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**THE MEXICAN AUTOMOTIVE EXPORT GROWTH: FAVORABLE
FACTORS, OBSTACLES AND POLICY REQUIREMENTS**

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THE MEXICAN AUTOMOTIVE EXPORT GROWTH: FAVORABLE FACTORS, OBSTACLES AND POLICY REQUIREMENTS

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Introduction

The Mexican automotive industry is under a great technological and economical transformation, and some aspects of this change have been recently studied. 1/ In particular, the new export-oriented development is an important transformation. Automotive exports have observed a sharp growth during the last 10 years. This performance is studied in this paper. The firms' export expectation and obstacles are examined and specific policy requirements are identified. A survey was conducted at the end of 1989 for these purposes. This survey included six vehicle producers and 12 auto part manufacturers. They exported the equivalent to 72% and 83%, respectively, of the total exports in these branches. 2/

1/ See, for instance, K. Unger, 1990 and 1987; A. Mercado, 1990; J. Carrillo, 1990; F. Zapata, T. Hoshino and L. Hanono, 1990; Booz-Allen & Hamilton Inc., 1987; H. Shaiken with S. Herzenberg, 1987; C. Zambrano, 1987; M. Bennet, 1986; M. Dávila - Flores, 1985; and R. Dombois, 1985.

2/ Four car assemblers and two trailer producers (one of them is producing also buses) are included. These firms exported 2059 million dollars in all, during 1988, which represents 72% of total exports made by automobile assemblers (according to Banco de Mexico and INEGI). Concerning the 12 surveyed auto part firms, they exported in total near 390 million dollars in 1988, which represents 83% of total exports of the main auto part exporters listed by Expansión.

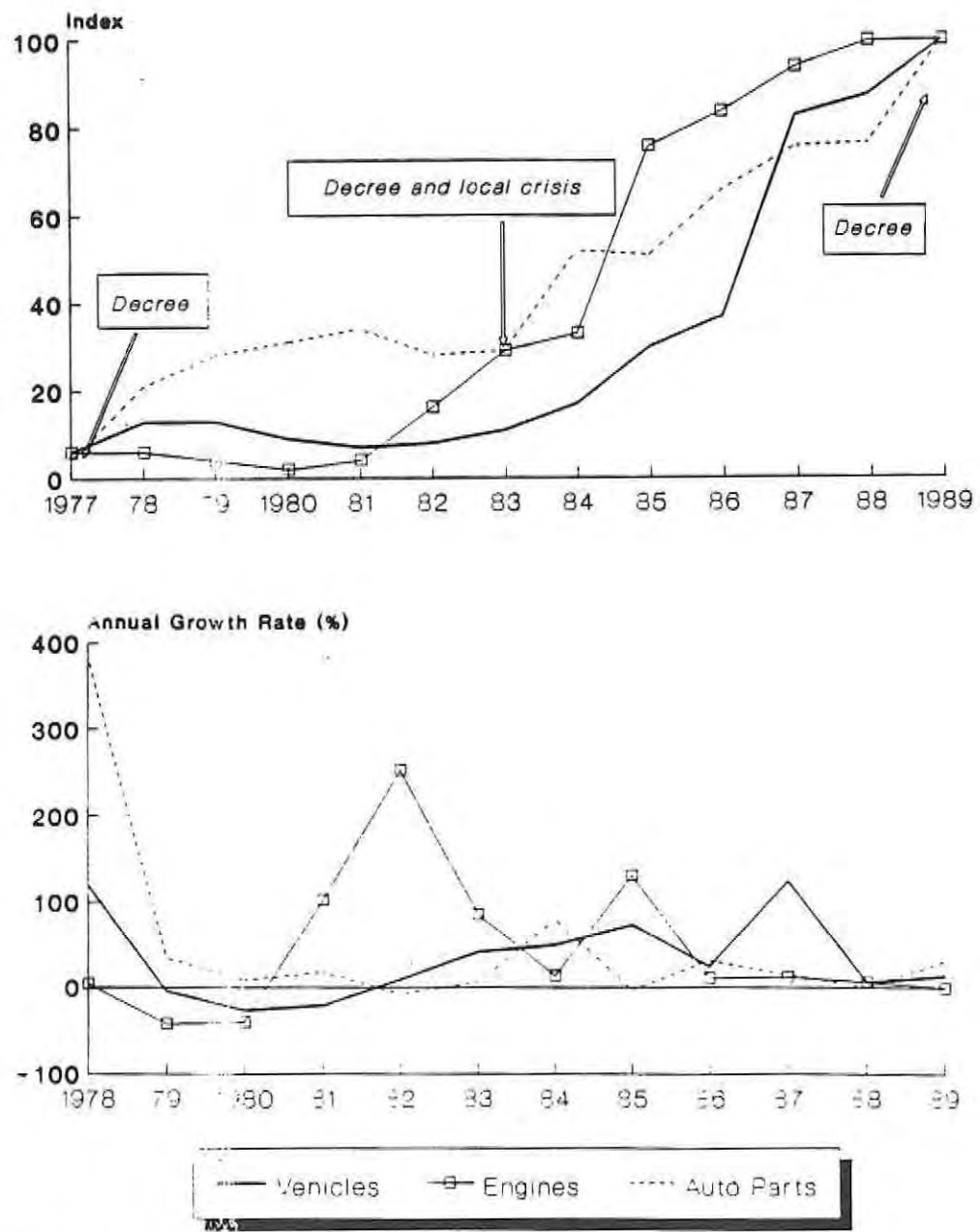
1. The Export Performance

The exports of vehicles and components increased from very low amounts in 1977 (12,000 vehicles and 120 millions of dollars of engines and auto parts) to almost 200,000 vehicles and 2.2 billions of dollars of engines and auto parts in 1989. The export growth is solid, after a period of highly unstable growth rate in the late 70s and most of the 80s. Firstly, the auto parts export observed a big increment in 1977-1979; then, engine exports grew sharply at the beginning of the 80s, and later, vehicles were the most dynamic export. (See table 1 and fig. 1.)

Automotive exports are increasing more rapidly than manufactures export on average. Vehicles, engines and auto parts represented 20% of manufactures export in 1983 and 29% in 1989. Automotive exports have grew more dynamically than imports. Consequently, the traditional deficit has been eliminated, resulting now a trade surplus with an export/import ratio of 1.8. (See table 2.)

The complete passenger car is the main export product. The engine is also a major product. Trucks and buses are exported only in very small amount.

FIGURE 1
Mexico's Automotive Exports 1977-1989



Source: Table 1.

Table 1
Automotive Exports by Product, 1977-1989

Years	Motor Vehicles			Engines			Auto Parts		
	Units	I	GR	Millions of Dollars	I	GR	Millions of Dollars	I	GR
1977	11743	6		82.5	6		37.6	4	
1978	25828	13	119.9	86.2	6	4.5	182.3	21	384.8
1979	24756	13	- 4.2	50.1	4	- 41.9	244.7	28	34.2
1980	18245	9	- 26.3	29.9	2	- 40.3	265.9	31	8.7
1981	14428	7	- 20.9	60.4	4	102.0	288.0	34	17.7
1982	15819	8	9.6	212.7	16	252.2	237.9	28	- 7.7
1983	22456	11	41.2	394.8	29	85.6	250.7	29	5.4
1984	33635	17	49.8	449.8	33	13.9	451.0	52	79.9
1985	58423	30	73.7	1039.7	76	131.1	434.3	51	- 3.7
1986	72429	37	24.0	1152.7	84	10.9	570.1	66	31.3
1987	163073	83	125.1	1290.9	94	12.0	655.1	76	14.9
1988	173147	88	6.2	1371.9	100	6.3	658.7	77	0.5
1989	196999	100	13.8	1366.3	100	- 0.4	859.6	100	30.5

I: Index; GR: Growth Rate (%).

Sources: a) Vehicles. Period 1977-84: AMIA, 1986 (table VI-3); period 1985-88: AMIA, 1989 and 1990. b) Engines. Year 1977: SPP, 1981 (table III.36); period 1978-84: AMIA, 1986, table XI-2; period 1985-89: Comercio Exterior, several issues. c) Auto parts. periods 1977-79 and 1986-89: Comercio Exterior, several issues; period 1980-85: INEGI, 1986.

Table 2
Mexico: Export of Vehicles, Engines and Auto Parts in 1989

Products	Share in Manufactures Export (%)	Exports (Millions of dollars)	Export/Import Ratio
Vehicles	12.0	1 567	10.0
Engines	10.5	1 366	8.0
Auto parts	6.6	860	0.5
Total	29.1	3 793	1.8

Source: Comercio Exterior, 1990, "Sumario Estadístico", BANCOMEXT, June.

Mexican production of cars started in the thirties with the assembly of imported CKD ("completely knocked down" kits). The national manufacture of auto parts was initiated in the 1940s, under an imports substituting policy. Exports started slowly in the sixties, but expanded sharply just in the 1980s. Exports have grown rapidly, specially in the late 1980s. Nearly 200 000 vehicles and 140 000 engines were exported in 1989. Also the firms export margin as to total sales increased from around 0.20 (except for GM which export margin was 0.53 in 1985) to around 0.50 (except for Nissan, which export margin decreased from 0.20 to 0.03, as a consequence of its growing domestic sales). In 1988, GM and Ford had a high export margin, more than 50%. GM exported 59% of total sales, and particularly exported 80% of engines production. Ford exported 100% of engines and 51% of vehicles. Nissan and VW had lower export margins. Nissan exported 18% of total sales. VW exported a lower margin in 1988. But in 1989 it exported between 30% to 40% of total sales, including complete car, engines and spare parts (complete car had an export margin of 40%).

The bigger exporters (particularly the producers of passenger cars) have reached surplus in their foreign trade balance, during the second part of the 80's, resulting with an export/import ratio quite higher than 1, ranging from 1.7 to almost 3.

Assembling firms export mainly to the US, Chile and Canada. Exports have been highly and increasingly concentrated in these 3 countries, absorbing 92% of the Mexican exports of vehicles in 1987, and 94% in 1989. But the main client by far is the US, which

received 83% of exported vehicles in 1989. Firms sell also to Latin America and Japan. Mexico is exporting auto parts heavily to the US market, although some exports go to France, Canada, Taiwan, Spain, India and some South American countries.

2. Favorable Factors

Exports of vehicles have grown as a result of the combination of the export promotion sectorial policy, the TNCs restructuring strategy and the domestic market changes. Auto part exports started as a consequence of local demand contraction in 1982-1985. The growth rate of these exports was particularly high those years.

The domestic recession was combined with other factors stimulating exports, specially the new TNCs global strategy, changes in product mix and government intervention, like the 1983 decree. However, in 1989-1990, the role of domestic demand is not so important to increase exports. Both foreign demand and local production are increasing, stimulating exports.

a. Decrees with an Export Oriented Strategy

The automobile sectorial policy implemented with decrees is a major factor explaining the dynamic export performance.

Vehicle exports were less than 10,000 units per year by the middle of the seventies, but after the 1977 decree, there was an

important increment (from 11,700 to 25,800 units in 1977 and 1978). This change was concentrated in Volkswagen (VW) exports. VW augmented three times its exports, from around 5,000 units in 1977 to about 18,000 units in 1978. The 1977 automobile decree forced engine exports to increase, too. Firms decided to invest in engine plants for export. In 1982 GM and Chrysler began heavy engine exports, and latter, in 1984, Ford, VW and Nissan began to export in big amount. In 1985 Renault started to export heavily too, from a new plant. The sectorial public policy and changes in TNCs world strategies caused big changes in engines exports, specially in 1982 and 1985, when these exports grew from 60 million dollars to 213 million dollars in 1981-1982, and from 450 million dollars to 1040 million dollars in 1984-1985. (See figure 1 and table 1.) ;

The decree in 1983 was explicitly designed to induce more production efficiency and more exports so to eliminate a trade deficit. The local demand for vehicles collapsed, as a result of the Mexican external debt crisis and a generalized recession. The local content requirement was reduced to a minimum 30%, if 80% of production were exported. If 56% of production were exported, local content should be 56%. This reduction in local content became a stimulus to export.

In 1984, Chrysler, GM and Nissan started to increase their export. Latter, in 1987, Ford initiated exports. The share in automobile exports were: Ford 38.3%, Chrysler, 29.1%, GM 21.1%, Nissan 10.9%, Dina and VW 0.6%. In 1983 VW was the main exporter, being 83% its share in total automobile exports. This share

declined to 45% in 1984, because other companies increased their exports. In 1985 VW reduced strongly its export and this low level continued for years.

The 1983 decree pushed local producers of auto parts to export. The decree tried to eliminate a trade deficit and introduced liberalization measures, by reducing the local content requirement for high exporters. This induced a local demand decline for local components, which was already low because of the general recession. Under these conditions, the Mexican producers had to export. They faced a strong competition and a decline in their domestic market share. But those which succeeded exporting took some advantages of the liberalization process, like easier procurement of raw materials, as well as easier and cheaper import of technologies and machinery. In part because of this, they could be more competitive in foreign markets. 3/

The new decree, published in December 1989, provides new rules for producing vehicles and components. It brings a complete freedom to firms to produce any number of product lines and models. They are allowed to import new vehicles according to their trade surplus. The minimum value added is now 30% for every firm. Previously, the 1983 decree allowed only the high exporters (exporting 80% or more of the production) to have so low local integration. These changes are under the condition of avoiding trade deficit. Now there is no special stimulus to export in terms

3/ M. Bennet, 1986, and Booz-Allen & Hamilton Inc., 1987, agree on the importance of government intervention. K. Unger is more skeptical, but recognizes an influence of the 1983 decree on the auto parts export.

of lower local content requirement for high exporters. Vehicle producers may easily change from exporting to supplying the domestic market, depending on markets situation. The decree implies a liberalization of the traditionally protected local market. From the point of view of the firms, liberalization will help them for an easier procurement of raw materials and equipment (with higher quality and cheaper price). They expect their competitiveness will improve.

b. The importance of TNCs global strategies

All passenger car firms are 100% foreign owned by TNCs. There are 100% national private and joint-venture firms among producers of trailers. Only one car producer is trying to export not only to other firms in the same TNC, but also to independent clients. However, the main channel is precisely the same TNC.

The strategy and contacts of the TNC is considered the most important factor to export, after fulfilling the price and the quality requirements, according to the firms managers. The local subsidiaries have access to foreign technology in the same TNC and they pay for technical assistance. They take advantage of the world-wide sales network and generally take a low price to export inside the TNC.

Moreover, Mexican exports were favored by the change of western TNCs strategies during the 1980s. They decided to substantially restructure their world production, as a response to

the Japanese challenge, and selected Mexico as an export base. 4/ Investment in Mexican plants was oriented to reduce global costs, to incorporate Japanese ideas on work organization and automation, and to take advantage of the close geographical location to the US. 5/

Since almost all these exports are realized inside the TNC organization, the price policy of local subsidiaries differs markedly from that of independent producers. The price difference between export and domestic market is big in passenger cars -produced by subsidiaries- but almost null in trailers -produced by independent firms. That big price difference is due to high taxes in Mexico, determining a high domestic price. At the same time, tax saving in exports and big orders of export to the same TNC (transfer price, low profits) give as a result a lower export price. Two out of three car producers expect this price difference will tend to reduce because of the new liberalization policy. But the other firm stated that the difference will continue if the high domestic taxes remain.

The auto parts exporters have various types of ownership. Most of them are joint-venture firms. In this sample, there are six joint-ventures, four 100% national and two 100% foreign firms. The main exporter is a foreign firm; the second main exporter is a joint-venture, and the third main exporter is national owned. The

4/ This strategy change took place in what western executives used to refer as the "after Japan" period. See H. Shaiken with S. Herzenberg, 1987 (page 45).

5/ Ibid. See also A. Mercado, 1990.

share of TNCs in the ownership of auto part firms (either in 100% or less) favor the export. The linkage with TNCs is considered the most important favorable factor to export by the interviewed executives, after satisfying the quality, price and time requirements. Automotive TNCs in the US, Canada and Europe are making Mexico one of their supply base, requiring components with higher quality standards, low production costs and quick delivery time.

c. Changes in the Domestic Market

Two important export changes have been associated to historical market transformations. From 1979 to 1982, the domestic demand grew strongly, because of the oil boom in Mexico, and this caused a decline in the automobile exports. Years later, in 1983, the domestic demand collapsed ^{5/} and the industry entered in crisis. As a result of this, in combination with the 1983 decree, the local producers decided to increase systematically their exports. More recently, the local demand is recovering, but firms are exporting as a response mainly to a growing foreign demand (and to expansions of their production capacities).

Market changes have been particularly decisive for the export of auto parts. Most of the main exporters started to export after 1982, the beginning of the recession in Mexico and have been increasingly exporting since then. Those components exported before

^{5/} This was considered the biggest demand fall in the world. See Booz - Allen & Hamilton Inc., 1987, and A. Mercado, 1990.

1982 were old technology based, like brake parts, leaf springs and chassis. Exports of engines and engine components started in 1984.

They started to export mostly because of market reasons, related to the decline of the domestic demand and catching market opportunities in the US and South America.

However, a contracted local demand is not any more the reason to export, but the higher foreign demand. This change was observed by interviewed executives. The recent increasing trends in imports and exports confirm that the local demand has recuperated at a high rate and, at the same time, exports are increasing. In 1986-1989, the auto parts import grew in 200% and export grew in 50%, according to the Comercio Exterior data.

d. Productivity and Capacity Utilization

Big productivity differences are found among firms. These differences would not be so big taking into account different product-mix across producers. But the evidence gives an approximate picture. Differences in productivity may be explained by differences in scale and technology. It is observed that the firm with the highest productivity reaches the highest amount of export. So this suggests that heavy exports are based on high productivity levels.

Assembling plants oriented to export have the highest rate of capacity utilization, whereas assembling plants oriented to the domestic market observe lower rate. The first type of plants have had an increasing usage rate in 1985-1989, but other (few) of the

second type have had a declining rate. Heavy investment was carried out in the first years of the 1980s and in 1988-1989. Investment consisted in modernizing facilities by introducing flexible automation (computer aided manufacturing).

e. Favorable General Export Promotion Policies

The general export promotion policy (EPP), consisting of a set of fiscal, financial and direct-promotion instruments to encourage Mexican exports, is favorable to automotive firms, but is not very important if it is compared with the impact of the sectorial decrees and the international restructuring decided by the TNCs. According to the main exporters, the most helpful EPP instrument has been the temporary import programs for exporters (PITEX), which is fiscal saving of tariffs.

If PITEX has been the most important fiscal incentive used by these firms, the second one is the "draw-back", and the third one is the deduction of expenses abroad (in promoting sales) from income tax.

Credit supported by BANCOMEXT is the most important financial instrument. However this importance is low if it is compared to PITEX.

The executives of auto-parts firms considered that there has been a lack of favorable tariff agreements between governments concerning components. Despite these export policy instruments play a secondary for the growth of exports, according to the firms point of view, they give a favorable influence on the price.

Table 3
Utilization of the Most Important Export Promotion Policy
Instruments, 1989 a/

Instrument	Auto Parts	Motor Vehicles
PITEX	YES	YES
Export Credit	YES	YES
Drawback	NO	YES
VAT Reimbursement	YES	NO
Other instruments	NO	NO

a/ YES means very important. NO means not very important.

f. The Product Mix in the Auto Parts Industry

Engine components and engines (both gasoline and diesel) are the most important auto parts exported from Mexico. But also a big range of components are exported, like leaf springs, chassis, reinforcements, gears, axles, transmissions, wheels, shafts, brake parts and bodies. (See table 4.) Except for some engine components and engines, these auto parts are conventional, old-technology products. They are exported based on local advantages of cheap labour and cheap raw material. Only there are few exceptional cases of new-technology based products as the engines assembled by Renault (with high automation and a lot of imported parts), and the engine parts made by CIFUNSA and NEMAK.

As to old-technology auto parts, direct export is bigger than indirect export. But as to new-technology components, the situation is the opposite, direct export is smaller than indirect export. This means that up to now, conventional components have a bigger foreign market than the indirect channel to export through local

clients, whereas the new auto parts have a smaller market abroad as compared with the domestic market. Some conventional auto parts seem to have reached a competitiveness on the basis of the employment of cheap labour and the use of fixed technologies. 7/

Table 4
Main Auto Part Exports in Mexico, 1981-1988
(Million dollars)

Year	Spare Auto Parts ^{a/}	Engine components ^{b/}	Leaf ^{c/} spring	Total of selected auto parts
1981	165	22	18	205
1982	131	27	29	187
1983	180	41	34	255
1984	270	47	47	364
1985	241	50	48	339
1986	374	81	11	466
1987	444	98	46	588
1988	454	98	49	601
1988 ^{p/}	397	108	53	558

^{a/} "Partes sueltas para automóviles".

^{b/} "Partes o piezas para motores".

^{c/} "Muelles y sus hojas para automóviles".

^{p/} Preliminary data.

Source: Comercio Exterior, "Sumario Estadístico," several issues.

g. Size and Capacity Utilization in the Auto Parts Industry

Exporters have been investing, increasing their plant size and improving the product quality. They have reached scale economies, operating in a high capacity usage, and producing at cheaper

7/ K. Unger, 1987, explains cost advantages of conventional auto parts and criticizes firms passivity regarding new auto parts. Booz-Allen & Hamilton Inc., 1987, observe advantages for local auto parts made of aluminium and cooper.

production costs. The size of exporting plants is diversified. For instance, a small engine plant has a production capacity of 5,000 units/year and another one has a capacity of 800,000 engines/year. Regarding the manufacture of heads, one plant has a installed capacity of 14,000 heads/year, while another one has 2.5 million heads/year. The big export volumes are concentrated in the large and medium size plants (see table 5), usually utilizing a high proportion of installed capacity. Some of them produce small lots of components, but these are for the domestic market. Except for one small exporter, all exporters interviewed invested heavily in expansions in 1988-1989. Most of them have been increasingly utilizing their installed capacity.

Table 5
Export Performance of 11 Auto Parts Producers by Size, 1988

Firms Export Performance	Size (labor)		
	100 to 1 000	1 001 to 5 000	5 001 to 15 000
A. <u>Export margin (%)</u> a/			
50 - 100	1	4	0
49 - 20	2	1	0
1 - 19	0	2	1
B. <u>Export value</u> (billion pesos)			
3 - 30	2	3	0
31 - 100	1	2	0
101 - 400	0	2	1

a/ Export to total sales.

h. Local Advantages in Wages and Labor in the Terminal Industry

The terminal firms reported a low wage proportion to total cost, as between 10% to 13% in 1988. This is a relatively low rate, if it is compared with local auto part firms, where the proportion was between 7% and 23%. The trend in job opportunities is upwards, increasing gradually from 1985 to 1988.

3. Obstacles (Firms Point of View)

The main obstacles for these exports refer particularly to inefficiencies of the domestic inputs industry, the product quality and the local infrastructure facilities. The interviewed executives in the terminal firms pointed out the following obstacles (in importance order):

- i) Input problems (high price, lower quality, bad delivery time).
- ii) Transport deficiencies, specially by land, to the ports.
- iii) Strict requirements in quality standards, and official prices in other countries.
- iv) Product quality.
- v) High import tariffs in other countries.
- vi) Delivery time.

The local exporters of auto parts identify as their problem number one the national inputs industry too, in terms of high prices, low quality and shortage. A second obstacle is referred to pressures on product price and quality. A third difficulty is associated directly to costs, delivery time and quality requirements abroad. The first two elements are affected mainly by the local inputs supply. Other problem -but not so important- is the protection abroad (tariffs and licences) as well as a lack of government support to the new exporters (this according to two firms). Some companies stated that there were other important constraints to Mexican auto part exports. These refer to technological difficulties to catch up the rapid innovation occurring abroad, bad domestic infrastructure in communication and transport, instability in economic policy (regarding decrees, prices and trade), bad reputation of Mexican manufactures abroad, low management skills, language barriers and protection in big foreign markets of military vehicles and equipment due to security reasons.

The main obstacles refer to domestic factors. Foreign factors are not considered as very important obstacles (table 6 and fig. 2).

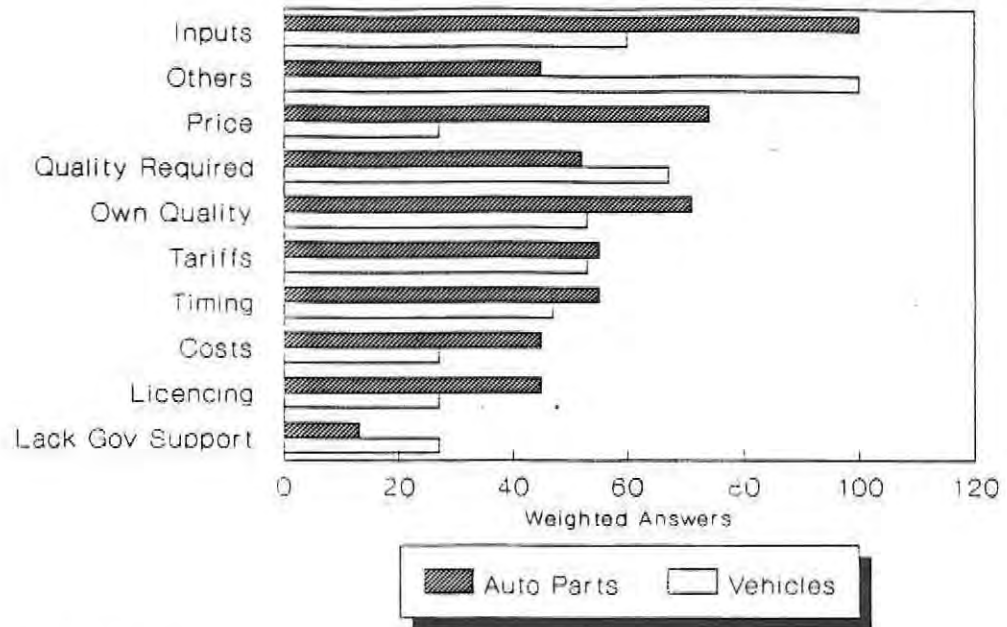
Table 6

Main Obstacles to Automotive Exports, 1989

Obstacles	Auto Parts	Motor Vehicles
Inputs (scarcity, price, quality)	100	60
"Others"	45 ^{b/}	100 ^{c/}
Taxes abroad (tariff)	55	53
Costs	55	27
Price	74	27
Protection abroad (licensing)	45	27
High quality requirements	52	67
Delivery time	55	47
Quality (own)	71	53
Lack of government support	13	27

- a/ Every firm gave several answers, ordered by importance. The most important answer had 10 points, the second important answer had 8, and so on. The resulting figures were indexed.
- b/ Three firms out of twelve stressed a bad infrastructure to export from Mexico (transport and communication), bad reputation of Mexican auto parts and technological constraints to follow rapid innovation.
- c/ Three firms (out of six) referred to the critical political and economic situation in Latin America (which could be a major export market), transport infrastructure inefficiency, and labor union problems in ports.

FIGURE 2
Obstacles to Export



Source: Survey

4. Export Expectation by Firms (1990-1992)

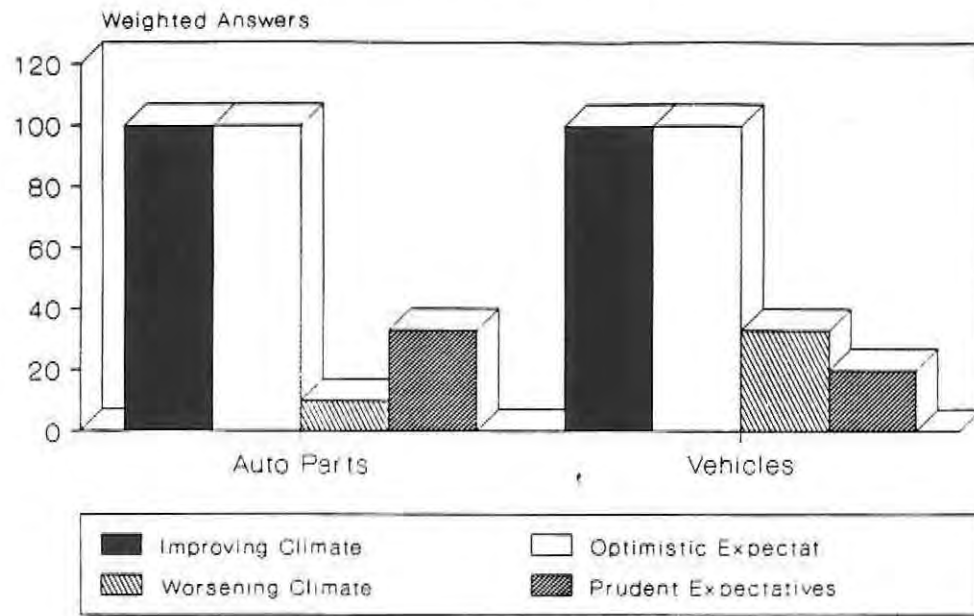
Most of the exporting firms perceive a positive climate to export. Executives state that there are more favorable factors now than before and that there are more positive conditions than obstacles for export. This perception is consistent with the export performance these firms had. Consequently, they are optimistic. They expect growing exports, mainly for reasons related to trends in foreign demand for their components. Only few are more cautious, expecting a constant level in their exports due to expected constant foreign demand (on account of the excess of installed capacity in the US auto industry, the main market), in combination to an expected growing domestic market. (Table 7 and fig. 3.)

Table 7
Firms Perception about Exports Climate
(Answers Index a/)

Perception	Auto Parts	Motor Vehicles
Improving climate b/	100	100
Worse climate c/	10	33
Optimistic Expectation d/	100	100
Prudent Expectation d/	33	20

- a/ The index base (100) corresponds to the most frequent answer in each industrial branch.
- b/ This refers to either more favorable factors now than before or more favorable factors than obstacles.
- c/ This refers to either less favorable factors now than before or more obstacles than favorable factors.
- d/ This refers to the period 1990-1992. Optimistic executives expect a growing export. Prudent executives expect a constant export.

FIGURE 3
Export Climate Perceived by Firms
and Expectatives



Source: Survey

5. Policy Requirements

Government policy has induced automotive exports. This role has changed over time. At early eighties, government pushed local producers to export by a decree in 1983. But from 1985 on, there has been a more elaborated export promotion policy. Most of the auto part exporters have taken advantage of import tariff savings (PITEX) and preferential export credits (BANCOMEXT), particularly. The 1989 decree brings some trade liberalization and continues with the export promotion.

What policy modifications are to be suggested to consolidate the Mexican export capability? Taking as a starting point the so good export performance, stimulated by transformations in government policy, in TNCs strategies and in specific markets, it is pertinent to explore policy answers in three directions:

i) The development of an export promotion system. This has to include not only fiscal and financial instruments, but also a complete, well-organized infrastructure to efficiently support exports. For example, the transport and store system is to be radically improved. Faster custom clearance of imported inputs is required too. The custom procedure might realize at the plant, as is already done in very few cases.

ii) Trade liberalization. Trade liberalization has induced local efforts to improve efficiency and quality, which in turn has generated a higher competitiveness abroad. The 1989 decree brings

some liberalization, but this could be extended. The limits to liberalization are the need of reciprocity in other countries where Mexico is trading.

iii) Towards a more competitive inputs industry. The national supply of inputs is stressed by the automotive executives as a major problem which limits their export capability. The on-going strong fight in the world auto market makes more necessary to induce big improvements in the local industry of basic inputs, like steel, aluminium, copper and synthetic materials.

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