

## **Industrial Exchanges Across the U.S.-Mexico Border:**

### ***The Export Platform Thesis Reconsidered in Tijuana & San Diego<sup>1</sup>***

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#### **Abstract**

This study analyzes imports and exports at the Mesa de Otay crossing in Tijuana on the U.S.-Mexico border in order to empirically outline what has previously been assumed to be a regional industrial economy. The findings demonstrate that the reputation of Mexican industry in this area as only an export platform is narrow and needs to be elaborated to include the contribution which non-maquiladora and PITEX industries make to international trade in the Californias. To the extent that an industrial corridor can be delineated by these data, it exists in truncated form without much longitudinal extension.

#### **Resumen**

Este artículo analiza las importaciones y las exportaciones en el cruce de la Mesa de Otay, situado en Tijuana en la frontera con Estados Unidos, con la finalidad de esbozar lo que previamente se ha supuesto como una economía industrial regional. Los hallazgos demuestran que la reputación de la industria mexicana en esta área como sólo una plataforma de exportación es restringida y necesita ser ampliada para incluir la contribución que otros sectores, como el no maquilador y las industrias PITEX, han hecho al comercio internacional con las Californias. Estos datos también permiten delinear un corredor industrial aunque trunco y sin mucha extensión longitudinal.

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## Introduction

Export processing zones (EPZs), as the name implies, have historically produced goods that are sold and consumed elsewhere. They usually use supplies that originate outside of the EPZ and the country that hosts it. Cypher and Dietz say that “When nations fail to force production linkages to the broader economy on to firms in the EPZs, as has most often been the case, then the EPZ becomes little more than an ‘export platform’, and transnational corporation investment will remain an enclave, disarticulated from other sectors of the local economy.”<sup>2</sup> This lack of backward and forward linkages has led Sklair to argue that in most cases, export led development does not contribute much to the genuine development of the host country.<sup>3</sup>

The Mexican legislation enabling maquiladoras has been described as a “legal platform” and the pitex program as “the maquiladora’s up-and-coming little brother.”<sup>4</sup> In this paper we use the term “export processors” interchangeably with maquiladora and pitex industries. These companies have exported almost all their goods to the United States and have procured no more than two percent of their inputs from within Mexico. Christman predicts that even this low level of Mexican supplies will decrease: “In terms of Mexican-produced industrial inputs (raw materials, components, etc.) these will also continue to grow, but NAFTA notwithstanding will still not be a dynamic industry factor by the end of the forecast period. Of total production in 1996, Mexican inputs accounted for just 1.2%. For 1997, our forecast places this ratio once again at 1.2%, and for the end of the forecast period it actually declines a bit, to 1.1%.”<sup>5</sup>

Since Tijuana has more maquiladoras than any other Mexican city, it is expected that a sample of its imports and exports would contain a high proportion of goods related to the maquila industry. However, Tijuana is unique among other maquiladora centers in that it also has a non-maquila industry as well. Hualde and Mercado have argued that the identification of Tijuana with the maquiladora industry gives only a partial vision of the city’s economic activity. A more accurate picture comes into view when considering small and medium sized Mexican owned businesses and especially the large number of very small businesses which exist in Tijuana. They reported that the latter were most often established with the owner’s personal savings, and have about three or four employees. Only two percent of all micro-companies they studied bought equipment, but those which did imported it from the United States. The economic activity of most micro-companies occurred in the following sectors: medicine, pharmaceuticals, clothing, grocery store food products, auto sales and repair, restaurants and personal services. Micro-companies produced

1 James M. Cypher and James L. Dietz, 1997, *The Process of Economic Development*, New York, Routledge, p.449.

3 Leslie Sklair, 1989, *Assembling For Development*, Boston, Unwin Hyman, p. 19.

4 Bruce Sinclair, 1997, *A Maquiladora Classification and PITEX Program Primer*. Monterrey, N.L.: Mexico Direct Business Services. The pitex program was begun in 1985 in order to offer many of the same advantages of the maquiladora legislation. Although few businesses have taken advantage of the former in comparison to the latter, Sinclair suggests that it could be an ideal transitional tool since the pitex program is not being phased out with NAFTA.

5 John H. Christman, 1997, *Maquiladora Industry Outlook*. Maquiladora Industry Analysis. Eddystone, Pennsylvania: Ciemex-Wefa. 10 (1), 3.1-3.6, 3.5.

for both local consumption and the U.S. market.<sup>6</sup>

Employment data confirm the fact that small businesses (with one to five employees) absorbed over a third (35.8 percent) of the Tijuana labor force in 1997. They also show that the Tijuana economy is even more diversified than Hualde and Mercado indicated, since most people earn their living neither in maquiladora, pitex, or domestic industries. In 1997, 29.2 percent worked in these industries, while 29.7 percent worked in services, 19 percent worked in business, and 7.9 percent were employed in the United States. These proportions have remained fairly similar throughout the nineties, with the domestic and export processing industries employing a slightly greater proportion over the decade.<sup>7</sup> Hiemaux argues that although the growth in maquiladora employment appears quite strong, in fact has been competing with the growing tertiary sectors of the Tijuana economy since the mid-seventies, with an increase in jobs in business and tourist services.<sup>8</sup>

Little if any attention has been focused on comparing the kind of goods traded by the legally constituted export processors such as maquila and pitex industries, on the one hand, with goods traded by other industries. The only statistics available on Baja California's foreign trade do not distinguish maquiladora and non-maquiladora related trade for different sectors of the economy. It is the goal of this study to contribute to such a comparison by measuring trade flows between Tijuana and San Diego directly, observing the crossing of goods at the Mexican customs offices at Mesa de Otay. It is hypothesized that trade in goods related to legally constituted export processing industries will be prominent, but that we will also see substantial trade in goods related to industries that have not been constituted under maquiladora or pitex legislation. We predict more diversification of industrial trade than the 'export platform' concept implies. We hypothesize that non-maquiladora industries in need of inputs for their production will be responsible for many of the imports to the city of Tijuana, but that the exports will be generated largely by the maquiladora industry.

We also look at the origin and destination of goods traded to see if they fall within a Pacific Industrial Corridor, and whether there is evidence of rural industrialization into the interior of Baja California. Economic globalization has created new regional economies, and the implementation of NAFTA has increased growth along the US-Mexico border. Some authors have argued that cross border industrial corridors are forming based on production shared between Mexican maquilas and US based industry.<sup>9</sup> Other analysts have suggested that the only dynamic exchange takes place where the two societies meet, with few contributions from further northward or southward.<sup>10</sup>

### **Methodology:**

The data were collected at the Mexican customs offices at the Mesa de Otay cross-

6 Alfredo Hualde and Alejandro Mercado Celis, 1996. "Al sur de California, industrialización sin empresarios", *Revista Latinoamericana de Estudios del Trabajo*, 2 (3), pp. 55-82.

7 Secretaría De Desarrollo, 1998, *Indicadores de empleo y desempleo*, Estadísticas económicas, inegi.

8 Daniel Hiemaux, 1986, *Urbanización y autoconstrucción de vivienda en Tijuana, México*, D.E.: Centro de Ecodesarrollo, p. 46.

9 Rocío Barajas, 1989, *Complejos industriales en el sur de Estados Unidos y su relación con la distribución espacial y el crecimiento de los centros maquiladores en el norte de México*, in B. González Aréchiga and R. Barajas Escamilla (compiladores), *Las maquiladoras: ajuste estructural y desarrollo regional*, Tijuana, Fundación Friedrich Ebert.

10 Paul Ganster, 1997, *The U.S.-Mexico Border In Comparative Perspective*. Research Seminar on Mexico and U.S.-Mexican Relations, The Center For U.S.-Mexican Studies, University of California at San Diego, November 12.

sing, the main entry point for commercial goods in the San Diego/Tijuana area and one of the busiest customs posts on the U.S.-Mexico border. It is the customs office closest to Ciudad Industrial, the colonia which contains the largest concentration of maquiladoras in Tijuana. The main characteristics of all imports to and exports from Mexico must be described on customs forms, called *Pedimentos de importación*. The customs agent electronically scans these, and the information is then sent to Mexico City. Once filed in the national capital, the information has been very difficult for researchers to access. As Ruiz and Wong point out in their study of intra-regional trade patterns in Arizona and Sonora, and accurate estimation of trade flows is very difficult due to the overestimation of the amount exported for political reasons and intra-industry trade between transnational corporations.”

The present study coded the content of the *pedimentos* by hand in the customs booth after the electronic scanning was completed. Research assistants sat in the customs booths with the agents to carry out the coding during the period of the study. Observations were made daily for three weeks during November and December of 1995. This resulted in two data sets: one for imports and the other for exports. Variables recorded from the *pedimento* included the number of products being shipped (up to ten) on any one *pedimento*, the harmonized tariff schedule number indicating what is being sent, permit type (e.g. permanent import, maquiladora, etc.), selling country, origin, destination, units of goods, quantity of goods, value of goods, and exchange value for that day.

This data set is unique in that it allows a more detailed empirical description and analysis of trade flows than previously possible. The timing of the data collection makes trade related to non-maquila industries more visible and therefore amenable to analysis. Late November and early December is a slower period for Tijuana export processing industries than earlier in the year, since they have completed much of their production for the ‘end of year’ holiday market. Thus, imports and exports related to the maquila and pitex industries are probably somewhat underestimated in this study. Imports of low value are also probably underestimated since *pedimentos* are not filled out for goods worth less than \$1 000 unless the importer insists.

There are also some limitations to these data. It was sometimes difficult to identify the place of origin and the destination of goods traded, since it appeared that those named as importers or exporters were often intermediaries or distributors of goods produced or going elsewhere. It was also more difficult to code all information for goods flowing from south to north (exports), than in the opposite direction (imports). The overwhelming bulk of northward traffic, which customs officials estimate to be between 1 100 and 1 250 trucks per day, sometimes made it impossible to record all the data on Mexican exports. The effects of these limitations on the results are noted where relevant below.

## Findings

During the observation period, there were at least 8 755 imports and 2 981 exports. This is an underestimation of the real total, since only the first ten shipments on any *pedimento* were recorded. The fact that a high proportion of the *pedimentos* had the

11 Clemente Ruiz and Pablo Wong, 1997. The Arizona-Sonora Region, Integrating Cities and Regions, p. 5.

maximum-recorded number of shipments indicates that pedimentos with large numbers of shipments were not uncommon. Over half or 58.8 percent of all exports were on pedimentos with 10 or more shipments, and 40.7 percent of all imports were on pedimentos with 10 shipments or more. If we had recorded all the shipments and not just the first ten, the number of imports and exports would have been higher, but we do not know by how much.

Table 1 shows the various legal categories of imports and exports. The codes and their definitions were taken from the *Resolución de Comercio Exterior*, Ediciones Fiscales ISEF, S.A. Labels for the codes shown in the table are abbreviated for reasons of space, but mention of the maquila and pitex programs has always been included in the table when present in *Resolución...* The “other” category was used for the few goods imported or exported at a rate of less than 0.0 percent (e.g. 0.01) and for miscodes.

Almost two thirds (64.6 percent) of products entering Mexico were related to maquiladora and pitex production, as the total of A2, A6, BO, F4, F5, HI, H2, H3, J1, and VI shows. Pitex related imports were a small part of this, with a full 60 percent going to maquilas (H2, H3). On the other hand, 15.6 percent of imports was for other industrial production (C1).

Mexican exports to the United States linked to maquiladora and pitex industries was almost as high as their level for imports, since they made up 59.9 percent of all exports (sum of BO, HI, J1, J2, VI). A full 45 percent came only from maquiladoras (J1). Codes which combine exports from both maquiladora and pitex industries (HI, VI) do not allow us to ascertain the exact level of pitex related exports. There appear to be no exports from Mexico by industries which were not legally constituted export processors (C1), i.e. maquiladoras and pitex industries. Thus, data presented in Table 1 appear to support hypotheses which suggested substantial imports and few exports by domestic industries. However, 37.8 percent of all exports were goods of Mexican origin for consumption abroad (A1), which is higher than the 20 percent of exports falling into this category in Sonora in 1990.<sup>12</sup>

The import of goods by industries that are not legally classified as export processors is indicated as well by the seemingly incongruous fact that 1.4 percent of all imports to Mexico reported their “selling country” as Mexico and 2.0 percent reported their “country of origin” as Mexico. Few of these goods were related to export processing, unlike the high proportion in the sample as a whole. A little less than a fifth (18.1 percent) of the imports naming Mexico as country of origin were maquila and pitex related and almost none of the imports naming Mexico as selling country were. We suggest that they were goods originated in Mexico and intended for domestic Mexican industry, but sent to the United States for processing before the final stage of production. Thus, shared production is not the exclusive domain of those factories operating under special export processing legislation such as that authorizing maquiladoras and pitex industries.

We turn next to an examination of what kinds of commodities were exchanged. Imports and exports through Mesa de Otay fell into almost one hundred different economic sectors, most of which were represented by very small quantities of goods. Only 19 sectors contained one percent or more of all imports sampled, and 22 sectors one percent or more of all exports. These are shown in Table 2, where the

<sup>12</sup>Ruiz and Wong. Op. cit.

Table 1: Type of Permit for Goods Traded

		<i>Imports</i> (N=8755)	<i>Exports</i> (N=2981)
<i>Permit Type</i>			
A1	Permanent import or export	9.5%	37.8%
A2 & A6	Temporary import for Pitex	3.3	—
AJ	Import or export of packing goods	0.1	0.2
BO	Export/return of maquila/pitex goods	0.1	1.3
BA	Non-vehicular imports by foreign residents	0.1	—
BM	Temporary export of goods for processing	—	0.7
C1	Import by non-maquila industry*	15.6	—
C2	Vehicles permanently imported to northern Mexico	5.0	—
D1	Return of defective imported goods	—	0.1
F4 & F5	Maquila or pitex temporary import changed to permanent import	0.7	—
H1	Return of unprocessed maquila and pitex goods	0.1	10.5
H2 & H3	Temporary import of goods to be processed by maquilas	60.1	—
H8	Returned packing material	0.1	—
J1	Return of processed goods by maquilas	0.1	45.1
J2	Export of goods processed via pitex	—	2.9
P1	Re-export of goods from north to interior	1.3	—
V1	Import or export by maquila or pitex	0.2	0.1
Other		3.7	1.3
<b>Total:</b>		100	100

\*According to the *Resolución de Comercio Exterior*, Ediciones Fiscales ISEF, S. A., the code for imports and exports linked to non-maquila industry is C1, which is defined as "Importación a la franja fronteriza norte y región fronteriza, al amparo de los decretos por los que se establece el esquema arancelario de transición al Régimen Comercial General del País para la Industria, Construcción, Pesca y Talleres de Reparación y Mantenimiento así como para el Comercio, Restaurantes, Hoteles y ciertos servicios ubicados en la franja fronteriza norte del país." (p. 204).

"Total" row indicates that by looking at only these few sectors, we have 83.4 percent of all imports and 88.2 percent of all exports. The goods most often imported are plastics (39) and electrical machinery such as TVs and audio equipment (85) and those most often exported are vegetables (06, 07, 08) and electrical machinery (85). The only economic sector where there is a close correspondence of the amount of goods imported and exported, considering only those with a substantial amount of trade, is electronic machinery such as televisions and audio equipment (85). It is noteworthy that vegetables and fruits (06, 07, 08) made up a substantial amount of all exports at 18.5 percent, while being insignificant or absent among imports.

Table 3 takes the economic sectors which were traded at the level of one percent or more, and shows what percentage of imports and exports in each sector was related to maquiladora and pitex industries. When we compare how much of each sector's imports was for maquila and pitex industries with the level for the whole sample, we see that four sectors were imported at about the level of the sample which was 65%—chemical products (38), paint and dyeing extracts (32), rubber (40) and wood (44). However, chemical products and paint solvents were shown in

Table 2 to make up quite a small proportion of all imports, and so are not that significant. The plastics (39) and electrical machinery (85) categories, which were shown in Table 2 to make up approximately a third of all imports, were tied to maquilas and pitex industries at levels higher than the sample. Over four fifths of their goods go to legally defined export processors as opposed to 65 percent for the sample. Other sectors such as paper (48), printed books (49), special woven fabrics (58) iron and steel (72, 73), aluminum (76), base metal tools (82,83) and optical implements (90) were also more tied to export processing than the sample level of 65 percent, albeit not as dramatically as plastics and electronic machinery. On the other hand, machinery and parts (84), non-rail vehicles (87) and furniture (94) are imported by export processors at levels noticeably lower than the average for all imports. The latter three which are not importing for pitex and maquila industries at the level of the sample are more evidence of the import activity of local industries, businesses, and individuals, and were shown in Table 2 to make up a robust 15 percent of all imports.

With regard to exports, table 3 shows that only toys, games and sports equipment (95) are exported from maquila and pitex industries at levels close to that of the entire sample of 59.9 percent. Sectors where almost all exported goods are from pitex and maquiladora industries are plastics (39), paper, paper board, paper pulp (48), apparel and clothing accessories (61), electrical machinery, TV and audio equipment (85), and optical, photographic and surgical implements (90). Maquila and pitex related exports are also over-represented, albeit less dramatically, in the following sectors: wood and charcoal (44), clothes and accessories (64), iron and steel articles (73), aluminum articles (76), machinery and mechanical appliances (84), non-rail vehicles and parts (87), and furniture (94).

It is striking that the second, third and fourth rows of exports are related so infrequently to maquila and pitex industries, even though table 2 showed these sectors responsible for almost a fifth of all exports. These are the vegetable sectors (06,07, 08) of the economy. They, along with fish and crustaceans (03) are probably part of the growing agro-industry which policy makers are predicting will become the economic basis for new agro-industrial corridors in the state of Baja California, such as the one connecting Ensenada and San Quintín.<sup>13</sup> If we consider the production of these goods as “industrial” even though they did not fall within the definition of the C1 type of permit quoted above, then the hypothesis about non-maquila industries being absent from exports is put in question. Other sectors which are shown to export for legally defined export processors at a rate below that of the sample, and which are therefore indicative of trade activity by the domestic economy not operating under special maquila and pitex legislation, are soaps and lubricators (34), leather articles (42), footwear (64), stone, plaster and ceramic articles (68), glass (70), and iron articles (72). These may be Mexican owned industries which subcontract for foreign companies marketing goods in the United States, or they may be producing for export and doing their own foreign marketing.

As can be calculated from the totals at the bottom of table 2, 16.6 percent of all

13 Irma Núñez, 1998, “Congeladora de fresa en San Quintín: Corredor agroindustrial”. *El Mexicano*, 1 de enero: A1, A6.

**Table 2: Economic Sectors with One Percent or More of Trade.**

<i>Sector</i>	<i>Imports (N=8755)</i>	<i>Exports (N=2981)</i>
03 Aquatic invertebrates (fish, crustaceans, etc.)	—	3.6%
06 Vegetable products	—	2.4
07 Edible vegetables	—	13.4
08 Edible fruit, nuts	—	2.7
32 Tanning & dyeing extracts, varnish, paint	2.2%	—
34 Soaps, waxes, lubricating preparations	—	1.0
35 Albuminoidal substances, glues	1.2	—
38 Miscellaneous chemical products	1.3	—
39 Plastics and articles thereof	17.4	5.8
40 Rubber and articles thereof	2.1	—
42 Leather articles	—	1.1
44 Wood and articles thereof, wood charcoal	3.6	4.2
48 Paper, paperboard, paper pulp	9.5	6.0
49 Printed books, newspapers, printing products	1.1	—
58 Special woven fabrics, lace, trimmings	1.5	—
61 Articles of apparel and clothing accessories	—	1.2
62 Clothes and accessories	—	2.8
64 Footwear, umbrellas, headgear, riding crops	—	1.0
68 Stone, plaster, cement, ceramic articles	—	1.2
70 Glass and glassware	—	1.0
72 Iron and Steel	1.5	1.6
73 Articles of iron and steel	6.5	3.2
76 Aluminum and articles thereof	1.2	1.5
82 Tools, cutlery of base metal	1.2	—
83 Miscellaneous articles of base metal	1.1	—
84 Machinery and mechanical appliances, parts	7.1	4.0
85 Electrical machinery, TV & audio equipment	13.7	15.8
87 Non-rail vehicles, parts	7.8	1.0
90 Optical, photographic, surgical implements	1.8	3.9
94 Furniture, stuffed furnishings, lamps	1.5	7.5
95 Toys, games and sports equipment	—	2.3
<b>Total:</b>	<b>83.4</b>	<b>88.2</b>

imports and 11.8 percent of all exports made up less than one percent of all imports and exports sampled, being traded in infinitesimally small quantities. As noted above, these fell into many more sectors than imports and exports at more than 1 percent—72 different economic sectors for imports and 50 different economic sectors for exports. If we calculate how many of these very small shipments of imports were related to maquiladora and pitex permits, we find that 42.2 percent were, which is substantially less than the sample level of 65 percent. On the other hand 53.8 percent of all very small shipments of exports was from legally constituted export processors, which is closer to the sample level of 59.9 percent. These findings indicate that the non-maquiladora Mexican economy is more likely to import goods of greater diversity than maquila and pitex industries, and in smaller quantities.

Next, we turn to the origin and destination of goods traded. In the discussions of the early nineties when continental and hemispheric free trade were first being proposed, most cities along the U.S.-Mexico border with customs posts hoped that they might capture more trade destined for locations outside their immediate areas.



*Table 3: Percentage of Trade Related to Maquiladora and Pitex Industries By Sector.*

<i>Sector</i>	<i>Imports</i>	<i>Exports</i>
03 Aquatic invertebrates (fish, crustaceans, etc.)	—	10.4%
06 Vegetable products	—	4.2
07 Edible vegetables	—	6.8
08 Edible fruit, nuts	—	3.8
32 Tanning & dyeing extracts, varnish, paint	68.4%	—
34 Soaps, waxes, lubricating preparations	—	12.9
35 Albuminoidal substances, glues	77.2	—
38 Miscellaneous chemical products	68.4	—
39 Plastics and articles thereof	80.7	89.6
40 Rubber and articles thereof	62.6	—
42 Leather articles	—	42.4
44 Wood and articles thereof, wood charcoal	61.2	75.8
48 Paper, paperboard, paper pulp	80.6	91.1
49 Printed books, newspapers, printing products	77.2	—
58 Special woven fabrics, lace, trimmings	94.6	—
61 Articles of apparel and clothing accessories	—	94.3
62 Clothes and accessories	—	79.8
64 Footwear, umbrellas, headgear, riding crops	—	20.7
68 Stone, plaster, cement, ceramic articles	—	29.7
70 Glass and glassware	—	43.3
72 Iron and Steel	84.4	29.8
73 Articles of iron and steel	72.7	74.5
76 Aluminum and articles thereof	70.4	75.6
82 Tools, cutlery of base metal	70.1	—
83 Miscellaneous articles of base metal	78.6	—
84 Machinery and mechanical appliances, parts	58.9	86.4
85 Electrical machinery, TV & audio equipment	80.4	93.4
87 Non-rail vehicles, parts	7.8	82.8
90 Optical, photographic, surgical implements	74.1	94.9
94 Furniture, stuffed furnishings, lamps	57.4	69.1
95 Toys, games and sports equipment	—	62.9
Goods related to maquila and pitex industries in sample	64.9%	59.9%

These data indicate that during the period of study, Mesa de Otay did not serve as a gateway to other countries north or south of the United States and Mexico in the western hemisphere, such as Canada or Central American countries. Almost 98 percent of Mexican exports were destined to the United States, and all Mexican imports were destined for Mexico. Almost 83 percent of imports to Mexico came from the United States and all exports from Mexico came from Mexico. Asian and Pacific Rim countries<sup>14</sup> accounted for a total of 12.6 percent of Mexican imports.

The exchange of goods recorded by these data tends to take place between trading partners located quite close to the border. Ninety percent of the imports to Mexico came from southern California urban locations. Imports were destined for even fewer cities within Baja California, with over four fifths (83.3 percent) of the imports going to Tijuana and 6.8 percent to Ensenada. The only other destination getting over one percent of imports was the

14 These countries were Japan, Korea, Taiwan, China, Malaysia, Thailand, Hong Kong, Philippines, India, Indonesia, Pakistan, and Singapore.

federal district of Mexico City, which was the end point for 3.1 percent.

Even if the high proportion of Mexican imports originating in southern California was overestimated by the methodological difficulty of identifying city of origin noted above, the existence of a Pacific industrial corridor should have resulted in more goods coming and going from the states north of California and south of Baja California. Oregon and Washington together served as the place of origin of less than one percent of all imports. On the other hand, the mid-western state of Illinois was the source of more imports at 2.3 percent, as was New Jersey and New York on the east coast with 1.7 and 1.5 percent respectively. While Baja California Norte was the destination of a total of 92 percent of all imports, Mexico City ranked second with 3.1 percent and Baja California South third with 2.1 percent.<sup>15</sup> If a Pacific Industrial Corridor is demonstrated at all by these findings, it is truncated, not extending very far northward above Southern California or southward below Ensenada. Research on this question needs to be continued, however, since the pedimento may be filled in by shippers so as to make the place of origin appear to be the last place the product stopped, rather than where it was produced. Cities recorded as place of origin may in fact be trans-shipment points.

An unexpected finding was that 6.3 percent of imports to Mexico named Japan as “country of origin” and only 0.3 percent named Japan as the “selling country.” While this might seem an underestimation, it may indicate that Asian owners consider their U.S. transplants as the sellers. Data collected by the author from SECOFI on all Zona Costa<sup>16</sup> maquilas existing at the end of 1997 showed no head offices in Japan, since Asian maquilas listed US subsidiaries as head offices. The Asian company might have sold supplies to its US subsidiary, and the latter’s location was then listed as the selling country and country of origin. Imports might also have been illegally mis-labeled.<sup>17</sup>

The trade in goods associated with maquiladora and pitex industries appears to have even greater geographic limits than that observed in the entire sample, with a spatial concentration close to the border. Maquila and pitex permits covered 69.4 percent of Mexico’s exports from Tijuana, whereas only 36.3 percent of goods exported from Ensenada were maquila and pitex related. Over two thirds (67.3 percent) of Mexico’s exports destined for San Diego were under maquila rules whereas well under half (43.9 percent) of those going to Los Angeles were. There is a similar pattern of less international trade by maquiladora and pitex industries as one gets further from the border when imports to Mexico are considered, with 70.7 percent of imports going to Tijuana being associated with maquiladora and pitex industries, but only 45.9 percent of those going to Ensenada being under such permits. These findings do not strongly support the trend of rural industrialization southward via maquilas noted in

15 San Diego was the target city for largest percentage (34.4) of Mexican exports and Los Angeles the second (17.8). As noted in the methodology section, it was more difficult to record city of destination for exports than imports because of the very heavy truck traffic crossing from the south to the north. Unfortunately, 40.3 percent of the cities to which Mexican exports went were not recorded for this reason.

16 The Zona Costa is defined as all the municipalities in Baja California with the exception of Mexicali.

17 This has been suggested in the period since the data were collected. On September 30, 1998, SourceMex 9(27) reported that Canacero president José Antonio Gómez said his chamber requested the government’s intervention because a surge in Asian steel imports, many illegally mislabeled as U.S. products, had pushed down the price of flat steel in Mexico.

Sonora,<sup>18</sup> and may be due to the fact that Ensenada's seaport attracted business long before export processing companies existed in Tijuana. It may also reflect the fact that the base of the Baja California Norte economy is not as concentrated in maquila and pitex industries as in some other Mexican border states.

### Discussion

This analysis has shown that even at the end of the year when trade connected to maquiladora and pitex industries can be expected to be low, almost two thirds of all imports and exports were still going to and coming from legally defined export processors. These were mostly connected to maquiladoras, although the level of trade related to the pitex industries may be expected to increase in the future when NAFTA is fully implemented. The economic sector with the largest number of imports was plastics, with four fifths of these going to maquiladora and pitex industries. Electrical machinery is the commodity ranking second among imports and first among exports, as would be expected since Tijuana produces more television sets than any other city in the world. Over four fifths of this sector is also imported and exported for maquiladora and pitex industries.

However, even though Mesa de Otay is adjacent to the largest industrial parks in Tijuana, it also served as a conduit for large quantities of goods imposed by economic sectors which were not highly associated with the maquila or pitex programs, especially non-rail vehicles. Many of the exports were also sent under permits other than those of the maquila or pitex industries, especially vegetables which made up almost a fifth of all exports. Soaps, leather, footwear, ceramic articles, glass and iron articles were also exported by local industry more often than by legally constituted export processors. Thus, the hypothesis that exports would be generated largely by the maquiladora industry is not completely supported. As an export platform, this area of Mexico offers up substantial amounts of goods from non-maquiladora companies as well as legally constituted export processors. This trend is not unique to the Mesa de Otay customs post. The North American Free Trade Agreement (NAFTA) boosted the export levels of non-maquiladora products in the whole country, and in the state of Baja California Norte this increase was reflected in agriculture, mining, wood products, machinery and equipment in the first half of the nineties.<sup>19</sup> The contribution of these exports to the development of this region is beyond the scope of this study, but Ruiz and Wong consider that Sonora's export of primary goods which depend on price and exchange rate fluctuations to be vulnerable and not contributing much to the competitiveness of that region.

We did not find much evidence of the existence of a longitudinal industrial corridor formed by the maquiladora industry, as has been hypothesized in the literature. There were more imports and exports from the states of Illinois, New Jersey and New York than there were from Oregon or Washington. Instead of a north-south corridor, trade seems to connect urban poles —southern California cities with Tijuana

18 Pablo Wong González, 1993, La nueva industrialización rural en Sonora: de la villa a la "fábrica global", en Miguel Ángel Vázquez Ruiz (coord.) Sonora hacia el 2000: Tendencias y desafíos, Hermosillo, Sino, S.A. de C. V.

19 Secretaría de Desarrollo Económico, 1995, Análisis de las exportaciones de Baja California. 1991-1994, Mexicali, Gobierno del estado de Baja California, p. 4.

and Ensenada. The farther the origin and destination of goods is from the border, the less likely these goods are to be imported and exported under maquiladora or pitex permits. Ensenada is an interesting case, with much less of its imports and exports tied to legally constituted export processors than the level present in the sample. This implies that its economy is more diversified than Tijuana's, although it would be a mistake to think that even in Ensenada, legal export processors and local industry are completely separated.

They are connected through the labor force, as employers of workers who belong to the same households. The wages they pay are pooled in household economies. It has been argued that Ensenada maquiladoras tend to specialize in clothing production because firms in that sector were attracted by the availability of women with the highly developed manual dexterity important for sewing. These women are relative newcomers to the area, and came as wives of male migrants from Michoacán and Oaxaca. Their husbands originally came to work in agriculture in San Quintín.<sup>20</sup> This explanation for Ensenada's maquiladora clothing specialization is based in the availability of women's labor, an argument made about the early years of the maquila program in other border locations.<sup>21</sup> While the rapid increase in clothing maquilas may presently be contributing to a shortage of such female labor in Ensenada, similar arguments have been made about Mexicali. Migration has not been as important in the formation of the Mexicali maquila labor force because the climate tends to discourage much movement of people. However, in the valley of Mexicali, where there are women who do not work in the fields, maquila companies hire them in many sectors including clothing and send buses to transport them to and from work. Although labor used to be plentiful in Mexicali, shortages like those often experienced in Tijuana have occurred recently with the growth of electronic maquilas, and this may be a reason for recruiting women workers from agricultural areas.<sup>22</sup>

The formation of new economic regions called agro-industrial corridors joins domestic and foreign industries into new communities in which they are likely to have more interaction in the future. However, the concept of agro-industrial corridor is quite different from that proposed in the literature which hypothesized cross-border industrial corridors based on the maquila industry. The former term seems to be used loosely by policy makers to refer to the agglomeration of industry and agriculture in general terms. The latter term referred specifically to a high-tech parent company north of the border subcontracting to a lower-tech maquiladora plant south of the border. Different uses of the concept make it a slippery one and decrease its heuristic value.

20 Interview with Leticia Vázquez, Subdirectora de Promoción a la Industria y al Comercio Exterior, at SECOFI's Zona Costa office in Tijuana, January 30, 1998. See also Françoise Lestage, 1998, "Los indígenas mixtecos en la frontera norte (1977-1996)", in *Notas: Revista de información y análisis*, no. 4, inegi, pp. 18-27. This study of Mixteco marital records reports that in Tijuana, Mixteco women often work in factories to supplement or double their husband's income, although their work as street vendors is sometimes more visible. Although they report their occupation as housewives, they often work permanently in factories or temporarily when a couple needs to build a house, put on a party or pay unusual expenses.

21 Susan Tiano, 1987, "Women's Work and Unemployment in Northern México", in V. L. Ruiz and S. Tiano (eds.), *Women on the U.S.-Mexico Border*, Boston, Allen & Unwin, pp. 17-40.

22 Interview with Samuel Colín, Industrial Development Promoter, Industrial Development Commission of Mexicali, April 13, 1998.