when he went to look for support from the Economic Development Agency in Nuevo Leon, the long and burdensome bureaucratic process discouraged him to keep insisting.

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<sup>68</sup> The ISO 27001 standard deals with information security. It handles objectives and policies related to integrity, confidentiality and accessibility. Retrieved from <http://www.icontec.org.co/MuestraContenido.asp?ChannelId=632>

<sup>69</sup> A newspaper article revealed that in Monterrey the sectors with highest turnover rates were: "call centers", with a 125 %; retail with 107 percent; assembly plants with 83 percent.

<sup>70</sup> By 1995 the companies had installed about 13, 500 kilometers in the main cities with participation of Alcatel-Indetel (ITT-Telmex), AT&T, Northern Telecom y Ericsson (Ruelas, 1995).

Since the year 2003 the state government of Nuevo León has undertaken some sectoral policies in a two-stage process. In the first stage policies were devised on a case-to-case basis. This is the case of Teleperformance. When the French group showed some interest in investing in Monterrey the Ministry of Economic Development (SEDEC) offer them to design and implement a program to train bilingual call center agents. The government offered scholarships paying one third of the monthly wage for a period of 1 to 3 months. The company had to pay the other two thirds. Unemployed people were given priority and the program was implemented in coordination with the Labor Council and the Faculty of Languages of the Universidad Autónoma de Nuevo León. In other cases, the government has organized job fairs along with the newly arrived companies or has granted them a reduction of the payroll tax on new employment posts created.

In a second stage, as the sector grew, authorities realized the employment generation capacity of call centers and set forward to keep its expansion. At the same time, companies already operating in the city pushed for deeper public-private cooperation. Parties involved were aware of an important bottleneck that needed to be solved: many of the recruitment candidates did not meet anymore the profile required to fill the posts serving English-speaking or Hispanic clients, particularly because of their low English speaking abilities.

So companies of the sector along with the Ministry of Economic Development began a cooperation initiative named the Call Center Industry Committee. This initiative seeks to design and implement a technical studies diploma to increase the pool of workers for the sector. The SEDEC is in charge of providing the meeting place and materials as well as of the communication and coordination of participants. Involved companies are: Teleperformance, Hispanic Teleservices, Marcatel, Sutherland, GE Money and Toptel. Three educational institutions are also participating: the Universidad Tec Milenio, the ICET and the Language Department of the Universidad Autónoma de Nuevo León. They are interested in offering their knowledge, faculty and facilities for the project. The Committee has met four times since July 2006 and so far is working in the design of a curriculum to set up a technical diploma. One of the major difficulties will be finding funding to offer scholarships for interested candidates and implementing the program.

At the federal/national level there has not been a public policy directed at developing call centers services exports. The closest program is PROSOFT but it has full preference for those companies producing software, which is a higher value added activity. In 2005 an initiative to eliminate the value-added tax for long distance calls originated in Mexico was presented to the congress by one of Nuevo León's deputies. Nevertheless the proposal was rejected.<sup>71</sup>

In the absence of a nationwide strategy and aware of the creation of employments that call centers encourage, other Mexican states have developed their own set of policies. In general, the type of support available is in the form of land concessions, training, organization of job fairs and tax exemptions. For example, Aguascalientes is planning to

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<sup>71</sup> In July 2005 Juan Carlos Pérez Góngora deputy for Nuevo León at the Federal Congress, submitted the reform project and it sought to increase the attractiveness of Mexico as a call center destination. The congress first approved the initiative but a couple of months later, in November, it was discarded.

open a services park to attract BPO companies “being one of the strategic guidelines to stimulate competitiveness and technological development...the government will design tailor-made incentives supporting the acquisition of equipment, capital goods and up to 50% of the technological infrastructure needed”(Shwebel, 2005). In Durango, the state government has consolidated an incentive package including financial support with federal and state resources that can be used to acquire or rent technological equipment, or to pay lease, renovation or construction of buildings. They will also grant full exemption of the payroll tax during four years and a 50% discount of the subscription rights in the public registry of property. There are training scholarships for up to 60 days and programs to encourage English language learning.

### 5) *External non-state actors*

There are some non-state actors around the call center industry which range from employer associations to local universities. This is the case in Monterrey where a large part of the call centers have agreements with private universities through which they secure a constant inflow of labor, university students, in exchange of scholarships. The agreements have helped in the reduction of turnover rates (Teleperformance has an agreement with Universidad Regiomontana as well as with Tec Milenio).

At the national level the Mexican Telemarketing Institute (MTI) gathers some of the most important companies in the call center sector serving domestic and international markets. Every year it organizes an annual meeting where the companies showcase their products and also meet technological suppliers and prospective clients The MTI also supplies with relevant industry information through its website. .

Very recently the National Chamber of Electronic and Information Technologies has begun to develop certain activities around the call center sector given the technological specificities of the sector. Yet their priority, as happened with PROSOFT, is to develop the software industry.

### 6) *Counterfactual*

In the BPO, that could be called “specialized BPO”, implying more aggregated value from the workforce, there is the possibility to develop remote services such as interpretation of x-rays, the processing of tax declarations or design and engineering activities<sup>72</sup>. Unlike the administration services, which are labor intensive and require less qualified workforce due to the nature of the tasks, the specialized BPO requires qualified workforce with diagnose ability and decision-making skills. For the Mexican case these “specialized BPO” has not been as successful in exporting as call centers for customer relationship management. Therefore, the counterfactual case for this study lies within “specialized BPO” which in

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<sup>72</sup> For example, in the case of Carrier, that needs to design the installation of air-conditioning for certain venues such as movie theaters, establishments, etc. That part of the design could be made remotely, from Mexico, reducing the labor costs.

theory could benefit from the same location advantages of the call centers: a bilingual and skilled labor force as well as relatively low wages.

None of the companies in this case study, either first mover or followers, is currently undertaking “specialized BPO”. The main reason for this is that they only have the capacity and know how to undertake customer service activities. Interestingly there are some other companies in the IT sector which as part of their operations have entered into this niche, yet even they state it is underdeveloped. This is the case of Neoris; one of the most important Information Technology outsourcing companies in Latin America has been able to do so.

### *Neoris*

Neoris is a company originated in Sentek, initially created by Cemex to outsource its own IT needs. Later on, in the year 2000, in order to take advantage of the company’s expertise, it joined twelve Latin-American companies and changed its name to Neoris. In 2002 the company acquired Andersen’s Business Consulting group in Mexico. With revenues placing it among the top five IT services providers in Latin America, Neoris has 3,000 employees and offices in 13 locations, including the US, Mexico, Venezuela, Brazil, Argentina, Chile, Spain, Germany and Portugal (AMR Research Report, 2004:15). They have 180 clients all around the world.

Based on its IT services, Neoris has identified another niche in the BPO services and has tried to diversify its portfolio of customers. They focus on Human Resources because it is a critical service in every company. They have undertaken functions such as the elaboration of payroll, the follow-up of labor demands and other fiscal issues that can hurdle efficiency (Olguin).

Yet, the main share of its income still is within the IT services. BPO Carlos Aguilar, Neoris’ outsourcing director recognized that although the company perfectly envisions the market opportunities arising from the demand of these services, they haven’t been able to fully take advantage of this due a list of several factors. First

When speaking about why other companies are not taking part of this niche he highlighted that it could be due to a low level of entrepreneurial culture in Mexico willing to undertake the risks of entering into new sectors. Second, he pointed out a lack of diffusion of government programs, such as PROSOFT in the software sector, on the different modalities of support that exist to enter the specialized BPO business. And finally, a limited infrastructure in English language education, which undermines the skills of the bilingual work force for this areas.

### *Hewlett Packard*

Another company that has entered the specialized BPO sector is Hewlett Packard. The company announced in 2006 that it would outsource its administrative tasks like payroll for the North American region to its Guadalajara, Mexico facilities creating 1000 jobs. Yet that represents intra-firm trade.

As these two short examples reveal, specialized BPO definitively represents a potential niche for Mexican exports, yet previous steps must be taken before being able to fully exploit it.

## **7) *Policy Recommendations***

After the analysis of the emergence of call center services exports we can make a set of five venues for policy recommendations: Human Capital formation; Financial Support; Legal Framework and Industrial Policy.

### ***7.1. Bilingual Human Resources /Human Capital formation***

Only six years have passed since the first exporting call center began operations, yet the sector is already experiencing some scarcity of bilingual human resources. Therefore, to remain as an attractive location and prevent a general bilingual labor scarcity the Mexican state needs to design and offer English courses at accessible prices, if not free, for those people not attending a university yet holding a high school education. They could become the workforce of customer services BPO.

As for the specialized BPO, a stronger effort needs to be done, to make sure that people holding a bachelor degree have enough English skills to apply for this type of jobs. This could be an interesting opportunity for many unemployed or underemployed professionals in Mexico.

### ***7.2. Incentives***

In order to face international competition it is important that the Mexican government develops a federal policy for call center/BPO incentives. Such policy would become an umbrella to coordinate state and local level policies. New incentives should also be designed to develop specialized BPO, particularly providing market insights to raise awareness of this niche and to a certain extent providing funds or mentoring needed to start up or upgrade businesses in this sector.

### ***7.3. Legal Framework***

Regarding the legal framework, Mexico's fiscal reform has languished. The reform would allow the elimination of value-added tax in the call center sector thus cutting down operation costs. As this report has pointed, the reform has already been taken to the chamber, but failed. The elimination of the tax would definitely be a competitive advantage for Mexico vis-à-vis the rest of Latin America.

### ***7.4. Industrial Policy***

Mexico's manufacturing industry is currently undergoing a transitional phase to services, but with the risk of repeating the mistake of becoming technologically and economically dependent. Therefore, if the country wants to successfully migrate from manufacture to *mindfactory*, an industrial policy that considers all branches of BPO, customer services and specialized is crucial. This has to be in coordination of educational institutions to make sure that skilled labor is available.

The government should also encourage the development of local providers in areas such as software services and high technology product designs that link to the BPO value chain. So there are more local components in the industry. Finally, attention should be put to the development of the security, confidentiality and quality norms of the BPO industry. This task would be promoted by the Ministries of Labor and Economy.

Finally, the Mexican government should design a plan to promote Mexico's competitive advantages abroad, to find more clients for the already established companies and that also brings into the country new international investors that encourage the development of the exports from the call center and specialized BPO sector.

## ***Bibliography***

AMR Research Report, 2004. Retrieved from <http://www.amrresearch.com>

Bancomext. 2004. México India visión de la relación comercial.

Barhan, Ashok and Cynthia Kroll. 2003. *The New Wave of Outsourcing*. Fisher Center Research Reports, University of California, Berkeley, Paper 1103.

Bjering, Karsten. 2006. *Productivity Impacts of Offshoring and Outsourcing: A Review*. STI Working Paper. OECD. France.

Cámara de Diputados. 2005. Versión estenográfica de la sesión ordinaria del viernes 11 de noviembre. *Cámara de Diputados LIX Legislatura*. Retrieved from <http://cronica.diputados.gob.mx/Ve11nov.html>

Comp USA Call Center Services Becomes Telvista. 2001. Bizwatch. Retrieved from <http://www.tmcnet.com/bizwatch/news/070301e.htm>

Cuentas alegres. 2005. *Information Week Mexico* (12) Retrieved from [www.infoweek.com.mx/articulos.php?id\\_sec=59&id\\_art=5445](http://www.infoweek.com.mx/articulos.php?id_sec=59&id_art=5445)

Eden, Lorraine. 2005. *Strategies of North American Multinationals in the New Regionalism*. CTPL Paper, Carleton University.

Gartner. 2005. *Management Update: Assess the 'Nearshore' Advantages for Business Process Outsourcing*.

Instituto Mexicano de Telemarketing (2005, Nov.) *Entorno y tendencias tecnológicas de los centros de contacto*. Retrieved from <http://www.imt.com.mx>

----- (2005, May). *Estudios de tendencias de los centros de contacto*. Retrieved from <http://www.imt.com.mx>

Martino, Vittorio. 2004. *El teletrabajo en América latina y el caribe*. Granada. Retrieved September 6, 2006 from [http://www.idrc.ca/uploads/user-S/11023387681traduccion\\_telework\\_\\_esp.pdf](http://www.idrc.ca/uploads/user-S/11023387681traduccion_telework__esp.pdf)

Mc Keary. n.d. Retrieved from <http://strategis.ic.gc.ca/epic/internet/inimr-ri.nsf/en/gr125092e.html>

Merkafon Acquires Call Center from Access International. 2000. *Direct Magazine*. Retrieved from [http://directmag.com/news/marketing\\_merkafon\\_acquires\\_call/](http://directmag.com/news/marketing_merkafon_acquires_call/)

Micheli, Jordy. 2004. "Telemarketing y globalización en la economía mexicana." *Memoria Virtual*. Retrieved September 6, 2006 from <http://memoria.com.mx>

N/A. 2006, July. "México, más activo en exportación de capital intelectual" *El Financiero*. México

NAFTA. Chapter 12. Retrieved from:

[http://www.ftaa-alca.org/ngroups/ngsv/publications/english/p1\\_s4a.asp#naf](http://www.ftaa-alca.org/ngroups/ngsv/publications/english/p1_s4a.asp#naf)

NeoIT. 2005. *Mapping offshore markets*. United States

Olguin, Adan (n.d) Outsourcing para la PYME. *El Semanal*.

Olivares, Adalberto. 2004. *El atractivo del mercado de offshore outsourcing en el mercado mundial*. IDC México. Retrieved from

[http://www.canieti.net/assets/files/85/EI%20mercado%20de%20offshore\\_AOB271004\\_V2.2\\_ESP.pdf](http://www.canieti.net/assets/files/85/EI%20mercado%20de%20offshore_AOB271004_V2.2_ESP.pdf)

Read, Brendon. 2003. "Taking the world out for a spin" *Call Center Magazine*. San Francisco 16 (7): 18

----- 2002. "Locating call centers closer to home" *Call Center Magazine*. San Francisco: 15 (9): 44

Ruelas, Ana. 1995. México y Estados Unidos en la Revolución Mundial de las Telecomunicaciones. México: Universidad Autónoma de Sinaloa.

Schwebel, Martha. 2006. "Incentivos de Gobiernos Estatales al establecimiento y desarrollo de Call Center". *Contact Forum*. 9(10)

Smith, Geri. 2006. "Special Report. Outsourcing. Can Latin America Challenge India?" *Businessweek*.

Retrieved from [http://www.businessweek.com/magazine/content/06\\_05/b3969427.htm](http://www.businessweek.com/magazine/content/06_05/b3969427.htm)

Sternlieb, Jordan. 2005. "Market Opportunities: Call Centers". *International Market Insight*. Retrieved from <http://strategis.ic.gc.ca/epic/internet/inimr-ri.nsf/en/gr125092e.html>

The Keys to the Back Office: Building a Legal and Policy Framework to Attract IT-Enabled Outsourcing. 2002. *Global Internet Policy Initiative*.

Retrieved from <http://www.internetpolicy.net/practices/backoffice.pdf>

## **Interviews**

Aguilar, Carlos; Outsourcing Director, Neoris. Monterrey, México.

Cantú, Cristina; Director of human resources department, Teleperformance Mexico. Monterrey, México.

Carvalho, Pedro; Supervisor, Teleperformance Mexico. Monterrey, México.

Coppel, Alicia; Coordinator, Subsecretaría de inversión extranjera. Monterrey, México.

Fernández, Alberto; Founder and General Director, Hispanic Teleservices. Monterrey, México.

Hibert, Abel; Researcher and Professor, Escuela de Graduados en Administración Pública y Política Pública. Monterrey, México.

Orozco, Noel; Director of Information Systems, Hispanic Teleservices. Monterrey, México.

Quintanilla, Idania; Director of human resources department, Sutherlands. Monterrey, México.

Zepeda, Edmundo; Coordinator, PROSOFT. Monterrey, México.