

Explaining The Increase Of Competitiveness In The Colombian Car Industry After The End Of Import Substitution Industrialization Policies

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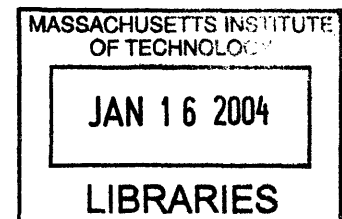
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Abstract

At the beginning of the decade of the nineties, Import Substitution Industrialization – ISI- policies were dismantled all over Latin America, including Colombia. This meant that tariff protection for locally produced products were lowered and that cheap imports increased. For the motor vehicle sector it also meant that it had to modernize and improve its competitiveness if it did not want to disappear. I evaluate how the sector improved its competitiveness despite a very tiny margin for maneuver, and under what variables and aspects this improvement can be measured.

I found that many of the key aspects that helped the sector to compete successfully were not directly related with production, but with services and other competitive advantages created outside the plants. These included a postsale service structure that covered many parts of the country which importers lacked. It also tackled the new competition by signing free trade agreements, and making strategic alliances with auto part producers and auto dealers. The alliances, in turn, helped to create important backward and forward linkages to other sectors of the economy as well as new jobs. These linkages have been also very successful to help auto part suppliers in producing with high standards of quality and exporting to foreign markets.

Last, I also briefly analyze the advent of the G-3 Agreement between Colombia, Mexico and Venezuela, which will come into effect as of 2005. This poses a major challenge for the national car industry for which I suggest further study.

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ACRONYMS

ACOLFA	Asociación Colombiana de Fabricantes de Autopartes
CA	Comunidad Andina
CCA	Compañía Colombiana Automotriz
CKD	Completely Knocked Down Kid
CM	Colmotores
DANE	Departamento Nacional de Estadística
EAM	Encuesta Anual Manufacturera
GM	General Motros
ISI	Import Substitution Industrialization
L.A.	Latin America
NAFTA	North American Free Trade Agreement
PANAL	Productora Nacional de Automotores
SENA	Servicio Nacional de Aprendizaje
SOFASA	Former Sociedad Colombo Francesa –SOFOCAM-
UN	Universidad Nacional de Colombia

CHAPTER 1 INTRODUCTION AND ANALYTICAL FRAMEWORK

In this Chapter I will give a brief introduction of the work by presenting a synopsis of the study. I will also provide an analytical framework of my study with a corresponding literature review. Last, I will analyze in short the sections of this study.

1.1 Introduction and Analytical Framework

The Colombian auto assembly industry has a history of approximately 40 years. Its creation must be seen under the context of the Import Substitution Industrialization policies –ISI- Latin America –L.A.- embraced between the decades of the fifties and eighties (Fishlow 1990). The purpose of that time in creating a strong national car assembly industry, was to develop a broad technological base to facilitate technological transfer, and to generate spillovers to others sectors of the economy (Shapiro 1994). This, in turn, should also develop downstream firms around the sector that would benefit from the technological transfer, and create forward and backward linkages to rest the economy (Addis 1999).

However, its purpose should also go beyond the modernization of industries and the technological transfer acquired. It should create massive employment, upgrade the industry, and become one of the most important engines of economic development of the national economies (Whiting 1992). This was the case in many advanced nations and late developers where a car industry could be created and where it was one of the main axes of their development (Amsden 2001).

For the purpose of this study it is important to understand the concept of backward and forward linkages in non primary sectors like the auto industry. These links, once they are established, in turn create more linkages since it is a sector that has a very long production chain with many direct and indirect providers and auto

part suppliers. It creates also very strong linkages that boost the economy since the sector is very capital intensive and because it uses a certain degree of technological development and sophistication. Consequently, it was clear that it is the development of sectors that add real value to their activity, like the ones which involve production and assembling of motors, auto parts, and other pieces and processes with technological incorporation, that allow the country to enter more demanding and sophisticated markets and broaden its export base. It has also been the real factor of long lasting growth a country can experience in the long run (Amsden 2001). Only industrialization is able to generate well paid jobs and add value to their outcomes. Therefore, the sector received special incentives in form of direct subsidies, important tax relieves and high tariff protection overall. Some countries, like Brazil and Mexico, even pursued during several years policies to develop their own national car brand with limited results, but with an astonishing expansion of the sector and its technological capacity (Carrillo 2002). Their production reached by 1975 already 1 million vehicles assembled per year with up to 90% of local integration of their components and auto parts (Shapiro 1994).

According to Gerschenkron (1962), the later a country starts to industrialize or to develop a specific sector, the more capital and state intervention it requires. In the case of L.A. it was unable to develop their own car industry even though the state heavily invested to promote the sector. The technological gap it had to bridge, and the amounts of foreign currency it had to invest were too big, given that the sector already started to produce massively 50 years ago in the developed nations. This, in turn, confirms also Amsden's theory that technological gaps can be bridged but as long as they are not too large as long as investments in terms of capital and policies at hand (2003).

However, not all the countries in L.A. developed their car industries at the same pace and in the same manner. Brazil and Chile, for example, embraced ISI policies but at the same time fomented competition by allowing all producers to enter the market. This allowed the sector to profit from investments and technological transfers from various brands and home plants (Whiting 1992).

Even though Colombia did not develop a big market for motor vehicles compared to the ones in Argentina, Mexico, Brazil, or even Chile, the assembly sector in Colombia played an important role in creating important downstream industries among the auto suppliers. It also trained technical cadres that have served the assemblers, and then decided to start their own enterprises, or to go to other sectors of the industry later on (Bayon 2002, López 2002, ANDI 2002). As a direct recipient of technology transfer, the sector has been able to adapt easily and quickly to the new market demands as it will be illustrate in the following chapters (Ardila and Morrison 2003).

The sector was also partly able to exist because of its strong tariff protection until the beginning of the nineties that impeded free competition between local produced cars and important ones (Valero and Valencia 2001). Before the trade opening –apertura- took place at the eve of the nineties, the national supply did not match the demand and all cars produced were sold at the market regardless of the quality of the car or the service provided by the manufacturer (López 2002).

The apertura should bring prices down for the consumer, foster competition and modernize the local industry (Villar 2000). Tariff Protection was eliminated gradually and the motor vehicle sector was exposed to a competition it had never before. This period posed several challenges for the auto car assemblers in Colombia; First, the sector had to compete with a variety of imports from all over the

world, specially with cheap cars produced by Asian car companies such as Hyundai and Daewoo. This means, according to the theory, that given the price rigidity of an oligopolistic market, final costs had to be lowered to be competitive with new imports (Frieden 1991).

Second, the number of models produced locally had to increase too if local companies were to keep an important share of the market. The apertura did not only allow to lower tariff protection for the sector and thus importing cars, but also increased the number of models available at the market. Since the market was supposed to remain of the same size in the short run, producers had to increase production lines with the same installed capacity.

A third challenge for the sector was to increase its flexibility and to reduce the time of assembling. An oligopolistic market without foreign competitors allowed not only to have a limited numbers of models, but also a large period of time for manufacturing, since customers had no other market choice. In some cases cars had to be ordered and paid by the customer well ahead. This changed completely when ISI policies came to an end at the beginning of the nineties, and it was one of the strongest arguments in favor of the liberalization of the market (López Pino).

Auto part suppliers had also to assume a different role in the new context. While the auto assemblers were highly protected during the seventies and eighties, local auto part suppliers had no problems meeting their demands, and sales of all their production was taken by them for granted regardless of the price and quality. The necessity to produce a broader range of models, and to adapt to new managerial and production strategies like "just in time" and others, also imposed a radical change on suppliers.

The literature on auto part producers shows that although technological gaps must be bridged in order to produce more elaborated parts, this gap is easier to bridge than in car manufacturing (Gómez and Morrison 2002) or other high tech sectors (Alcorta and Peres 1998). This was the case in Colombia where they did not only managed to keep supplying the market in more or less the same quantities, but became an almost export driven sector. The car manufacturers have also materialized further backward and forward linkages with other segments of the industry. This is stated in the literature when Hirshman argues that non-primary economic activities spur efforts of supplying the needed inputs for these activities through domestic production (1958). It also correspond to the trend observed in the study when local firms emerged or existent ones were able to provide the new demands auto part suppliers had.

The study here also shows how the Colombian motor vehicle industry managed to find its particular way of tackling the apertura challenge since it had very little room to do so. It used and worked on already existent advantages such as a good and fast post sales service with national coverage, and reliable auto part producers, but it also improved production and other variables whose outcomes and efficiency was not optimal.

Womack, Jones and Roos show how car assembling was rethought in Japanese car firms during the sixties and seventies (1991). Traditional mass production assumed workers to perform one or two simple tasks, which had to be done periodically. This gives firms very tight guidelines of production and enhances very little cooperation among workers. It has also led to less effective production, more waste of resources, and double digit absenteeism on assembling plants (Krafcik 1988). Aware of this, Japanese firms started to regroup workers into teams with a team leader and to

assign a whole set of assembling steps. Repair and quality checking were also given out to the new “quality circles” in the plants. They also incorporated to the whole production chain other aspects like a closer interaction with auto dealers that allow them to have a built-to-order system. It also enabled them to produce with concrete orders and specifications, and thus reducing inventories (Lamming 1988).

Some writings suggest that the larger the production chain and the more stages and added value the car manufacturing has, the larger the benefits when lean production is applied (Womack, Jones and Roos 1991, Krafcik and Womack 1987, Mc Duffie and Krafcik 1989)). As the study will show, Colombian assemblers were apt to incorporate many of the basic elements of lean production to their assembling and distribution afterwards despite the low volumes of production. This allowed them to cope with a diversified demand in several car segments. The Colombian case is quite interesting taking into account that U.S. firms have had many problems in adapting lean production to their assembling plants, and reflects at the same time a high quality in assembling.

This study will also briefly analyze the way wages and labor influenced the outcomes of the sector during the apertura period. According to a Varieties of Capitalism approach, there is a wrong disjunctive between lowering prices in labor or losing competitiveness in an open economy (Soskice and Hall 2001). This has been the case in many emerging economies, which have initiated a “race to the bottom” in a desperate way to industrialize, and to attract foreign investment. Soskice and Hall argue how several activities increase their competitiveness by a product and quality differentiation rather than by price. This is especially true in the automobile sector, which requires complex and high tech activities that are not necessarily done with low paid labor. The case in lean production is very illustrative for this matter, since it has

given those companies able to incorporate it an important advantage over its competitors. Therefore, lean production requires patterns like team-based models capable of adapting to complex and integrated teamwork as well as a participative and higher skill model which is incompatible with an extreme cheap labor approach (Frenkel 2001)

Although the assembling of cars requires less technology and development, and high tech incorporation, it still needs skills and an educated labor force for its core production, which is far above of that of the industry. As Chapter 4 will show, Colombia's assemblers were able to produce with very high quality, which was recognized by home plants, and which also became a real asset when facing the challenges of the nineties. The same is also true for auto part suppliers, which require very elaborated and fine work for their products too.

This work is divided into five Chapters; chapter one has given a general introduction and a analytical framework of the study. Chapter two poses the research questions, analyzes the importance of the study, and explains the research methodology. Chapter three describes the background of the auto motor sector in Latin America and the world, and shows the tendencies of the market as well as of production worldwide and in Colombia. Chapter four illustrates the variables of the sector under which the increase of competitiveness can be measured, and also describes how this improvement was accomplished.

Lastly, chapter five contains the conclusions of the study and some recommendations for the sector and for further study.

CHAPTER 2

RESEARCH QUESTIONS, IMPORTANCE OF THE STUDY AND METHODOLOGY

In this chapter I will pose the research questions I want to address in this study. I also will give some general comments on the purpose of the study. Finally, I will describe the methodology I used to conduct this research, the resources where I gathered the data and information from, and the limitations of this methodology.

2.1 Research Questions

The success of Colombia's car industry during the nineties, despite the forecasts of its disappearance with the end of ISI policies that highly protected the sector for decades, is an unexplored phenomena that can shed some light for future challenges of the national car industry. This study wants to address how the Colombian automobile sector increased its competitiveness during the nineties and what factors contributed towards this outcome. I want to explore how the assembly sector could survive in a very competitive environment after ISI policies were abandoned despite lacking a large car market or an export oriented production, which allow it to benefit from economies of scale. Concretely, I would like to analyze the main factors that made this increase of competitiveness possible. I also want to pose in this research some questions for a future research agenda regarding the challenges of the sector, like the advent of the Free Trade Agreement between Mexico, Venezuela and Colombia –G3- starting as of January 2005. Last, I also want to see the role of labor in facing the challenges of a more competitive environment during the last decade, and which has been one the key variables of the sector's good performance. Here, I want to see briefly how wages could be improved while at

the same time increasing competitiveness, and, also, what role the existent unions played in improving the performance of the sector.

2.2 Purpose of Study

The purpose of this study is to examine one successful case of industrialization in the Colombian economy, and the creation of backward and forward linkages with other sectors of the economy. It also intends to show alternatives of how a sector, which is very intensive in capital and technology can improve competitiveness despite a tiny margin of maneuver. This study wants to explore how the different challenges were successfully faced.

The work that follows is important to the extent that only a clear understanding of how industrialization processes take place can contribute to the nation's development. It is also a very representative example of the most important challenge the industry has today in Colombia, and which are the free trade agreements which the government signed in the past and is going to sign soon with the U.S. Therefore, this study want to look basically into three things; first, the study intends to explain the variables that made it possible for the Colombian auto assembly sector to face successfully the harsh environment after the country opened its borders to the apertura, and which basically describes the end of ISI policies. Contrary to the expected sectors' failure at the beginning of the nineties, the national car industry made a successful effort to keep a large share of the market. Although cross sector comparisons are very difficult to make, some of the findings here might be relevant to others sectors of the industry as well. The study also wants to address the viability of auto assembling in countries that do not have large markets and, therefore, do not allow to reap the benefits of economies of scale.

This work presented here also intends to pose some of the challenges the assembly sector will be facing very soon, specially the advent of the G3 agreement in 2005.

Finally, the study wants to explore how industrial relations could be established and manage conflict successfully in some of the auto assembly firms. It also wants to pose the argument that improvement in labors salaries does not necessarily mean a loss of competitiveness for the firm in a globalized economy.

2.3 Research Methodology

For this research primary and secondary resources were used to support my findings and conclusions. Data presented here were gathered from the following sources; National Department of Statistics –DANE; National Planning Department – DNP; Ministry of Development; Colombian Association of Auto parts Producers – ACOLFA; National Association of Industrialist –ANDI; Andean Community, Ministry of Transport; Ministry of Foreign Commerce; Annual Survey of the Manufacturing Sector; Economic Commission for Latin America and the Caribbean –ECLAC-; The International Organization of Motor Vehicle Manufacturers -OICA- and the National Central Bank of Colombia. I also obtained important primary information from academicians in Colombia who have studied the sector for many years. A very considerable amount of information was also gathered through personal interviews during my field work.

I conducted my field work during the months of December of 2002 and January of 2003, and gathered more data on two additional field trips during the months of March and April. On my field work I visited the different assembly plants and interviewed their executives as well as some of their workers and labor union

leaders. I had also extensive talks with academicians and consultant groups who have worked extensively on this subject.

This study is a sector analysis that looks into different variables that explain the competitiveness of the Colombian's automobile industry at a time when the sector faced several critical challenges during the nineties, and even its disappearance. It is an exploratory and descriptive analysis that also illustrates to what extent competitiveness could be improved while at the same time increasing wages.

Among the obvious limitations that all studies have, were the amount and quality of information available, which was not always easy to analyze. This is specially the case in analyzing Colombia's performance, since it has faced during the last decade, on the one hand, a very prolonged recession (five years now), and on the other, because ISI policies came to an end. Some information of the auto assemblers were not disclosed or easy available, which also limited the analysis.

Despite the limitation of the methodology, some of the findings presented here can be of relevance for the sector both in Colombia and in other countries with similar characteristics and markets, and can shed some light for further research regarding sub-regional free trade agreements, and the reorganization in production the sector has to undergo.

CHAPTER 3

THE MOTOR VEHICLE SECTOR IN COLOMBIA; TENDENCIES, STRUCTURE, ACTORS AND BACKGROUND

In this Chapter, I will briefly analyze the overall trend of the auto industry in the world during the decade of the nineties as well as in Colombia. I will also analyze the history of car assembling in Colombia, its structure and general characteristics. In the section that covers the trend in Colombia, I will describe how the assembly sector interacts with the auto part suppliers and other downstream firms. Finally, I will continue with a review of the figures of the auto assembling sector during the last decade of the nineties and the beginning of this one, which include annual production, exports and imports.

3.1. Tendency of the Motor Vehicle Industry in the world

The trend of the car industry in the world over the last century has been of steady innovation and expansion. It has been a leading actor not only for other downstream firms that benefit and depend very much upon the innovations of the motor vehicle industry, but also a motor of growth for entire nations (Shapiro 1994).

Even though the manufacturing of a car represented at the beginning of the twentieth century an enormous industrial challenge, it quickly expanded so much that it became a mass production article. It experienced continuous improvements in quality and technology at the same time that costs could be reduced significantly. It was Henry Ford, founder of Ford Company, who revolutionized the automobile industry, which was based on a limited number of models massively produced by workers who worked at the assembly line. Although the car got much more popular during the twenties and thirties than at the beginning of the century, its consumption was still limited to upper-middle classes in certain countries and regions.

Over the years, however, starting as of the late forties and fifties, when the purchasing power of the middle classes increased during the “golden age“, and costs of production decreased, households started to buy more than one car. This meant that they no longer wanted the same one-color standard-sized car produced by Ford, but wanted instead a broader range of options where to choose from. It also meant that the car market expanded enormously and that several industrial challenges were posed on the industry to cope with a much diversified demand. To highlight the impact of the car industry on the world economy, one should observe that in 2000 among the 20 first leading world companies, 5 (Ford Motor, General Motors, Daimler-Chrysler, Toyota Motor and Volkswagen) were car producers (Fortune 2001).

3.1.1 Evolution of the market

After the world production steadily grew for several decades, the seventies were a mayor turn point in the auto industry. The car market was affected by the internationalization of the Japanese car producers, the severe increase of the oil price, and the stagnation and recession of the world economy due to the oil crisis in 1973 (American Automobile Manufacturers' Association 2003). Particularly the oil crisis had a long lasting effect on the industry because it forced the auto manufacturers to change radically their production and to produce more gas-efficient cars. Because of limited geographical space in Japan and in Europe, the cars produced at their plants were already smaller and consumed less gasoline, which gave producers in both countries a comparative advantage over the U.S. at that time (Porter 1990).

The international expansion of Japanese cars, and its dispute with the American car producers over the U.S. market, became the major event in the

international car industry during the eighties. To counteract U.S. protectionist measures, Japanese firms started assembling plants in the U.S., Canada and Mexico to have easy production facilities and strategic access to the North-American market. The result of these strategies was that by the end of the eighties, Japanese firms had an installed production capacity of aprox. 1.3 million cars per year (AAMA 2002). North American firms also started to open plants in Mexico and Canada to increase their competitiveness, as well as to shift complex production tasks to other strategic locations abroad. This was the beginning of a trend to relocate work from the home plant to countries where labor costs were lower and a large production capacity was already installed.

During the nineties the recent trend in the car industry has been a fusion of manufacturing firms into global conglomerates. Up to date, there are thirteen conglomerates of which three are home based in Germany, three in the U.S., three in Japan, two in France, one in South Korea and one in Italy (OICA 2002). Almost all the important car industries in the world made strategic alliances with partners overseas and the composition of shareholders changed a lot over the nineties. This had also an impact on assembling plants located abroad, since many of them started to produce for different brands, and needed thus to reorganize production and management.

Fig. 1

MAIN MARKETS IN THE WORLD FOR AUTOMOBILES
(Thousands of Units) 1950-1998

COUNTRY	1970	1980	1990	1998
U.S.A.	10.178	11.328	9301	8142
Canada	766	1.200	886	742
Germany	2.272	2.600	3.350	3.736
France	1.504	2.190	2.309	1.944
Italy	1.448	1.600	2.283	2.368

United Kingdom	1.377	1.780	2.009	2.247
South Korea			626	568
Japan	4.100	5.000	5.103	4.092
China			77	508

Source: The International Organization of Motor Vehicle Manufacturers

Parallel to this reorganization into bigger conglomerates the car market slowed down again at the beginning of the nineties, and lost its dynamic from previous years. The recession that impacted Western Europe and the U.S. kept the volume of production constant until 1995. Thereafter, production increased only slightly compares to other years, but profits diminished even while selling the same number of cars (Bloomberg 2003).

3.1.2 Recent Trends in World Production

Although the car market has a cycle which is almost identical and parallel to the one of the world economy, a distinction is worth making between recessions of the car industry in the past, and the one lived through the decade of the nineties. The last recession in the car industry seems to be not only a normal phase in the demand cycle, which would recover in the near future. Industrialized countries like the U.S. or the EU member states have pretty much saturated motor vehicle markets. On the one hand, environment pollution and strict regulations such as the limitation in the circulation of cars during peak hours have moved citizens to other forms of transport. On the other hand, chronic space and congestion problems have had also a negative impact on the auto industry that will not be improved in the foreseeable future.

To the contrary, markets in the developing world have experienced a positive trend of expansion, with some exceptions of saturation, though. The collapses of the communist system in Eastern Europe, and the end of ISI policies in Latin America are

just two of the reasons why car producers expanded their markets and sales over the last decade. Sales in MERCOSUR, which increased in only 7 years from 1990 to 1997 more than 285% illustrates this trend (CEPAL 2002).

From the supply side, new methods and strategies of production were introduced over the last decade. The optimization of massive production –Fordism- introduced in the twenties, and which lasted until the seventies and beginning of the eighties, was gradually challenged and replaced by new production strategies, mainly Japanese. The main features of these new strategies, mainly lean production, is the a more flexible way of production, the emphasis to take workers more into account by bringing them closer together, and the higher degree of incorporation of technology along the production chain. The expected outcomes of the so called “toyatism” or “lean production” is to implement operations like “just in time”, reduce stocks, and improving the overall quality of production and outputs. It also corrects errors and misproduction by tracing them back until their ultimate causes in order to eliminate them once and for all (Womack, Jones and Roos 1991).

3.1.3 Challenges for the Car Manufacturing Companies

The tendency described before -the saturation of the market in the developed world, on the one hand, and the new market expansion, on the other-, has led to three challenges for the car producers worldwide; first, it is urgent for companies to deepen even more the process of the internationalization of production in order to strengthen the presence of car producers in the emerging markets. Even though these markets are much smaller than the more developed ones, the dynamic is greater as well as their potential to grow.

Second, it is also necessary to reorganize the chain of value in order to adequate it to the conditions of profitability. The increase of competition, and the

increase in the variety of models offered in order to be competitive in the car market, has forced car producers to reorganize the production structure and value chain around the world. Therefore, companies are exploring the best way to centralize the process of design, technology development, and marketing to globalize these later. This will allow producers to acquire universal characteristics that move firms towards their specialization. It also requires firms to establish strategic alliances in order to specialize in different sectors and segments of the market.

Last, production must be reorganized according to the reality of the new commercial blocs in a globalized economy. Trade agreements allow firms to enter entire regions without any protectionist tariffs if located in one country of the trade block. Thus, the location of a firm in a strategic country can be an entry point to the region, and also the center of supply for this market. These strategies of building regional plants so that the markets can be supplied according to commercial blocks, allow firms to reduce costs, increase its efficiency, and strengthen and ensure their position in the market .

**VOLUME OF CAR PRODUCTION
MAIN PRODUCING COUNTRIES 1970-1998**

Fig. 2

COUNTRY	1970	1980	1990	1998
U.S.A.	8.284	8.012	6.011	5.555
Canada	1.160	1.368	1.070	1.122
Germany	3.842	3.878	4.661	5.348
France	2.750	3.378	3.295	2.603
Italy	1.854	1.612	1.874	1.403
United Kindom	2.097	1.313	1.296	1.748
South Korea			987	1.625
Japan	5.289	11.041	9.948	8.056
China			93	507

Source: The International Organization of Motor Vehicle Manufacturers

3.2 History and Context of the Car Assembly Sector in Colombia

Since production of cars is not only an activity to satisfy the demand for a market need, but one that is associated with economic development, developing countries all over Latin America paid special attention to develop their car industries. The expected results of developing a car industry was to establish backward and forward linkages to the rest of the economy, and the creation of new downstream and upstream firms along the production chain. The sector was also expected to create economies of scale required to produce more efficiently. Like in almost every country during the ISI period, Colombia too tried to strengthen its national car industry by embracing protectionist policies for the national production. However, the lack of several factors required for the assembling industry, such as a good communication system, the availability of large amounts of steel and iron, an advanced industrial base, and a well developed financial system, among others, impeded an early development of the sector. It only started to produce at the beginning of the sixties, some years after other countries in the region did.

Unlike other countries in Latin America, the auto sector in Colombia had a different origin. It also contains a particular environment that deserves a brief explanation. For that reason, I will devote some sub-sections of this chapter to contextualize the reader with the assembling industry in Colombia.

3.2.1 History of car assemblers in Colombia

As mentioned earlier, several political economic reasons influenced the decision to start assembling cars in Colombia. However, other practical reasons related with costs and efficiency finally convinced the state to attract local and foreign investors to set up the needed infrastructure to produce vehicles locally. First,

importing cars from abroad has been always very expensive, but it became a major problem when the demand for cars increased in Colombia over the fifties. This is not hard to imagine since the volumen of already assembled cars made it very difficult to transport them from the coast to the main markets in the inland given the precarious roads. Transport costs were also very high, due to the long distances and time, which added to the high taxes imposed by the ISI period, rocketed the prices of imports.

For all this reasons, the time for car assembling in Colombia had come when the Productora Nacional de Automotores –PANAL- was created in 1957 to produce for Toyota. This plant, however, never operated because the license of production was refused by the government. It was only until 1961, when a joint venture between Austin and Colmotores started to produce small trucks. Some years passed until Chrysler bought over the shares of Austin to also start producing passenger cars.

At the end of the sixties, two additional assembling firms were founded. One, was the Compañía Colombiana Automotriz –CCA-, which started to assemble in Bogotá with local private investors, the government, and Fiat as its main shareholders. The other one was the Sociedad Colombo Francesa –SOFOCAM first, and than SOFASA-, that started with Renault and the government as its main shareholders.

A disclaimer is necessary before continuing to illustrate an enormous difference between the Colombian car industry and the others in L.A. Plants in Colombia were not set up exclusively by foreign firms as a market strategy to expand their markets. They were set up in alliance with local investors and the government. It was the government, or even some times the local investors, who looked for partner companies abroad that were willing to invest and transfer technology to the

company. This is why several companies have changed in the past their home plants, and assembled for different brands over the years. Colmotores started to assemble cars for Chrysler and now is doing so for General Motors. The CCA, for example, began its production with Fiat but changed shareholders and is now producing for Mazda (bought over, in turn, by Ford recently). SOFASA started to be a joint venture between Renault and the national government, but the government shares' were sold later to a national conglomerate first, and then to Toyota. Therefore, SOFASA not only produces vehicles for Renault, but also for Toyota, which is a natural competitor in the rest of the world.

The percentages presented in Fig. 3 illustrate the mixed ownership of the assembling firms in Colombia. This type of assembling, where local shareholders and the government have looked for their partners among car producers abroad, differs from the assembling industry in other countries in L.A., where car companies have started their own local plants as a strategy to expand their markets. This has given different assemblers in the past more leverage for maneuver to face crises, and has allowed the national industry to benefit from technology transfer from different sources.

Fig. 3 CAPITAL AND OWNERSHIP OF THE COLOMBIAN ASSEMBLERS (1996)

<i>Car Assembler</i>	<i>Company that holds shares</i>	<i>Ownership of Capital in %</i>
Colomotores	General Motors	83
	National Capital	17
Sofasa	Bavaria (national)	51
	Renault	24
	Mitsui	7
CCA	Mazda	53
	Sumitomo	23
	Bancolombia (national)	25

Source: López, 1995

An additional word must be said with respect to the initial stages of car production in Colombia. Since the decision of starting the assembly sector was mainly political, the government, which was in some cases also an important shareholder like in SOFASA, and CCA made decisions regarding production based more on satisfying political demands and favors, rather than on a cost-efficiency analysis. In the case of SOFASA, its production was distributed all over the country. The motor, for example, was produced in Duitama, 17 hours away by truck from where it had to be assembled in Medellín. Medellín was chosen because it had the most advanced industry at that time, which was thought to give an important technological support in assembling cars. The headquarters, in turn, were located in Bogotá because it was the capital, and where all the decisions should be made, and so on. This problem was not the case for CM, since it made decisions without the political pressures the other producers with large state share holders had.

3.2.2 Production and Context of the Sector

The car industry developed rapidly during the seventies, and became an important line of Colombia's economy thereafter. Despite the high production costs and inefficiencies that were finally shifted to the consumers, the market expanded for 20 consecutive years until the beginning of the eighties. It was only until that time when the Latin American debt crises also hit Colombia and demand for cars fell radically (Dombois and Pries 2000). The limited supply of strategic components from their home plants located abroad, and the low volumes of production, was also an additional burden on the final costs of the cars assembled locally. This recession period was a preliminary challenge prior facing the apertura some years later, since the crises uncovered the problems of assemblers and auto part suppliers. Firms had to reorganize and face severe structural problems that expanded ISI policies implied

for them. In order to cope with the recession, workers were dismissed for the first time in the national car industry, and rationalization measures in production and management had to be adopted. Colmotores, for example, reduced its number of employees by 50% and Sofosa did so by approximately 20% (Dombois and Pries 2000).

Nevertheless, and thanks to the structural readjustment of the plants and visionary measures done by the management, the sector not only coped successfully with the crises generated at the eighties, but experienced a fast growth of the sector again. At the beginning of the nineties the sector generated approximately 6% of the national GNP, and trained a large number of technical cadres for the rest of the industry. The advent of the apertura period, however, posed again a serious challenge that implied the loss of some of its dynamic and participation in the national economy (DNP 2000).

For international standards, and given the size of Colombia's population, the three assembling firms have a pretty modest volume of production. Their role is also rather limited since they mainly assemble already imported CKD's –Complete Knock Down Automobile Kit, which are complemented then with nationally produced auto parts. This differs sharply with other Latin American countries like Mexico, Brazil, or even Argentina, where local integration and components reached sometimes levels of up to 90% (Shapiro 1994).

The sector is also rather limited in terms of the creation of employment. With an installed capacity of production of over 100.000 cars per year, it generates 5.000 direct employments and around 25.000 indirect ones, mainly in the sector of auto parts suppliers (ANDI 2001). Given the low number of jobs created, the sector has

had a relative weak bargaining position to further protect it with high tariffs when the government signed free trade agreements in the past.

The production of a vehicle in an assembling firm is divided in three processes; first, is the assembling of subsets or bodies of the car. Second come the painting, which includes the application of anticorrosive, insulators and final paintings. Third, is the assembly of the vehicle where all parts are put together like electric installations, motor, brake system, etc. The process of assembling is made by locally produced components and the ones provided by the CKD that are imported from their home plants, or in some cases from Brazil and Mexico. Sometimes the CKD is complemented by other components that are imported from regional producers in Mexico, Brazil or Venezuela. Car assemblers in Colombia, Venezuela, and Ecuador have also to fulfill the minimum levels of regional purchases and content they established in the free trade agreement signed in 1993 between these countries. This agreement intends to boost downstream economies and to create backward and forward linkages to other sectors of the economy.

The car production in Colombia mainly produces for the local market, although the percentage of cars exported has increased over the years. This makes the sector very vulnerable to economic fluctuations, variations on the national income, imports, and the devaluation of the local peso, among others.

3.2.3 Auto Part Suppliers

The automobile sector cannot be studied and be understood without the auto suppliers, especially in a country that only assembles cars. This sector is very heterogeneous and uneven since it covers high-tech components, and at the same time very elementary hand made parts. It provides car assemblers with tires, glass, electric equipment for motors, brakes, suspensions, chassis, tapestry, and cushions,

among many others. In turn, this sector is compound by direct suppliers, which provide pieces and parts directly to the assembly plants, and indirect ones that produce for direct providers. Because of the complexity of the auto parts and the specificity of the orders requested, the auto suppliers work very close together with the assemblers. This is particularly the case since assembling of cars is planned well ahead in time. Car manufacturers make an initial estimation and give precise orders to the suppliers in terms of quantity and features up to one year in advance. Supply of auto parts is done by approximately 170 firms that supply directly and that are concentrated in 140 standards of products (Fedemetal 2001).

Despite the willingness to strengthen local production, Colombia did not have high requisites of high percentages of local integration. Whereas countries like Brazil or Mexico wanted to develop their own auto industry, and had requisites of up to 90% of local integration (Addis 1999, Whiting 1992), Colombia's highest requisite was of 45-50%. Even this number was very difficult to achieve and the trend of local integration has decreased over the last decade down to 30-35% (Andi 2002). Although the sector has been seen by governments as crucial for the industrialization of the country, it has lacked coherent developmental policies that could have boosted the auto part suppliers even more. The market also lacked the volumes required to produce locally some components that require economies of scale. It must be said, though, that regulation requires assemblers to increase steadily the % of local integration after a model starts to be produced in the country. This percentage of local integration is increased every year during the four subsequent years so that local auto part suppliers have time to learn how to produce the components locally. These measures were an incentive for auto part producers to innovate, and keep to

up in technology. They would also be a very important element for the sector's competitiveness as shown later.

During the last 15 years, auto suppliers have experienced the same challenges of that of the rest of the car industry after the apertura period. The number of auto parts providers has decreased, but production has specialized even more. However, there has been also a parallel auto part industry to that of the direct suppliers of the assembling firms, and which has supplied the black market of spare parts. Given that these spare part suppliers do not provide directly to assemblers, cooperation between the two is inexistent.

Participation of auto parts is of around 4.5% in the overall national production. Its peak point, however, was reached in 1993 when it represented almost 7% of the national production (ANDI 2001). According to the annual manufacturing survey carried out in 1998 (EAM 1999), the whole auto part sector represented 53% of the added value of the car industry and 78% of the workforce employed. These figure are pretty much the same for the other countries of the Andean Community, except for Perú where almost the entire industry is focused in producing auto parts.

Because of the sector's close relation with the assembling firms, it benefited from certain requirements the home plants imposed on them like quality and environment certifications. Therefore, the sector could develop very high standards of quality and became certified by home plants and international evaluators alike.

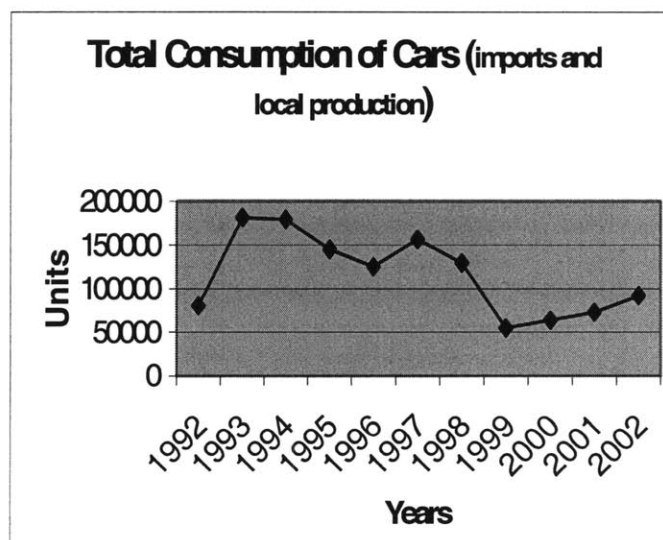
3.3 Tendency of the Motor Vehicle Sector in Colombia

The decade of the nineties meant at the same time, the biggest expansion and the biggest recession the car industry had ever experienced. The sector expanded without precedents, and a steady increase of production took place for several years at the beginning of the nineties. In 1998, a severe recession hit the country, and the

economy suffered its worst performance of the last century (FEDESARROLLO 2001, Sarmiento 2000). This led to an overstock of production in some plants, and to a severe economic crisis among the three producers that forced all the firms to layoff workers, and reduce overall costs wherever possible. Nevertheless, the causes of the crises could be found mainly in the economic cycle rather than in structural problems of the sector. This is important to highlight, since very few voices thought at the beginning of the apertura period that the national car industry would survive in the short run with the end of ISI policies, and the advent of cheap imports.

Production of cars in Colombia is very limited and inferior to its installed capacity of 100.000 cars per year. Studies have also indicated that for a national assembler to be profitable, or to be able to reap the benefits of economies of scale, its production has to oscillate between 50.000 and 100.000 units per year (UN 1983). Besides the limited number of cars assembled in Colombian plants, the number of models over which this production is distributed is very large. For example, at the beginning of the nineties Colombia's production was of around 45.000 units distributed over 35 models alone in Colmotores and CCA (Dombois and Pries 2000). This is a very high figure even for international standards of developed assemblers.

The largest part of motor vehicles produced in Colombia is that of passenger cars with 60% of production, followed by comercial vehicules (taxis and trucks) with



29%, and then of pick ups and vans with 11% of the total number of vehicles produced (ACOLFA 2002).

Source: ACOLFA

3.3.1 Evolution of the Market

As mentioned earlier, Colombia's production has mainly target the internal market in the past. However, since this market is very sensitive to internal factors such as purchasing power, exchange rates, deflation, etc., firms decided to expand, and to target neighboring markets as well. During the nineties the average annual production was of about 60.000 units per year. CM, which assembled motor vehicles for General Motors produced approximately 40% of the total production followed by CCA with 33% and SOFASA with 27% 000 (Ministry of Development 2001). However, as shown by the figures, CCA lost during the last period some percentage of the market and the numbers for SOFASA can be misleading since at the beginning of the decade the plant lost many months of production due to several strikes.

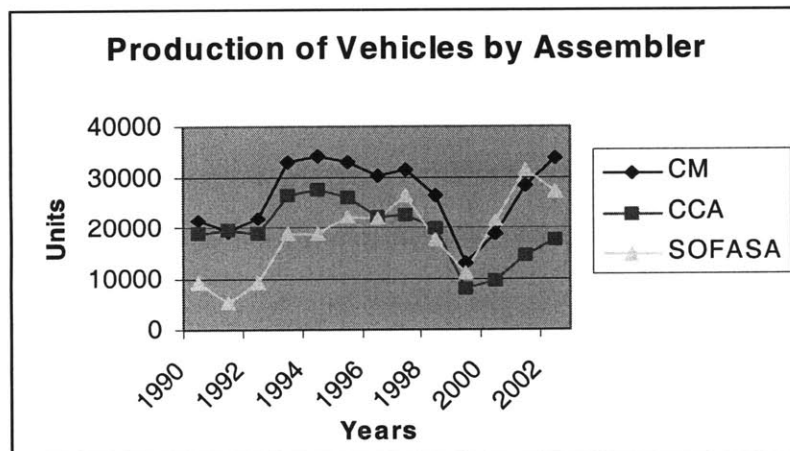


Fig. 5 Source: Ministry of Development, ACOLFA

Car assembling shows a sharp increase after ISI policies came to an end at the beginning of the nineties. 1995 saw the highest car production in Colombia's

history with a production of 81.547 units. Interesting, the import of cars also grew significantly and reached 50% of the market that also expanded during the decade. However, the expansion of the market and of national production came to an end in 1996 when production started to decrease. This decline had several reasons; first, the economy was cooling down and the economic cycle started to move towards a recession. Second, interest rates became very high, and the peso devaluated making the imported CKD more expensive. Last, a high consumption tax was imposed on motor vehicles with more than 2000 cubic cms to further negatively impact on sales and production.

Although in 1997 production was almost equivalent to the best year in 1995, it never experienced similar levels again. Even more, production fell by 49.3% in 1999 during the year of the worst recession Colombia had ever experienced (ANDI 2001). Nevertheless, the sector managed to tackle the crises by looking successfully how to restructure production, offering labor flexible retirement packets and looking successfully to other markets. In terms of exports, for example, Colombia's exports in 2000 were almost 7 times those of 1995 –highest performance ever-, although production was only 62% of that year.

In terms of employment the sector also grew modestly over the decade. Between 1991 and 1998 employment grew by almost 9%, even though this year production started to fall radically. At the same time, energy consumption declined by 30%, which shows the efforts of the sector to rationalize production and resources in order to maintain competitive. Last, the percentage of participation of raw materials in the assembled cars increased from 62% in 1991 to 74% in 1998 (ANDI 2001). This trend shows that the percentage of national incorporation has been constant over the years at least.

Fig. 6 PRODUCTION OF VEHICLES IN COLOMBIA (UNITS)

YEAR	COLMOTORES	CCA	SOFASA	OTHERS	TOTAL
1990	21.355	18.675	9.103	ND	49.133
1991	19.300	19.482	5.409	ND	44.191
1992	22.058	18.928	9.408	ND	50.394
1993	33.167	26.353	18.755	ND	78.275
1994	34.323	27.834	18.812	ND	80.969
1995	32.937	26.120	22.490	ND	81.547
1996	30.295	22.189	21.930	361	74.775
1997	31.426	22.557	26.546	373	81.002
1998	26.358	20.067	17.804	717	64.946
1999	13.015	8.124	11.304	502	32.945
2000	18.805	9.511	21.620	780	50.716
2001	28.500	14.767	31.606	n.d.	74873
2002	33.747	17.651	27243	n.d.	78641

Source: Assemblers, ANDI

3.3.2 Exports and Imports of the Sector

Exports and imports of cars were very limited and restricted before ISI policies came to an end at the beginning of the nineties. Very high taxes were imposed on imported cars, and firms had no need to export or to look at foreign markets at all, since the sector was highly protected and all the production could be sold without problems. Delivery was very slow, and consumers had to wait for weeks, and sometimes months, in order to get their orders. Despite this fact, profits and sales were to some extent guaranteed regardless the efficiency and efforts of the assemblers to improve. The apertura, however, changed this picture radically and

both, imports and exports of cars, increased for several years. Since purchasers were used for decades to a limited number of brands and models that were locally produced, their willingness to purchase new brands -or at least the same ones but at cheaper prices- was an enormous boost for the car market to expand. This desire for new cars that were now available on the local market at affordable prices, benefited also from a sustained economic growth of Colombia's GNP of 5% and more over the period between 1990 and 1995 (Banco de la República 2003).

3.3.2.1 Exports

Over the decade of the nineties, the line of exports got very dynamic and averaged around 11% (ACOLFA 2002). However, the number itself can be very misleading since exports grew steadily from 0 exported units in 1992 to almost 33% of the total production in 2000. Also, the percentage of exports among the assemblers varies a lot. SOFASA had by 2000 the largest exports both in terms of total units produced, as well as in terms of percentage of overall production. For that year it exported more than 55% of its production, which means that it has become a real export oriented plant. Second assembling firm in exports was CCA with 22 % of total production exported, followed by CM with only 13.5% of exports of total production.

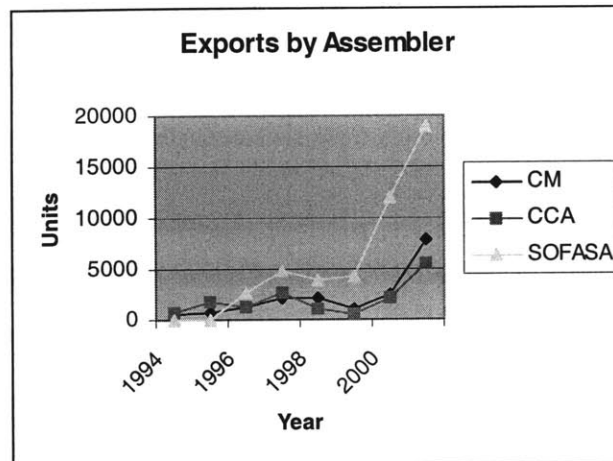


Fig. 7 Source; Ministry of Foreign Commerce

3.3.2.2 Imports

During the ISI period imports were limited mainly to few luxury cars that paid very high tariffs, and could be shifted to the final cost. Since this market was very limited, very few dealerships existed, and post factory service was practically nonexistent for these brands. The CKD of the cars produced in Colombia was also imported, but it had little tariff barriers to promote local integration. Some auto parts were also imported with low taxes, but just the ones needed for assembling, and not for repairs or stock, which in turn, had to pay much higher tariffs.

Fig. 8 NUMBER OF VEHICLES IMPORTED 1992-2001 (Units)

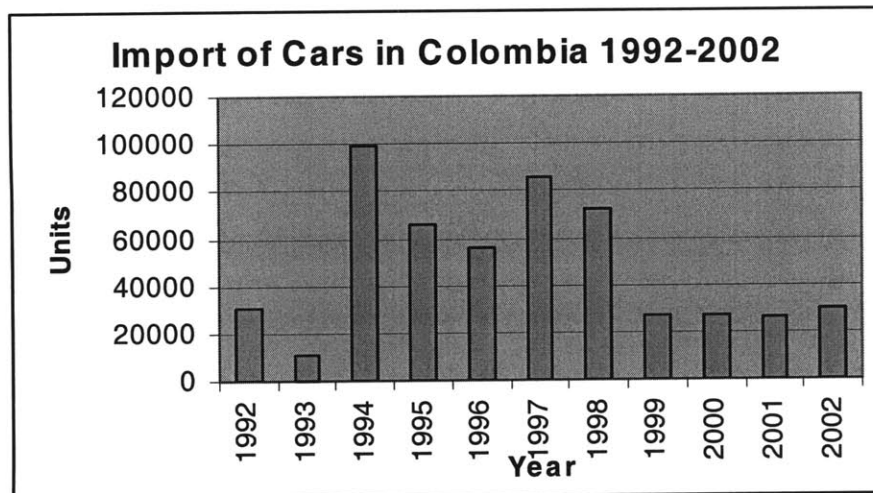
YEAR	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
UNITS	30264	105081	99349	65977	55844	85298	72058	27474	27045	26414

Source: ACOLFA

After the tariffs for imports were lowered, the number of imported cars increased sharply with a declining trend after it reached its peak level in 1993-1994 (ACOLFA 2002). As the figures show, imports more than tripled from 30.264 in 1992 to 105.000 in 1993. At the end of the decade, the saturation of the market, the

severe economic crises, and the effort of the national assemblers to retain their market share, put the number of imports down to 25.000.

Imports in Colombia are done by foreign car producers mainly, which bring into the market around 83 % of imports (ANDI 2001). The rest (17%) is brought by national car assemblers, which also import cars from other regional plants that are not produced locally in order to have a broader variety of supply. National



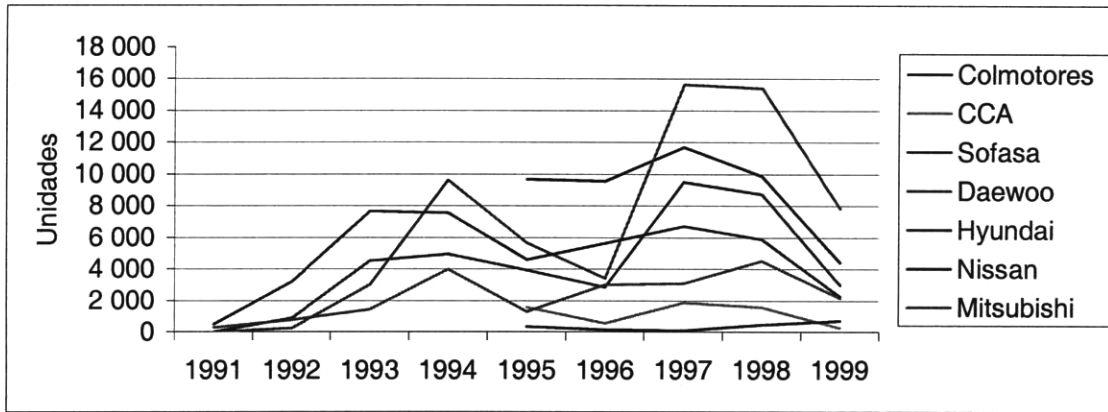
Source: Ministry of Development, ACOFIA, ANDI

assemblers also import cars from their home plants to see the level of acceptance for a new model before starting to produce it locally. CM is the assembler which has imported the largest number of cars, and the Asian car producers of Daewoo, Hyundai and Nissan have been the foreign firms that have imported the largest number of vehicles by far (Ministry of Foreign Trade 2002).

Nevertheless, it must be said that even despite the trade deficit, where more cars are imported than those exported, assemblers have done an enormous effort to diversify their sales to other countries, and to take advantage of the sub regional market of the Andean region. Consequently, the exports of cars, as a percentage of total exports, has steadily increased over the period analyzed here from 1.4% in 1991 to 3.0% in 2000.

Fig. 10

IMPORTS BY CAR BRAND



Source: National Bureau of Taxes and Customs 2000 -DIAN-

CHAPTER 4

COMPETITIVENESS OF THE SECTOR

In this Chapter, I will analyze under what measures the sector has become more competitive, and how these have improved over the last decade. I will also describe what aspects, variables and decisions according to my findings were crucial to the survival and good performance of the sector during the apertura period and thereafter.

4.1 Variables to measure the improvement of the sector's competitiveness

The car industry has a very long production chain that covers a very diverse range of input of processes and auto part components. It starts with suppliers that in turn provide direct auto part suppliers, and ends with auto dealers, post-sale service, and insurance packets that local assemblers offer to their customers. As such, it is very complicated to measure each and every single process and outcome, especially since some of the outcomes are very difficult to put into date like customers satisfaction, labor relations, and others. Moreover, in a country like Colombia, where all CKD's are imported and quality depends to a great extent on foreign suppliers, the leverage to reduce final costs and improve quality is very limited. According to interviewed executives and engineers, approximately 65% - 75 % of the final cost of cars assembled and sold on the national market is due to the CKD. Also, lots of the costs that assemblers incur are fixed and inflexible, and, therefore, cannot be reduced at all. In some other cases, the relative small car market does not allow economies of scale that may lead to a more efficient production.

However, and despite the limitations explained here, the national car market has lots of indicators and measures under which its competitiveness and efforts to

improve can be seen. Some of the measures that show the good performance of the sector will be explained briefly in the following sub-chapters.

4.1.1 Increase of Production

The figures of the total production of cars since the apertura period clearly illustrate the expansion of the cars assembled in Colombia. Although this trend was highest at the mid of the nineties, it had an increasing trend over the whole decade. The sector experienced in 1999 its worst year, but it could successfully manage the crises and production and finances of the sector recovered during the subsequent years up to date.

It is worth mentioning that the expectations were not very promising for the sector when the apertura was discussed as mentioned before. Policymakers and politicians did not expect the sector to survive foreign competition with low tariff barriers in the long run. They even “sacrificed” the protection of the sector when negotiating free trade agreements in 1993 with Mexico and Venezuela because they thought, on the one hand, that the sector was not very important for the national industry in terms of labor employed and revenues produced, and on the other, imports of cheap cars mainly from Korea, Japan, and Eastern Europe was

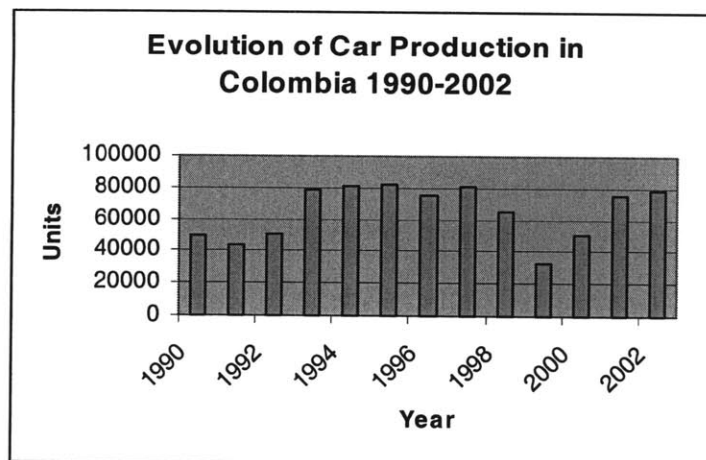


Fig. 11 Source: Ministry of Development, ACOLFA

reconfirming these fears. Therefore, the survival alone, let alone the increase of production, is a very big accomplishment of the car industry. Today, despite the harsh conditions of the market, around 60% of the whole cars sold in Colombia are locally produced (ANDI 2001).

4.1.2 More efficient use of resources

The increase in production aforementioned could be achieved with less and more efficient use of inputs. For example, even though production increased over the whole period, energy consumption was 30% less than that of the beginning of the apertura period (ANDI 2001). Along the same line, the sector has made an even more cost effective use of the workforce. Whereas at the beginning of the nineties and end of the eighties the sector employed around 35.000 workers, at the end of the decade one third less of the workforce (aprox. 24.000) was required for a significant higher production of both cars and auto parts (Valero and Valencia 2001). Although it is very debatable to argue that an increase of temporary labor at the expense of permanent one is an accomplishment, the fact that temporary labor has increased compared to permanent one, has lowered labor costs (see figure below). This trend will increase over time since labor laws have been relaxed and firms have since then hired temporary workers to replace permanent ones after they retire.

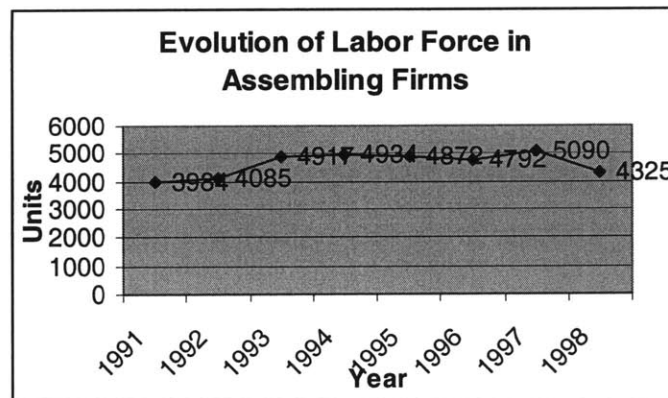


Fig. 12 Source: DANE, and Valero & Valencia

The more efficient use of resources can also be measured under other indicators. One is the sales in million of Colombian pesos per worker. As fig. 13 shows, at the end of the decade this number almost doubled compared to the beginning of the apertura period in 1991. Although recent data on labor productivity were not available, the ones presented here from the beginning of the nineties, also show a clear trend of increase close to 30% for this period.

Fig.13 OTHER MEASURES OF MORE EFFICIENT USE OF RESOURCES
(in millions of 1991 constant pesos)

<i>Indicator</i>	<i>1991</i>	<i>1992</i>	<i>1993</i>	<i>1994</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>	<i>1998</i>
<i>Productivity of Work</i>	100.4	100.7	132.2	136.9	128.1	116.3	140.1	125.2
<i>Sales per worker</i>	84.9	119.1	170.0	169.9	162.1	146.4	156.3	153.7

Source. DANE, ANDI

4.1.3 Increase of Car Exports

One of the measures the sector has improved most, has been that of looking for new markets abroad for its production. Exports have increased continually over the whole post-apertura period. As mentioned in an earlier chapter, Colombia had no tradition of exports in the car industry until 1992. Absolutely no cars were exported until that period, and assemblers did neither have the export culture nor the need to do so. Thereafter, however, assemblers started to be more export oriented and exports increased steadily in terms of volume and as a percentage of cars produced. This last measure reached 43% of the total national production in 2001 (Ministry of Foreign Commerce 2002). The following table illustrates the trend of the percentage of cars exported compare to cars produced –also called liberalization index.

Fig.14 EXPORT-PRODUCTION RATIO OF COLOMBIA'S CAR MARKET 1992- 1994

YEAR	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Exports	0	1743	1200	2560	5308	9855	7231	5433	16631	35599
Production	50394	78275	80969	81547	74775	81002	64946	32945	50716	74873
Export – ratio (%)	0	2.23	1.48	3.14	7.1	12.16	11.13	16.49	32.79	43.06

Source : ACOLFA

In terms of total units exported, the sector made also huge leaps forward thanks partly to a more regional production strategy of the home plants, and the need to diversify production among several markets. Exports were also boosted by the Andean Motor Vehicle Trade Agreement of 1993, which released car producers from high tax burdens to export and import between Ecuador, Venezuela, and Colombia. For example, whereas in 1998 the sector exported 7062 cars, exports in 2002 reached 35599 cars for an increase of 500% in only 4 years. This increase was not only quantitative, but also proportionally to the whole economy. At the beginning of the nineties exports of motor vehicles was 1.4 % of total exports, but over the decade they climbed up to 3.0% of the total. In 2001 alone, assemblers alone were able to export vehicles for an amount of 228.5 million dollars (ACOLFA 2002).

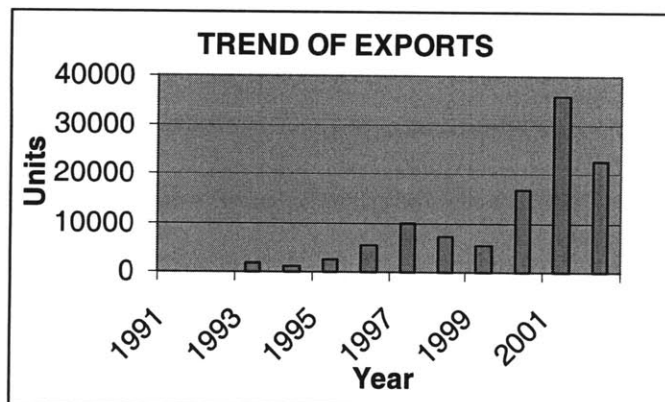


Fig. 15 Source : Ministry of Foreign Commerce, ACOLFA

4.1.4 Increase of Exports of Auto Part suppliers

Despite the good performance of the national assemblers, exports were not only limited to cars. Since auto part suppliers too had an enormous challenge after ISI policies came to an end, they also incurred in deep structural adjustment and reformation processes in order to successfully face the apertura challenge. Even though some of the firms did not survive, the ones who were able to modernize and adapt to a new environment, and to supply a more demanding market, were also able to export to foreign markets. Since most of the assemblers acquired international quality certificates that certify their products worldwide, the auto producers took advantage of the free trade agreements and expanded their markets over the whole decade. In 1998, for example, the suppliers exported auto parts for about US \$ 266 million dollars. This figure went up to almost \$600 million dollars in 2002 (El País 2003), which is a very significant amount given the volume of non-traditional exports in Colombia.

It is very important to highlight the fact that according to ACOLFA (2003), almost 90% of the auto part suppliers of the assembling plants have international certificates of quality, environment and safety such as QS-9000, ISO 9000, and ISO-9002. This figure compares very well even with developed countries that have a long tradition of car manufacturing.

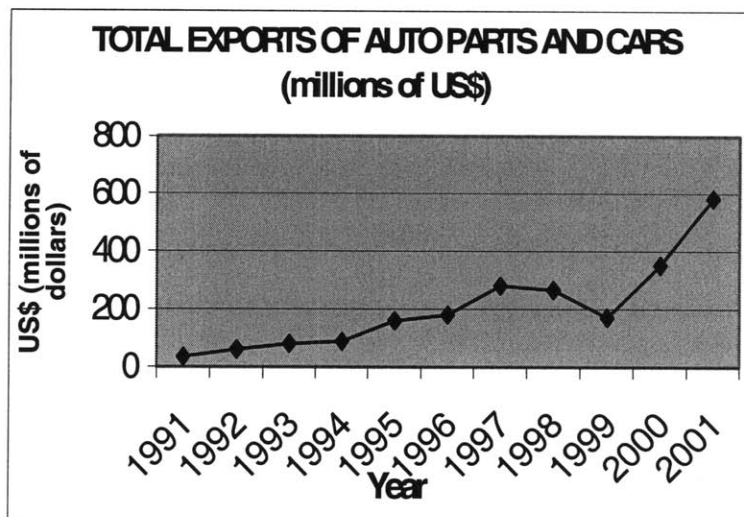


Fig 16 Source : INCOMEX, DIAN, Ministry of Foreign Commerce

4.2 Key elements to achieve the sector's Competitiveness

The relative small car market hindered economies of scale to be fully implemented. Their logic operated, and some of the key features were installed, but benefits, however, could not be reaped as if market and production would have been larger. On the other hand, not only the market was small, but the number of models produced in order to compete successfully with imports, was very large. CCA, for example, assembles around 34 models for Mazda and Mitsubishi, and Colmotores around 59 by 2000. This is a very high number, even for international standards, but the one required to compete in a market that has approximately 42 brands with more than 480 models (ANDI 2001).

There is another aspect which has to be mentioned in order to understand the limitations and the additional efforts the sector has to make in order to start producing, let alone to compete in the local market, and to export as well. As mentioned earlier, when assembling plants were built in Colombia, their location was chosen based upon political criteria rather than on a strategic place based on parameters of cost-efficiency, distance to markets, costs and time. Therefore, all plants were located in Bogotá, and Medellín, with some of its production far away from the main plant. These two are cities which are located high up in the mountains of Colombia and far away from both oceans (Atlantic and Pacific). Since the CKD has to be shipped either from Japan, Brazil, the U.S. or Europe, transport is a very important part of the assembling process. Depending on the assembler, CKD's arrive either to the Port of Buenaventura in the Pacific Coast or to the Atlantic Coast. Both ports are not less than 36 hours by truck away from assembling plants in Medellín (SOFASA) and Bogotá (CCA and CM), and sometimes even more. Cargo has to be transported up and down several mountain chains along roads that are

very deteriorated. On top of that, several guerrilla and paramilitary groups blackmail transporters and make the transport of CKD's and materials very dangerous.

Exports, or local transport to other cities is an even riskier job, since already assembled cars, especially pick-ups and four wheelers (4 # 4), are very targeted and demanded by guerrilla groups. An extremely time consuming transport, high cargo costs and insurances, and a risky activity, have put an extra toll on local assemblers pretty unknown in other countries with a similar market size.

Nevertheless, and despite all the limitations of assembling, it has performed well under several indicators as explained earlier in this chapter. Given the limitation of assemblers in terms of reducing costs due to the high price of the CKD, and other fixed costs, the sector has outperformed in those few areas where it could. These are various and not only limited to the production process. They comprehend also improvements in services and processes outside the plant, such as doing alliances and cooperate with other actors of the production chain. Some of these aspects that made the sector more competitive and helped it to survive, will be explained in the following sub-chapters.

4.2.1 Quality of Assembling and Professional Management

Perhaps one of the reasons most mentioned by all the interviewees to explain the improvement of the sector, was the quality of assembling at local plants. Foreign and local executives, consultants, union leaders, technicians, and engineers all agreed that one of the sector's advantage compared to other assembling firms located abroad, is that of the high quality and reliability of the cars produced in Colombia. These standards of high quality are not acknowledged by locals only, but also by home plants abroad. When one home plant was thinking some years ago whether to produce certain models for the regional Andean market in Colombia,

Ecuador, or Venezuela, for example, it decided that Colombia should assemble this model arguing the quality and reliability of local production. According to executives, the number of complaints and defects from locally produced cars were much less than in neighboring countries, and punctuality in production and delivery was optimal too.

Two examples may illustrate the quality and efficiency of car assembling in Colombia; first, it normally takes two to three years to assemble a car at the local market after it has been launched and sold by the home plant abroad. Before starting to assemble the car locally, it is imported by the assembling firm, which sells the new model to see whether there is market potential for it. If the new model seems to have acceptance in the market, the assembly firms starts to establish contact with local suppliers to design some of the required auto parts, which may take up to two years. Since the requirement of local integration is gradual, many parts can be imported while auto part suppliers adapt their production. The decision of importing the new models before starting to produce them locally, comes from the home plant, and is mainly based upon the time required to readapt technical aspects and specificities to local production. Nevertheless, because of the reliability and well known quality of the sector, some of the assembling firms have been instructed by their home plants to manufacture new models locally immediately after they are launched at their home plant. By doing so, they are showing the confidence home plants have in the reliability and quality of the car industry in Colombia.

A second example that illustrates the quality of local car manufacturers was the Rapid Transit Project, Transmilenio, that required the assembling of articulated buses with a high technological component. The local firm, which won the bid for producing the buses of the project, achieved after only one month of production 65%

of the theoretical capacity. Engineers from the foreign home plant had initially estimated that local production would achieve in three months only 45% of its capacity. It is worth mentioning that the highest efficiency achieved in its most experienced home plants is of 75% after decades of production (Ardila and Morrison 2002).

According to executives that also have worked in assembling plants abroad and, therefore, have international points of reference, rates of accidents at the work place compared very well even with developed car manufacturers. In the two plants where information could be gathered, there were approximately 0.50 accidents for every 200.000 hours of work. This is also a clear indicator that shows the rigor in manufacturing.

Another important element that helped local car producers to achieve high quality in assembling has been the accumulated experience of plants in producing for various brands over decades. Since foreign manufacturers bring their specific knowledge, and because assembling entails technology transfer and the training of technical and engineering cadres for the sector, plants in Colombia have benefited from different production and organizational features. The sector has adopted an interesting mix of innovations and manufacturing revolutions that has allowed them to produce with some elements of “lean production”, “just in time”, “kaitzen”, “stretch”, and others. Among the innovations of local producers, some of the key elements of lean production are worth mentioning; one is the transfer of the maximum number of responsibilities to those who are adding value to the assembling process. A second element is a system of checks that allows plants to trace back every problem and error in production from where it originated in order to avoid the same mistake or problem to happen again.

A word must be said regarding the management of the three assembling firms. Despite the fact that some of the firms in the past were either state or family owned, they were always professionally managed. Therefore, firms were able to incorporate new technologies, merit-based systems of promotion within the firm, be permanently updated and aware of new manufacturing systems, etc. Having a professional manager also allowed the firm to hire executives on an outcome oriented base where they could be changed if not fulfilling the expectations or the established goals.

With respect to workers, the plants have established a system of permanent feedback between the ones who work at the frontline and the engineers in order to secure that every single detail is monitored and corrected on time if necessary. In one of the plants visited, workers are gathered periodically every Monday morning to discuss in a team the tasks of the production cluster, as well as the eventual mistakes of the previous week, their causes and how to correct them. In another plant workers were put into working groups called “stars”, where each of them has a specific task, not necessarily related with production. This allows workers to be closer together, and, according to lean production, forces them also to cooperate in a variety of different activities too.

Assembling plants do not only welcome workers suggestions, but have set up a whole system where firms benefit from this feedback in order to improve competitiveness, and reduce costs and accidents. Those workers, in turn, that have make suggestions that allow the firm to save a significant amount of resources, receive a variety of rewards. These vary from mentions of honor to economic recompenses in form of cash (up to US\$1000 -or the equivalent of 9 minimum salaries- in one of the plants) and flight tickets to popular holiday destinations. One

plant uses to send every year the worker with the most outstanding innovation to the home plant abroad in order to show his or her contribution.

The lack of a highly automated plants due to the low volume of cars produced, and the low cost of labor, has also brought some advantages for the sector. For example, some hand made work that is done at local plants because of the cheap labor costs, is considered fine work, which is only done on luxury cars.

Last, assemblers have also adopted to specialize within the sector in order to increase quality and maximize benefits. Among the assemblers that produce in Colombia, only one produces cars for all the segments of the market. The remaining two opted for targeting specific niches of it.

4.2.2 Post-Sale Service

When customers want to purchase a car, they expect that the car will work perfectly, and will not make any kind of problems when on the road. They also expect that all the auto parts are of good quality, and reliable for at least some years. Therefore, the differentiation of the car cannot be only in terms of the quality of the car, or in what additional details it has to offer. Besides status and aesthetic, a very important element customers take into account is the service a brand can provide him or her after the car has been purchased. Particularly in Colombia, where original spare parts are very expensive, and damaged roads deteriorate vehicles very rapidly, the post sale service becomes a very important element when making the decision of buying a car.

Being aware of that, car assemblers have targeted post sale service as one of their priorities in the whole production chain. They are aware that providing their clients in every major city and state with professional dealers that have direct contact and staff from the assembling plants, is much more than one piece of an adequate

customer service. It has become also one competitive advantage over brands that recently have arrived to the car market in Colombia. For this reason it is important to describe the extra difficulties and costs it sometimes entails to have a car in places outside the four big cities (Barranquilla, Bogotá, Cali and Medellín).

First of all, imported spare parts do not benefit from low import tariffs as does the CKD. Therefore, original parts are very expensive to get at local markets outside the big cities, if not impossible. The second best option, then, is to acquire auto parts of very poor quality at the black market that may not last long. It is even quite often the case that some auto parts for cars in the upper segment of the market need up to 2 months in order to arrive. This is a time many car owners cannot wait for, specially if this imply to leave the car at the auto dealer or in the garage.

Cost and time-effective replacement and repair for imported cars depends also more on the local dealer than on the supply chain of the car producer. This despite the regulation that established that imported car manufacturers had to guarantee the stock of auto parts for at least 10 years. Although this regulation intended to protect the customers from abuses of cheap importers that only wanted to sell their cars regardless of quality, the effectiveness of this measure was rather limited. Consequently, and after several imported car brands started to present various defects with their auto parts, customers also started to look on the availability of spare parts as one of the criteria in order to acquire a new car.

Second, since many smaller cities have a rather limited automobile market, it is very costly to have adequate maintenance and post sale service for every single car brand. Owing a foreign produced car and living outside the big cities, can be a very big and time consuming problem if technical failures occur. Most of the imported brands don't even have a sales branch, let alone concessionaries authorized directly

by the car producer with repair, maintenance and other post factory services. Thus, technical advice, regularly check ups and many other services an authorized auto dealer can provide, cannot be offered by most of the imported brands.

To the contrary, car assemblers have had a strategy to establish concessionaries under their direct supervision in almost all states, and in all major and intermediate cities. This has given them a national coverage that allows clients to have instant support whenever and wherever they need it. Technical and administrative staff of certified auto dealers and concessionaires alike receive regularly training from assemblers to be permanently updated. This, in turn, gives assemblers also valuable information regarding the market, customers satisfaction complaints, technical and mechanical aspects, etc. The importance of that type of service has allowed car assemblers to work very close with auto dealers in a lean production model where a sort of built-to-order system has been implemented, and where orders are very specific and placed well ahead in time. This contrasts sharply with imported cars that lack such a broad network and the accumulated experience all over the country, and therefore have a very limited area of coverage.

The variety of services the car dealers of imported cars can offer is also very limited. First, technical advice cannot benefit from engineers and experts who work directly at the assembling process. The few technicians that must cope with every kind of problems, must undergo expensive and irregular training overseas -if anywhere home plants are located. Second, importers do often not benefit from the presence of high quality local auto part producers, since these mainly produce for local assemblers under specific orders in terms of volume and characteristics.

Over the years, all these services related to spare parts, repair and maintenance, have turned out a valuable asset for local assembling firms, since after

some years of car imports problems have arisen in so far these services mentioned here have been very limited, at the best.

Post-factory services, however, cover also non technical related aspects that are very important when purchasing a car. In Colombia two of these have acquired great importance, and have been crucial for local assemblers in order to develop an advantage over imported vehicles, as well to increase sales at the national level. First, long term financing of motor vehicles is a very important factor for local buyers since prices for a car may range between 80 and 180 minimum monthly salaries depending on the model. All three assembling firms have opened credit financing institutions to facilitate flexible loans to clients but also to concessionaires that want to sell their cars. This did not only allow them to give clients comfortable forms of payment, but also to ameliorate the impact of recessions that might diminish the purchasing power of potential clients.

Last, assembling firms were also able to open insurance companies and provide their clients with good packages in this regard. Although it does not sound very important at a first glance, insurances are a very sensitive topic for customers and the car industry overall, since Colombia is among the 10 countries in the world with the highest robbery rates of cars per capita (Interpol 2003).

4.2.3 Auto Part Suppliers

As mentioned in an earlier section, the performance of the auto part suppliers was one of the most outstanding, if not the most, in the whole production chain. However, it was all but easy to get to this good performance standards. High barriers for trade guaranteed all their production regardless of quality and price. This gave them very little incentives to improve and to expand their products to other markets. The restructuring and modernization enforced by the apertura period allowed auto

part producers to be at the frontier of technology in terms of the equipment acquired and techniques used. Most of the sector was very successfully in bridging the technological gap that existed at the beginning of the apertura period since most of the firms had already invested in the past in technological improvements and were, therefore, not as backward as to be unable to catch up.

Many of the auto parts had to be imported in the past at a high cost, or were purchased from local suppliers of low quality only because imports were too costly. This changed since modernized auto part suppliers could now produce many auto parts of excellent quality locally. Car assemblers, therefore, could count on very reliable material for their production at a cheaper price and next to their plants. Customers too knew that reliable original auto and spare parts could be easily available not only in Bogotá but in every state for reasonable prices. It also allowed the sector overall to improve its quality and be able to export to other countries as well.

Several factors made competitiveness for auto parts suppliers possible; First, and despite certain protection for auto part producers, the presence of foreign brands boosted local competition in terms of quality and price. A large number of auto part suppliers existed, but a more demanding market after the apertura eliminated the bad ones. Second, advertising costs are very low, and there is certain homogeneity among the products produced in the local market. Third, auto parts producers are not threatened by substitute products, and car assemblers, in turn, are not worried about the entering of new competitors from this sector. Fourth, auto part suppliers benefited also from the production chain assembling firms have, especially in the medium and small cities and states mentioned earlier. As explained before, not all brands have auto dealers and post-sale services in medium and small cities.

Therefore, national auto part producers can serve these markets much easier through the auto dealers the assembling firms have strategically placed all over the country. Last, many auto supplying firms have been started and are owned by former technical and engineering cadres from the local assemblers. This has allowed auto part producers to know exactly what processes, needs and requirements car assemblers have. It has also given them the technical knowledge to cope with complex technical demands from the manufacturers.

4.2.4 Free Trade Agreements

The increase of competitiveness in Colombia's car industry cannot be explained only as an effort made by auto producers, auto suppliers and labor. Important political economy decisions also helped the sector to survive and even to expand during the crucial moments of the apertura period. One of the most important decisions at the government level, was the signature of the Free Trade agreement of motor vehicles between Colombia, Venezuela, and Ecuador in 1993. The agreement intended to adopt a common policy for the sector to take advantage of an expanded market for producers in all the three countries. It aimed to facilitate the sub-regional integration and articulation of car assemblers and suppliers. Nevertheless, the agreement was also very important for the car manufacturers because of other reasons. From this moment on norms and dispositions regarding the sector and its production would be stipulated according to the Andean regulation rather than on the national one.

On the other hand, since a bigger market would allow firms to benefit from economies of scale, the articulation of regional producers was one of its main objectives too. Therefore, the three countries that signed the contract in 1993 initially stipulated the reduction of tariff barriers for some categories of cars, and the

incorporation of regional produced auto parts. The car produced in one of these three countries had from this moment on to fulfill a minimum quota of regional integration in order to be exempted from tariff barriers if it wants to export to the other countries of the region. If it fails to do so, then it has to pay a tariff of 35% or 15% depending on the category of the car (Resolution 355 of the 1993 agreement). Since the contract was very successful, it was expanded in 1999 for another 10 years period. To highlight the success of the Andean agreement -and which is under the parameters of the WTO rules, it is worth mentioning that it has been a model and guide to follow for other agreements in the Andean region (Ministry of Foreign Commerce 2003).

Besides the expansion of the market and the opportunity to increase efficiency and competitiveness, the free trade agreement also helped the sector to diversify the market and ameliorate the impacts of recessions. This was the case in 1999 and 2000 when Colombia's economy went through one of the most difficult times in its history. An export oriented strategy allowed the car manufacturers to increase their exports to Venezuela and Ecuador considerably, and thus, avoided an even worse drop in sales. It also allowed the sector to be able to keep a large part of its installed production capacity. Since the market expanded, and is now seen regional rather than national, car manufacturers strengthened their bargaining position with respect to their home plants, and other car and auto parts producers worldwide.

4.2.5 Massive Public Transport Projects

Motor Vehicles used for urban transport in Colombia have had a very uneven but significant expansion over the last 30 years. The number of buses and vans assembled between 1970 and 1990 increased at an average rate of 5.32% per year.

It went up to 8.6% between 1990 and 1995, and came down to 3.6% for the 1996-2000 period (Ministry of Transport 2003). This increase however, did not keep pace with that of the construction of new streets and their maintenance. Since consumption of private cars also increased considerably, streets in the major cities were saturated with motor vehicles that led to chronic jams. The consequences of such an over saturation of vehicles for public transport were the stagnation of the sector, and the drop in the number of passengers transported every day per bus from 1000 in 1985 down to 500 in 1999. This reduction, though, had very little impact on the car assemblers in Colombia, since these did not concentrate their production in this segment of the market. It rather affected other smaller firms that have concentrated on the assembling of buses for passengers.

As a response to the public transport problem that arose because of the chronic congestion and saturation in the major cities, massive public transport projects were implemented in Colombia. The first one was the metro system in Medellín which started to operate in 1995 and transports around 300.000 passengers per day (Ministerio de Transporte 2003). The other major project was the Transmilenio Bus Rapid Transit Project implemented between 1998 and 2000 in Bogotá. This transit system transports on average 760.000 passengers daily and has 470 articulated buses, from which 320 were assembled in Bogotá (Ardila and Morrison 2002). Because of the technology required to produce the articulated buses, manufacturing became a real challenge for the national car industry. Technology transfer took place in order to carry out the project, and strategic partnerships were done between local producers and auto part suppliers in order to bridge the technological gap.

Although the Transmilenio project is quite significant for the national auto industry in terms of the amount of money spent –US\$133 million (Ardila and Morrison 2002), the importance in the project relies more in the strengthening of the sector and the backward and forward linkages it established to other sectors of the economy. For example, the firm alone that was manufacturing the buses for the system, had around 200 other firms that supplied it (Ardila and Morrison 2003). After the success of the Transmilenio project, other similar projects that involve local manufacturing will be carried out in the near future in several cities, but mainly in Cali and Barranquilla (El Tiempo, 2003). Regarding the production of the buses, it was so successful and well manufactured, that the firm who produced for Transmilenio already won a first contract to export 42 articulated buses to Quito, Ecuador (Ardila and Morrison 2002).

4.2.6 Industrial Relations of the Sector

The analysis of the sector would not be complete without mentioning what role industrial relations played in the development of the assembling industry in Colombia. It did not only influence the production of firms, but also set patterns for industrial relations of other sectors in terms of collective bargaining and unionization (López Pino 1995). Labor relations have played always a very important role at the car industry in Colombia, like in almost all parts of the world where cars are produced or assembled. However, they were key for some firms in time of the 1998 crises and in facing the challenge of the apertura period.

All the three car assemblers have tackled labor relations with a different strategy. Whereas some have reorganized by asserting tight control and repressing the unions, others have opted for a more negotiated process. The results in terms of labor organization are also different; whereas SOFASA had a very strong union in the past, today it has no union at all, and relations are more patronizing. Rotation of

labor is also very high since all new labor has entered the firm on a temporary contract. CM has both, labor on a permanent contract, and those which is only hired temporarily or through temporary work agencies. It has one union whose affiliation is rapidly declining because no more permanent workers are hired, and temporary workers are implicitly not allowed to affiliate. CCA, in turn, still hires workers on an open-ended contract. This fact, in addition to excellent labor relations constructed in the past between the management and the union, has led the firm to continuing hiring workers on a permanent base. Its union, therefore, has been able to expand, and has nowadays one of the largest union densities in the whole industry (López 1995).

During the seventies at least, the style that predominated the sector was one of conflict and confrontation. It changed, though, during the eighties and nineties in the three assembling firms, especially in CM and CCA, which had less bellicose unions. Although the sector is very homogeneous, and pretty small compared to others, labor relations were very fragmented and particular to each one of the firms. The different unions could never associate and merged into one single sector union because of internal disputes. The conflictive model that predominated in the sector changed at the mid of the eighties when firms' profits shrunk and had less room for maneuver. Unions at CM and CCA adopted a more pragmatic position that helped them and the firm to restructure the firm to face the new changes and advents of the sector. It also put an end to the politicization of labor relations in these firms. SOFASA's union, however, radicalized and became even violent. Its labor movement was not only infiltrated by extreme left political parties during the 70's and 80's, but also by active supporters of the guerrilla movements that led to tense labor relations most of the time. Strikes took place very frequently, and the plant was shut

down several times. The last strike in 1991, which lasted 89 days and where labor's petitions were defeated, also meant the end of the union.

In the two firms where unions were more or less collaborative and adapted to the new economic and political context without selling out, firms could work together in a very constructive and positive manner. Firms, in turn, were also facing the apertura challenge with new labor policies tending to improve communication between management and labor, training of the foremen, introduction of cultural activities, and to promote forms of organization and participation that would lead to an increase of productivity. This was especially the case at the beginning of the apertura period, when deep reorganization of production and management took place. Issues concerning retraining, modifications of their tasks, salaries, competitive wages, etc., could be negotiated through the unions and both parties were better off after the negotiation table.

Fomenting good labor relations was also a crucial aspect for some firms when tackling the 1998-2000 crises of the sector. During this crises CCA, for example, managed to design together with the labor union flexible retirement packages, temporary paid absence to find another job, and other innovative forms to reduce labor costs. Instances of conflict resolution, like the union at CCA or weekly and monthly meetings with the whole plant and in production teams as explained in an earlier chapter in CM, also helped to smoothen labor relations, to strengthen the sense of belonging to the firm, and to provide valuable feedback.

Fig. 17 EVOLUTION OF THE LABOR FORCE BY FORM OF CONTRACT (Whole Sector)

YEAR	1992	1993	1994	1995	1996	1997	1998	1999
Permanent Workers	31953	32027	30068	29075	27422	25846	23504	19282
Temporary	2105	4247	3467	3789	3940	4621	3723	2504

Workers									
TOTAL	34058	36274	33535	32864	31362	30467	27227	21783	

Source: DANE and Valero & Valencia

Good labor relations in some firms, however, did not only materialize in good communication within the firm or in a better quality of labor outcomes. They could also be seen in very competitive salaries with respect to the rest of the industry. These salaries served to foster a good working atmosphere among the firms, but also to attract very competent labor force. Although many skills are provided by the public National Training Service –SENA- to the incoming workers, specific skills and training is provided at the firm level too. Since most of the labor force that works at the core of production requires very specific skills, the main training happens either at the sector or at the firm level. Hence, it makes those workers who have them a real asset for the firm. High salaries compared to other sectors of the industry, therefore, compensate this investment and skills by far.

It is important to mention that salaries could be increased during the decade of the nineties at the same time as competitiveness did. Although some firms opted to stop hiring labor on a permanent contract to do so on a temporary base instead, salaries increased overall during the decade of the nineties (Valero and Valencia 2001). As the figure shows below, the average salaries in all the assembling firms, even the lowest, are several times that of the minimum legal salary per month (approximately US\$ 130). Furthermore, labor does receive other benefits such as education, health and housing subsidies. In some plants workers even receive food vouchers and other benefits that go far beyond that that of the rest of the Colombian labor force in other industrial activities.

This has been a very encouraging aspect for labor, that has fostered a collaborative position within the firm, and that has redounded in better outcomes for

all parties. Even though the car industry is a sector which is very capital intensive, and salaries are in average above those in the whole industry, it is clear that firms did not respond to the apertura challenge of increasing competitiveness, by reducing labors' salaries. They rather did the contrary, and tried to reduce costs per unit by increasing efficiency rather than by reducing overall costs that would be mainly on the expense of workers.

Fig. 18 SALARIES, CONTRACTUAL AFFILIATION AND UNION DENSITY IN THE THREE ASSEMBLING FIRMS (2002)

<i>Assembler</i>	<i>Permanent Workers -PW-</i>	<i>Temporary Workers - TW-</i>	<i># of Workers Unionized</i>	<i>Average Salary PW</i>	<i>Average Salary TW</i>
SOFASA	170	850		US\$ 426	
CM	350	1450	268	US\$ 564	US\$ 370
CCA	666	284	666	US\$ 550	US\$ 272

Source: Data provided by the firms and unions

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

In this chapter I will draw some final conclusions related to the findings of the study. In short I will analyze the key factors that increased the sector's competitiveness as well as some of the lessons that can be learned for other sectors of the industry. I will also analyze some of the challenges the sector has in the near future. Finally, I will also discuss some general recommendations for the sector and for further study.

5.1 Conclusions

The study shows how the lowering of trade barriers within trade blocks for car producers has been a trend over the last decade that has led to the concentration of car producers worldwide. This has made the entrance of new competitors to the market extremely difficult, since effective production requires very big economies of scale and large amounts of capital. I conclude that this concentration has led to a strong differentiation of the products and certain loyalty by the consumer. Since it also led to a concentration of car producers in the developed world, their markets needed to be extended mainly to emerging economies in Latin America and Asia, as explained in Chapter 3. Car manufacturers opened plants in those countries where governments fomented industrialization processes, and where potential to expand existed. This trend has changed recently, and production –not only assembling- has often been shifted to the regional level in order to benefit from regional trade agreements, and from the installed capacities assembling firms have accumulated.

Colombia, which started to assemble at the beginning of the sixties under this trend mentioned above, experienced after the end of ISI policies an enormous challenge with the entrance of new competitors to the local market in form of imports. Its market was tiny, highly protected, and closed to imports. The apertura period,

which intended to boost exports and modernize the industry –with refutable outcomes for most of the sectors, like agriculture, small and medium enterprises, textiles, etc., was supposed to be the end for the assembling industry in Colombia. Nevertheless, and as figures and indices in Chapter 4 show, the apertura period was also an opportunity for the industry to modernize and to expand.

I argued that since the market had few possibilities to expand, at the same time as size and resources of car producers were pretty much the same, and competition increased, national car manufacturers were forced to lower costs and improve quality. Margins of profits also dropped, which forced firms to look for other alternatives and new markets. As shown in Chapter 4, this strategy of diversification helped firms to cushion recessions and economic downturns.

One important finding was that the sector partly was able to survive because it already started to reorganize production since the eighties when producers went through a deep crises, but long before the apertura period started. It was able to do so despite the tiny margin for maneuver it had.

This, in turn, leads us to draw another important conclusion. In order to be competitive, car assemblers did not necessarily need to go into larger economies of scale, since this option was not possible given the size of the market. They were able to increase their competitiveness by improving other variables which were in their arms length, and that could be influenced directly by them locally. These factors included the improvement of quality in assembling, the reliability and quality of auto parts incorporated, and the regional free trade agreements that facilitated regional strategic alliances and the expansion of the market. An additional factor was the post sales service assembling firms could offer in intermediate cities and states other than Bogotá, Medellín and Cali. As explained in subchapter 4.2.2, manufacturers were

able to consolidate and improve their strategic location of auto dealers and concessionaries all over the country, which gave consumers and potential buyers the guarantee of an adequate service after their purchase.

Along the whole study, several manufacturing practices of Japanese origin were mentioned that were incorporated into the local car production. Although, use of these best practices can benefit more home plants that have much larger volumes and more stages of production, manufacturers in Colombia managed to adopt these strategies very successfully to local production. Concretely, they were able to introduce key elements of lean production, which allows manufacturers to supply a wide range of models despite low volumes of production. This finding is very interesting, since car producers in the U.S. and Europe have had lots of difficulties in adapting elements of lean production at their home plants (Womack, Jones and Roos 1991).

The study also shows the importance of close cooperation and alliances between auto part producers and assemblers. Thanks to this cooperation car assemblers not only achieved excellent quality for their supply of auto parts, but auto part producers also strengthened to become exporters of certified quality worldwide.

The experiences from the Transmilenio project, and from auto part suppliers that were able to bridge the technological gap, and started to produce more technologically elaborated components, also draw important lessons for other sectors of the economy. Technological transfer and adaptation of new technology was possible because the sector already had some technological and organizational capacity at place. Technological capacity was acquired over the years with the close collaboration mentioned here, and organizational competence was developed because most of the firms were professionally managed. This confirms Alice

Amsden's theory that technological catch up is possible, but that it is best if the seller is not monopolistic and if the buyer already possesses some skills (Amsden 2001). It also suggests that local firms' investment in Technology and Development provides not only product differentiation, but also competitive advantages.

Despite the good performance of the sector, drops in sales have to be analyzed carefully. Although, it is very difficult to acquire substitutes for motor vehicles, the economic crises and high costs of cars may turn potential buyers to other forms of transport. Especially since some massive transport projects, like the Transmilenio Bus Rapid Transit Project in Bogotá, have been very successful and will be implemented soon in other major cities. Additionally, many cities in Colombia are starting to experience a saturation of the car market too.

A last conclusion of the study should be made with respect to industrial relations, and the salaries of the car industry in Colombia. The study shows that the wide spread discourse of reducing wages, as a prerequisite in order to compete successfully in an open economy, is not always true. Based upon the findings, salaries did not only maintain pretty much stable, but increased during several periods. Among the factors that helped the sector to improve during the last decade were not those of reducing labor costs by cutting wages. It was rather the opposite, that wages were improved, and used as an incentive to increase quality and efficiency among the labor force.

On the other hand, an increasing trend of hiring temporary workers was seen in some of the plants studied as well. Although these workers are much better off than the average temporary worker in the rest of the industry -and even than permanent ones, their working situation is very unstable and easily exposed to lay offs. This contradicts with some of the firms' labor discourses since, on the one

hand, labor is told that they are very important for the company, but on the other hand, the firm does not acquire a long term compromise with them.

5.2 Recommendations

Despite the good performance of the sector, and its ability in facing challenges and crises in the past, market pressures force to look for permanent improvements. Although the margin for decreasing costs is limited as mentioned in previous chapters, there are several other options to tackle the increase of competitiveness and reduce costs among the sector.

First, it is important to strengthen the strategic alliances between assemblers and the auto part suppliers. In the past these have been very effective for both, and the outcomes and benefits are well known and acknowledged. An effective cooperation between both could lead to produce more auto parts nationally than those already produced. Local auto parts integration is low, especially when compared to Mexico and Brazil. Given the experience of the sector, as well as the technological development of many auto part suppliers, the number of nationally produced pieces that could be added to the CKD could be easily increased. This would lead to a reduction in costs for consumers and producers, as well as to additional technological transfer and development. It would also provide car assemblers with more flexibility in their production, especially to assemble new models more cost effectively. Considering the high quality of the sector, efforts should be made in order to preserve such a high percentage (90%) of internationally certified auto parts.

Auto part producers have an additional challenge, which is at the same time a potential for their market expansion. Although auto part suppliers produce with excellent standards of quality, their prices are still very high for what most of local

purchasers are willing and able to pay. The extremely high prices for original spare parts has created a parallel black market of auto parts that sells much cheaper, although of much worse quality. Because differences between original auto parts and those sold on the black market can be of up to 300% and more, consumers have strong incentives to prefer the cheaper option. This is not only a problem for auto part suppliers that concentrate mainly on assemblers because of its too excessive costs to provide the spare market, but it has also become a crime and violence problem, since stolen cars are one of the main sources for the black market. Therefore, auto part suppliers should look for strategic alliances that allow them not only to work together with assemblers, but also with auto dealers and retail sellers in order to reduce their prices to levels where incentives to buy at the black market are significantly eliminated.

Regarding foreign markets, efforts should be also made in order to increase exports to markets besides the ones in Ecuador and Venezuela. The fragile political and economic situations of both countries can spontaneously reduce the export efforts done by car assemblers in Colombia. This strategy, however, must be a deliberative decision fully supported by their home plants. The good performance of the sector and its acknowledged quality are important assets towards this goal.

Along the same lines, and given the increasing number of exports by all car manufacturers in Colombia, the feasibility of opening an assembling plant in the Atlantic Coast should be at least studied. By doing so, transport costs, extremely expensive insurances, time and risks could be significantly reduced. It is also very important to continue the export trend shown during the last years, which would diversify the risk for assemblers..

Since the local market remains the largest destination for local car assemblers despite the increase in exports, it is very important to find ways to strengthen and expand this market even more. Manufacturers have been successful in the past in helping to stimulate the demand by opening their own credit institutions in order to make their cars more affordable. Nevertheless, the more or less stagnated demand compared to the mid of the nineties, has other explanations besides the deep economic recession. The lax codes in terms of vehicles' ages and their environmental regulations, have also contributed to the saturation of the market. Therefore, the motor sector requires more structural changes and government led initiatives to modernize motor vehicles on Colombian roads, as well as to stop further deterioration of the environment. The national government together with car assemblers and auto part producers could study innovative ways of how to renew the cars that aged beyond 20 years or more, and which would considerably boost the sector while balancing the demand and supply of cars in Colombia.

With respect to labor, in some firms studied here, an increasing trend of temporary workers was observed. Even though this might have led the sector to reduce some of its costs, it should not be overseen that a mainly temporary labor force -which will be 90% of all employees in some cases in a couple of years - may also bring some disadvantages for the firm in the long run. It could be, therefore, analyzed whether to hire workers again on a permanent base, especially those who work at the core of production and who have, and will receive, firm specific training.

5.3 Recommendations for Further Research

This study provides some findings on how the automobile sector could improved during the nineties by increasing production, reducing costs, improving quality, and making strategic alliances. It provides insights on how a very exposed

sector tackled free trade agreements, and what lessons could be learned and what strategies can be applicable for other sectors of the industry as well. It acquires relevance in so far Colombia has signed several free trade agreements that will very soon start into effect. Therefore, rather than a historical description, it is an analysis that can be a starting point for further studies in some of the several challenges and central aspects of competitiveness mentioned in this study. Several points are particularly interesting and would be an interesting agenda for further research. Some of them are the following;

First, further research is needed on the impacts of the G-3 agreement between Mexico, Colombia, and Venezuela. The agreement which will come into force as of January of 2005 poses a challenge maybe even bigger than that of the apertura period at the beginning of last decade. Mexico has been a major car producer with very high percentages of local integration for many decades now. Its production capacity has benefited from the North American Free Trade Agreement –NAFTA– between Mexico, Canada and the U.S., where many U.S. firms, and other major European car producers have opened new plants and expanded old ones. The size of the market allows them also to produce some components that can be only produced in very large quantities. Local producers, then, will need to reorganize production very much when Mexican produced cars will be imported with no tariff barriers in a couple of years. Further research on the G-3 agreement should also shed light on the possibilities of further cost reduction and possibilities local producers have to face this challenge.

Second, more in depth study is needed on how to expand exports to other countries in Latin America others than Venezuela and Ecuador, and what the hurdles have been to do so. As the study shows, quality has been excellent among local

producers, and exact information is needed, on how the market could be expanded, and under what conditions and incentives.

Third, the need to increase the percentage of local produced auto parts and components was only mentioned briefly here. Since there is high potential among the auto part suppliers to expand, it should be studied how they could produce more elaborated auto components for local assemblers, specially those that require larger volumes of production to be profitable.

Forth, more research is needed on how the black market of spare parts can be stopped. Perhaps one of the biggest challenges of the sector relies on how to make original spare parts more accessible, and on how to brake the illegal chain of spare parts. The literature showed very little, if any, literature and documentation on this very issue.

Last, the saturation of the market has been partly due to lax codes that allow even very old cars to be on Colombian roads. As mentioned earlier, a renewal of the fleet can be one of the several options to decongest the roads, keep up with environment regulations, and to boost the sector overall. For this purpose, more studies are needed that present viable suggestions for the government and car assemblers.

In understanding under what conditions the automobile industry in Colombia succeeded during the nineties I hope to encourage others to do further research on the present challenges the sector is facing. The Colombian case is particularly interesting because it managed not only to survive, but also to establish backward and forward linkages to the rest of the economy and outperform other countries with more favorable conditions for production.

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