

**Protection and *national champions* in the creation of comparative advantage: the experience of the motor industry in Argentina, Spain and South Korea, 1945-87**

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## **Protection and *national champions* in the creation of comparative advantage: the experience of the motor industry in Argentina, Spain and South Korea, 1945-87**

During the Golden Age, Argentina, Spain and South Korea promoted the development of their automobile industries by restricting imports, licensing foreign investment, imposing a high degree of local contents for parts, and creating their own *national champions*. These strategic policies took advantage of economies of scale, achieving significant increases in output, and creating dynamic comparative advantages. Sudden liberalization or the high volatility of the macroeconomic environment jeopardized the industries. The gradual evolution of policy-making and the technological learning of the *national champions* resulted to be crucial for long-term success. The present research supports both List's defense of protection to infant industries in medium-large economies and his advocacy of *national innovation systems*.

### **1. Introduction**

Strategic policies can be blamed for creating substantial static inefficiencies in the allocation of resources. Nevertheless, this study suggests that protection for infant industries may contribute to changing the comparative advantage of backward economies. The case we consider here is the automobile industry in medium-size economies.

After World War Two, latecomers from all over the world sought to promote industrial growth in order to foster development. As is well known, forced industrialization in centrally planned economies led to dramatic long-term losses in welfare. Inward-looking industrial policies in developing market economies also caused tremendous inefficiencies, which were partially hidden by the tremendous expansion of the world economy during the Golden Age, but which became all too visible after the generalized recessions of 1974, 1980 or 1983<sup>1</sup>. However, the experience of the three medium-size countries selected in our study indicates that the adoption of protectionist policies to support the domestic automobile industry resulted to be an acceptable strategic option to promote growth and structural change in the early stages of the sector's development. This turned out to be the case not only during the years of international expansion but also throughout the phase of growth slow-down which followed the first oil shock.

The three countries selected for this study are Argentina, Spain and South Korea. Two earlier works have compared their automobile industries from a sociological perspective, arguing that the different outcomes in development of the industry were due to particular social conditions of each country (Biggart & Guillén, 1999; Guillén 2003). The present paper confirms the significance of this comparison for establishing the potential development of the automobile industry in latecomer economies. Nevertheless, this paper differs from the previous research in three main areas. First, it takes the perspective of traditional economic history and evolutionary economics, by identifying some specific periods of analysis and focusing on the long term performance of quantitative data. Second, the paper tries to show that policies mattered more than social structures in the final outcome. Third, South Korea, not Spain, emerges as the best performer within the club, given that it was able not only to create a competitive automobile industry but also to overcome its technological dependence and help to create a solid *national system of innovation* (Green, 1992; Nelson, 1992; Kim, 1992; Chang, 1993, 2002; Freeman, 1995; Jenkins, 1995; Katz, 2000; Kim & Nelson 2000; Yang, Kim & Han, 2006)<sup>2</sup>.

## **2. Nationalism, foreign exchange scarcity and strategic policies in the early Golden Age, 1945-62**

Our choice of countries is based on two criteria: the comparability of their size, and the similarity of their political priorities. Argentina, Spain and the Republic of Korea can be considered medium-size countries. Economies of scale in the automobile industry worldwide have been significant since the eve of World War One, when Henry Ford succeeded in combining interchangeable parts, the continuously moving assembling line, and supervision of the productive process by engineers. These innovations made possible mass production but required a relatively large market; mass automobile manufacturing appeared unsuitable for countries with few potential costumers or low per capita income. This was not the case in our selected economies. In 1953 Spain had 28 million inhabitants, South Korea 21 million after the partition of the peninsula and Argentina, the least populated country in the club, had around 17 million. However, the Plata Republic enjoyed a substantially higher per capita income, i.e. around 5,000 Geary-Khamis 1990 dollars, compared with less than 3,000 in Spain and around 1,000

in the Republic of Korea. If the GDP is considered as indicator of potential economies of scale, then Argentina was the best placed of the three, with about 90,000 Geary-Khamis 1990 dollars. Spain, with 80,000, was a close second, but Korea, with 23,000, lagged behind<sup>3</sup>.

The three countries adopted industrial policies to promote domestic automobile manufacturing during the Golden Age. In Argentina, under General Peron, the First Five Year Plan of 1946 considered the creation of productive capacity in the car industry a priority (Sourrouille, 1980; Frenkel, 1992; Bisang, Burachik & Katz, 1996; Belini, 2003, 2006). Coinciding with the suspension of sterling convertibility, exchange controls were strengthened in late 1947. Car imports were severely curtailed, falling from 80,193 units in 1947 to only 7,051 in 1949.

In 1951 the government decided to create a public firm to undertake automobile manufacturing with a factory in Córdoba, which had been used for aircraft production since 1927. *Industrias Aeronáuticas y Mecánicas del Estado* (IAME) received funding of 60 million pesos; it was declared an undertaking of *national interest*, which meant that it was exempt from paying duties on imports of machinery, parts and raw materials. By 1952 IAME employed 8,000 workers. In April 1952 the company presented its first model, *Justicialista*, a sedan, and launched *Rastrojero*, an off-the-road vehicle, a few months later. In 1953 IAME obtained a government-backed 533 million pesos loan. It produced 2,001 units, half of them *Rastrojeros* equipped with Willys engine. The firm was manufacturing six different models at that time; by 1958 the firm had produced 13,464 units, with seven models.

In 1946 the Spanish public holding *Instituto Nacional de Industria* (INI) bought the *Hispano-Suiza's* factory in Barcelona in order to produce heavy vehicles (San Román, 1995; Catalan, 2000; García Ruiz, 2001, 2003). A more significant step in the development of the industry was taken in 1948 when the public holding forced *Banco Urquijo* to transfer the contract signed with FIAT for technical assistance for car production in Spain. This led to the creation of *Sociedad Española de Automóviles de Turismo* (SEAT), in which 51 percent of capital was owned by INI and 7 per cent by the Italian company. The plant, located in the duty-free zone of the port of Barcelona, launched its first model (the sedan *1400*) in 1953. SEAT not only received tariff and other tax exemptions but also benefited from its status as firm of *national interest* (San Román, 1995; Catalan, 2000, 2006). The company's first president was a military engineer, José Ortiz Echagüe, who was also the head of *Construcciones Aeronáuticas*,

Spain's main aircraft manufacturer. SEAT produced 2,551 units in 1954, its first complete year of activity. By 1958 it had manufactured 58,549 cars in two models (*1400* and *600*).

In the Republic of Korea, the mechanic Mu-seong Choi and his brothers constructed the *Shibal*, the first car manufactured in the country, in 1955 under the rule of Syngman Rhee. They founded *Shibal Automobiles* (Greenbaum, 2002; Yang, Kim & Han, 2006). The firm used parts of old army jeeps and modified engines. The company went into the taxi business. A shortage of fuel led the government to ban the ownership of private cars and caused the crisis of the company. *Ha Dong-Hwan* emerged as a competitor specialized in commercial vehicles, but it was not able to establish itself as a major producer.

Rhee was overthrown in April 1960. Another coup brought General Chung-hee Park to power, who took office in March 1962. The new government approved the *First Five Year Development Plan*, which supported the creation of a modern car industry. Under the *Automobile Industry Protection Act* imports of assembled cars were prohibited, assemblers were given subsidies and imports of parts received tariff exemption (Green, 1992; Ravenhill, 2001; Lee, 2005; Yang, Kim & Han, 2006). The Minister of Trade and Industry was made responsible for deciding which companies would specialize in car production and, to take advantage of economies of scale, it decided to choose just one. Originally *Sammi Corporation* was selected, but it seems that the *Saenara Automobile Company* made larger contributions to finance the party of the military and, was eventually appointed (Ravenhill, 2001). *Saenara* signed a technical assistance agreement with *Nissan* and assembled parts imported from Japan. One of the founders of *Saenara* (which means *New Nation*) was Jong-pil Kim, then director of the Korean Central Intelligence Agency (KCIA).

In short, authoritarian regimes in the three countries coincided in launching programs and providing support for firms in order to promote domestic automobile production. Behind this priority lay a nationalist concern with industrializing the country and the military's particular interest in automobiles. A broad range of instruments were applied: tariff exemption, direct subsidies, preferential credit or public participation in the capital of firms. However, in all three countries imports of complete cars were severely restricted and investments were subjected to licensing. The US firms which had operated in Argentina and Spain since the twenties were confronted with real difficulties for importing parts, obtaining permission for expansion plans, and sending profits

abroad (Wilkins & Hill, 1964; Sourrouille, 1980; Estapé-Triay, 1997, 2003; Carreras & Estapé-Triay, 2002; Belini, 2003).

In Argentina, the early *Peronist* administration allowed the entry of *Automotores Argentinos*, a small Italian firm, which would build a plant in Tigre in 1949 and launch a small van the year after. A more significant project turned out to be *Mercedes Benz Argentina*, in which a leading figure in the Perón's regime, Jorge Antonio, had a large stake (Frenkel, 1992). This company, created in 1949, gave priority to commercial vehicles but also won a competition to create a new the taxi fleet for Buenos Aires. A new assembly plant was set up in San Martín and another was planned in González Catán. Between 1952 and 1955 the company assembled nearly 6,000 vehicles. Expansion proceeded until the moment of Perón's fall in late 1955, when the company employed 530 people.

Last but not least, the most important project from Perón's administration was *Industrias Kaiser Argentina* (IKA). The foreign exchange scarcity led the government to welcome foreign capital in 1953. The problem of obtaining reliable components had been a major obstacle for the expansion of IAME, the earlier *national champion*. In addition, due to the acute scarcity of foreign exchange, the regime was keen to stimulate the substitution of parts. At that time, the US businessman Henry Kaiser was looking for alternative uses for the equipment of his Michigan and Ohio plants, which were facing serious difficulties in the original American market (Sourrouille, 1980; Mac Donald, 1988; Mc Cloud, 1995; Belini, 2003, 2006, Cipolla, 2003). In August 1954 Kaiser made a proposal to the Argentinian government of a joint venture to manufacture cars which aimed at 90 per cent consumption of local parts. After some bargaining, the society was created in January 1955 with the participation in the capital of *Kaiser Motors*, IAME and private Argentinian shareholders. The plan was to produce 20,000 jeeps, 10,000 *Manhattan* sedans, 5,000 vans and 5,000 rural vehicles. Kaiser wanted the plant to be built in Buenos Aires, but the government insisted that the location should be in the province of Córdoba. The factory was finally built at Santa Isabel. IKA turned out to be the first Argentinian case of production of relatively large series (Mc Cloud, 1995; Bisang, Burachik & Katz, 1996; Cipolla, 2003).

The overthrow of Peron in 1955 led to the paralysis of *Mercedes Benz's* investments, given that the new government of *Revolución Libertadora* openly disagreed with previous decisions. IAME ran into difficulties because of its reduced series, heavy financial requirements and excessively ambitious expectations, including the production

of motorcycles (Belini, 2003). IKA launched its jeep manufactured in Argentina in 1956, which was considered the country's first automobile with standardized production. IKA thus took the lead as Argentina's main automobile producer. Output climbed from 5,000 units in 1956 to more than 23,000 in 1959 (Mac Donald, 1988). *Kaiser Argentina* can be considered the *national champion* of the moment, with a market share of 72 per cent in the latter year (Bisang, Burachik & Katz, 1996; Belini, 2003, 2006).

Nevertheless, the *Revolución Libertadora* suddenly changed the automobile policy in Argentina (Sorrouille, 1980; Barbero & Rocchi, 2003; Belini, 2003, 2006). Restrictions on automobile imports were eased and the volume of imports rose from 11,134 units in 1955 to 47,529 in 1957 (ADEFSA, 1966).

The government of Arturo Frondizi combined the liberalization of licenses to stimulate investment with compulsory requirements of a large percentage of local content. Again imports were curtailed. From late 1958 onwards Frondizi made the participation of foreign capital in the creation of new automobile plants much easier by means of the *Foreign Investment and Industrial Promotion Act* and the decree of *Promotion of Automobile Production* (Sorrouille, 1980; Bisang, Burachik & Katz, 1996). The idea was that free competition would select the most efficient firms and would favor the establishment of new companies in the country. In fact, many international car producers answered Frondizi's invitation. In May 1959 *Citroën Argentina* was created with a program to produce 20,000 vehicles by 1964. In September FIAT obtained approval to construct a new plant in Caseros. The same month *IACA* was allowed to produce the *Peugeot 403* with the support of the French mother company. The government accepted more than twenty proposals for automobile production.

The three US giants initially obtained permission to undertake the production of commercial vehicles. However, after a visit of the president to the US, plans to promote the production of passenger cars were also approved. (Bisang, Burachik & Katz, 1996; Cipolla, 2007). As a result, *Ford* launched the *Falcon* in 1962. GM assembled the *Chevrolet 469*. Chrysler launched the *Valiant* (ADEFSA, 1966).

If the policy of Frondizi revitalized foreign investment in the car industry, it also stimulated new domestic moves to license the use of foreign technology. The most important was *SIAM Di Tella*, which presented its project to manufacture a 1500 cc sedan under BMC license (Katz & Kosacoff, 2000; Rougier & Schwartzer, 2006). *Di*

*Tella* launched the 1500 in 1960 and a commercial vehicle in 1961, produced at its plant of Monte Chingolo.

*Metalmecanica* signed a technical agreement with BMW in 1959 and launched the utilitarian *De Carlo 700* in 1960. *Isard Argentina* produced a 700 sedan. *Cisitalia Argetina* planned to assemble utilitarian and sports models with Italian technology.

In Spain, the automobile policy of the fifties combined preferential support for the new *national champion*, SEAT, with an extremely cautious policy of licensing a small number of rivals. Not only did car imports continue to be very seriously restricted, but industrial policy aimed to ensure that the components of automobile production were almost entirely local. Licenses for new undertakings were given on a one-by-one basis and attempting to favor specialization.

The project of producing the *Renault 4CV* in Valladolid received the go-ahead from the government in October 1951 (Sánchez, 2004, 2006; Fernández de Sevilla, 2006, 2007). The firm was given a four year period of grace, by the end of which it had to use 100 per cent of local parts (Fernández de Sevilla, 2006, 2007).

In late 1951 the firm *Fabricación de Automoviles Sociedad Anónima* (FASA) was founded with the object to build the factory in Valladolid. The firm's president was Nicolás Franco, brother of the head of the state. Local shareholders subscribed about 70 per cent of the capital of the new firm, and SAER, a *Régie Nationale des Usines Renault* subsidiary, acquired the rest.

The public promotion of specialization is evidenced by the fact that FASA obtained permission to manufacture a small utilitarian model, while SEAT was preparing the launch of a car for a wealthier segment (with a 1400 cc engine). Other major licenses granted up in the fifties were limited to commercial vehicles such as trucks and tractors (*Motor Ibérica*), diesel engines and trucks (*Barreiros*), vans (IMOSA, FADISA and SAVA) or jeeps (*Santa Ana*). A few very small producers were also allowed (Catalan, 2000; García Ruiz, 2001, 2003).

The passenger car market in the fifties became practically a duopoly in the hands of SEAT and FASA. Both began production in 1953. By 1956 SEAT's output passed the threshold of 10,000 vehicles, and FASA passed 5,000. The rest of passenger car manufacturers together produced no more than 2,500 vehicles. SEAT's share of passenger car production amounted to 60 per cent, in contrast to FASA's 32 per cent. In 1955, the former decided to jump into the cheapest segment by producing a 633 cc model, also licensed by FIAT. It obtained government permission and, launched the *600*

in 1957. The new model was a tremendous success: it remained SEAT's blockbuster product until 1968 and was produced, and exported, until 1973. FASA reacted to the launching of the *600* by undertaking the manufacture of a new vehicle for a wealthier segment, the *Dauphine*. The new model, launched in 1958, again depended on the *Renault* license. The French company continued to supply licenses in the early sixties and showed an interest in increasing its participation in the Spanish firm.

In 1956 the government accepted a proposal from *Citroën* to produce the *deux chevaux* van in Spain (Carmona & Nadal, 2005). Again, the government insisted that, within four years, all parts had to be locally made. In 1957 *Citroën-Hispania* was created, under the presidency of Pedro González Bueno, who had been a minister in Franco's first Civil War government. The *deux-chevaux* would be produced in the duty free zone of the port of Vigo. Production was launched in 1961 and reached nearly 4,000 units in 1962. Although it was a van, the Galician *deux-chevaux* was under great demand, given the limited availability of utilitarian models during the period.

The Spanish production of automobiles jumped from less than 7,000 vehicles in 1954 to more than 100,000 in 1962. The *national champion* and main producer, SEAT, could boast that 99 per cent of parts were locally made. FASA and *Citroën* remained far below that level, but had been forced to gradually decrease the amount of imported foreign parts. The government had succeeded in its two nationalistic goals of promoting domestic auto production and encouraging the local manufacture of parts. The main tools had been the restriction of car imports, the licensing of investment, subsidies and direct public participation in production in the shape of INI, the major stakeholder of the *national champion* (Catalan, 2006).

South Korea did not have as much experience as Argentina or Spain in the assembling or manufacturing of automobiles. Before the Second World War, when the country was occupied by Japan, Korea only had some repair workshops for trucks and cars produced overseas and running in the peninsula, Manchuria or inland China. Since World War Two, these small workshops had repaired and provide parts for the Army. The experience acquired with the repair of Japanese vehicles was transferred to the workshops now serving for the American forces. One of these workshops was owned by Ju-yung Chung, a mechanic in 1940, and future founder of the *Hyundai* conglomerate (Kirk, 1994; Hyun, 1995; Lee, 2005)<sup>4</sup>. Mu-seong Choi constructed the *Shibal*, the first car produced in Korea, as noted above. *Ha Dong-Hwan*, founded in 1954, shared a similar experience. *Shinjin Motors*, in turn, began by constructing minibuses.

Accumulation of know-how was of paramount importance, but both domestic consumption and production remained extremely low: the number of new registered automobiles each year rarely surpassed 3,000 units up to 1962. Nevertheless, it has been defended, from an evolutionary perspective, that the first stage in the development of the automobile industry in South Korea took place between the late forties and the early sixties, since the number of domestic parts suppliers rose from 13 before 1950 to 500 by 1962 (Yang, Kim & Han, 2006).

A further stage of development involved assembling (Kang, 1997). Although it had *National Motor*, created in 1937, as precedent, *Saenara Motor* was refunded in 1962 to benefit from the conditions created by the new protective legislation. The company received a 35 million dollar loan and technical assistance from *Nissan*. It built a factory at Bupyoung. However, *Saenara* was accused of raising funds for the KCIA, and of charging excessively high prices in relation to the cost of imported parts. *Saenara's* cars found it hard to compete in price and quality with foreign models. Small workshops producing parts experienced many difficulties and were forced to restructure. *Saenara* could not avoid bankruptcy in 1963.

A more patient long-term strategy was followed by *Kia Motors Corporation* (Green, 1992; Greenbaum, 2002). The company had been founded, under the name of *Kyunsung Precision Industry*, in Seoul in 1944. Originally, it produced steel tube and bicycle parts, and began to manufacture complete bicycles in 1951. Five years later *Kia* produced its first motor scooter, setting up a new factory at Shihung. In 1961 it jumped into motorcycle production. In 1962 *Kia* launched its first truck, the *K-360*, and specialized itself in three-wheel vehicles.

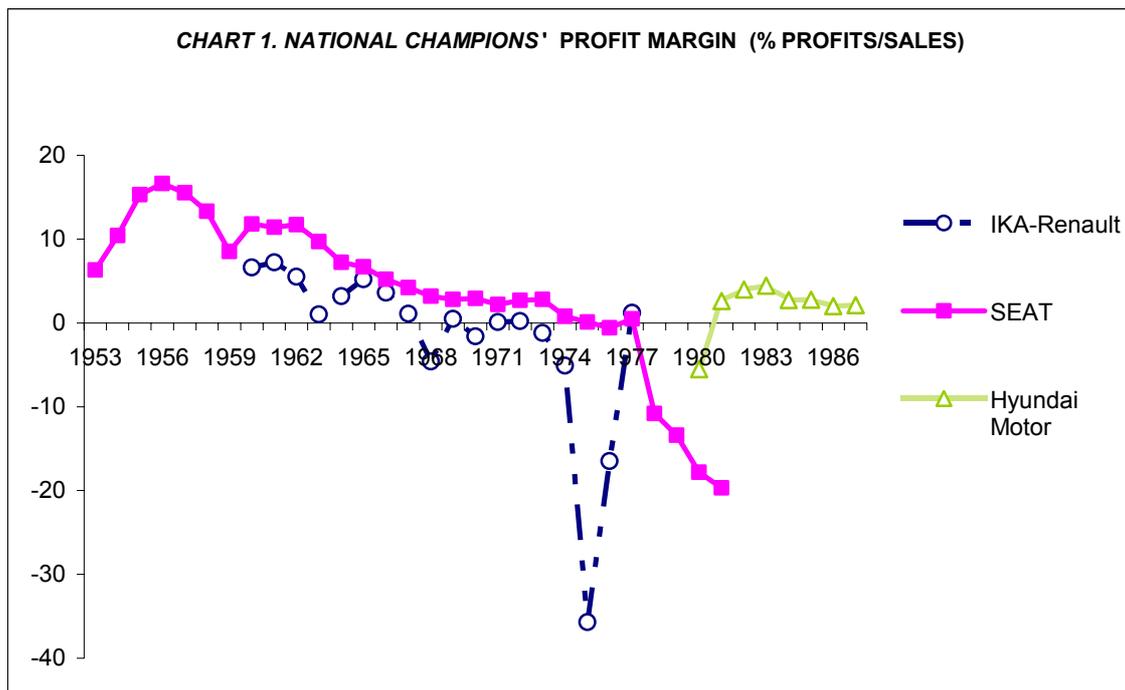
### **3. Growth, exports and political unrest in the late Golden Age, 1962-73**

The Argentinian automobile industry had experienced substantial growth since the early fifties and, in the medium term, liberal policies with *Revolución Libertadora* and Frondizi favored a further marked increase in the productive capacity of the country's automobile industry (Jenkins, 1977; Sourrouille, 1980; Katz & Berchovich, 1993). Between 1955 and 1965 Argentinian cars output multiplied by 30, reaching 194,536 vehicles by mid-sixties. In 1964 the local content requirement was set to 90 per cent. However, some of the new firms of the sixties were more assemblers than

manufacturers. In addition, the intensification of competition significantly squeezed the profitability of existing firms, and many of the new producers were not profitable.

In 1963 *Ford*, *General Motors*, *Chrysler*, *IAFA*, *Citroën*, *Mercedes Benz* and *IASF* recorded losses. The leader in sales up to 1962, *IKA*, experienced a fall in profit margin (profits/sales) from 5.5 per cent that year to only 1.0 per cent in 1963. *Automotores Argentinos*, *Cisitalia*, *Borgward* and *Peugeot* closed their plants. In the next two-years, *IKA*, *FIAT* and the three US sisters declared profits, but *Citroën*, *Mercedes Benz* and *SIAM Di Tella* went into the red. *SIAM* had launched four models, although its total output remained below 14,000 units. (Sourrouille, 1980; Rougier & Schvarzer, 2006).

Many more modest firms, which obtained plans approved under Frondizi's legislation, fought hard to survive. It was the case of *IAFA*, *Industria Automotriz Santa Fe* and *DINFIA* (the new name of *IAME*), which marketed about 5,000 vehicles each. In 1965 no fewer than 68 models were produced in Argentina -an average of 2,860 units per model.



Sources: Sourrouille (1980), Chung (2000) and Catalan (2006).

At the top of the pyramid, Argentina's main producers in 1965 were *IKA*, *Ford Motor* and *FIAT Concord*. The leader, with an output of 56,625 vehicles had seen its share of automobile production suddenly fall to 29 per cent. As Chart 1 shows, *Industrias Kaiser's* profit margin suffered a first major crisis in 1963, under a dark macroeconomic

environment<sup>5</sup>. The firm tried to fight against share-squeezing by exploring export markets, modernizing equipment, increasing production of parts and launching new models. *IKA* was the first Argentinian car producer to export, sending jeeps to Paraguay. It introduced innovations such as the first transfer machinery for engine manufacturing. *IKA* also opted for creating and participating subsidiaries to supply parts to the rest of producers established in Argentina, such as *Transax* (axle differentials) or *Tandil* (cored castings) (Mc Cloud, 1995; Cipolla, 2003). It became the largest single supplier to the Argentine automobile industry and, therefore, reinforced its key role in the emerging innovation system of the nation.

Moreover, *IKA* tried to offer new models to attract additional costumers. This strategy included agreement with *Renault* to license some of its new products (the relationship with the French company had begun by licensing the production of the *Dauphine* in 1960). During 1964 and 1965, the *R4L* obtained relative success in the Argentinian market. However, the firm was producing as much as seventeenth models. The resulting average of 3,331 units per model was not far above the country's average. The figure was too low to benefit significantly from economies of scale.

*Ford Motor* opted for a rather limited product range, with six models. Total production remained below *IKA* in number of units (30,424) but profit margin was superior (8.4 per cent), due to the lower use of domestic parts and a better average of units per model. The *Ford Falcon*, produced at the new plant of Pacheco, proved relatively successful over this period (ADEFA, 1966; Cipolla, 2007).

*FIAT's* activities in Argentina were originally devoted to the manufacture of tractors and railway equipment, but in 1960 the company launched the *1100* and the *600*, the first cars at its plant in Caseros (ADEFA, 1966). Until 1965 it commercialized five models, reaching an output of 28,868 units. It exported to Chile. *Fiat Concord's* unit per model ratio of 5,798 vehicles was significantly larger than *IKA's*, but profits from sales remained far below *Ford* (3.8 per cent).

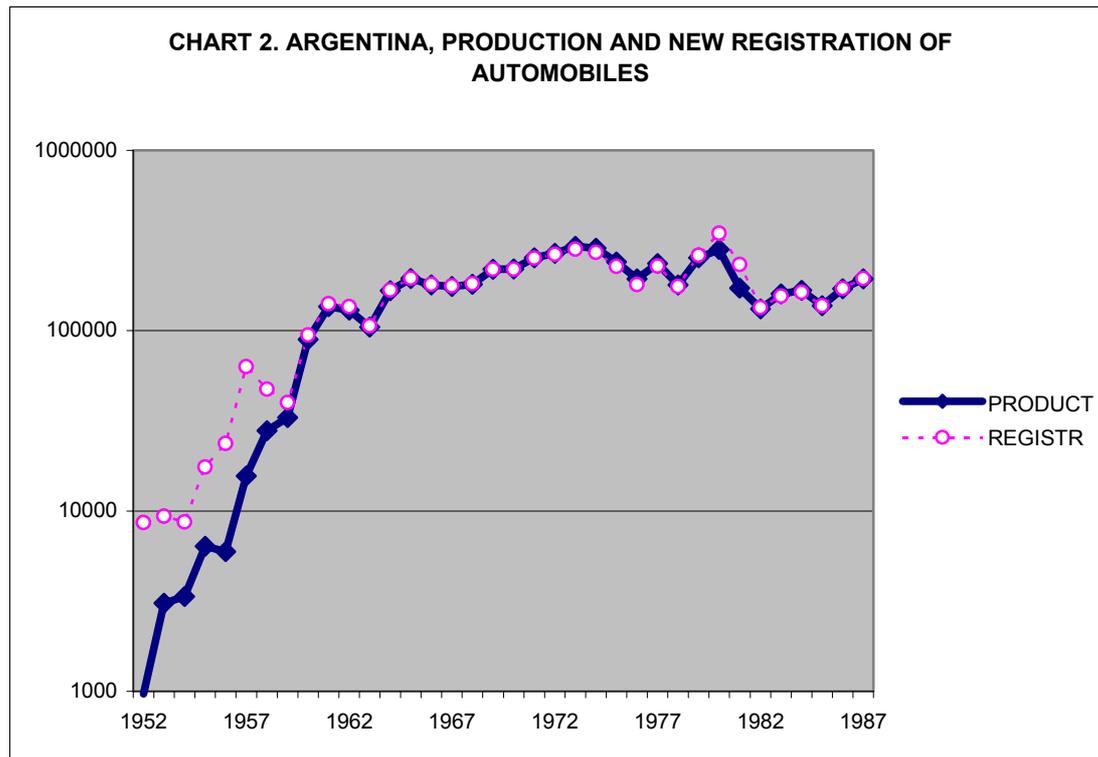
In short, the sudden increase in competition had the logical effect of lowering profits and extending the range of models available. The excessive number of both producers and models led to bankruptcies, takeovers and mergers. In 1965 *Citroën* joined *Peugeot* to convert *IIFA* in *SAFRAR*. *IKA* attempted to rescue *SIAM Di Tella* by acquiring 65 per cent of its capital (Rougier & Schvarzer, 2006). *Metalmecánica* closed its doors (Bisang, Burachik & Katz, 1996; Katz & Kosacoff, 2000).

The low series of *SIAM Di Tella* worsened the performance of the *national champion*. Though IKA was able to launch a fashionable model designed by Pininfarina in 1966, the *Torino*, profit margin squeezed to only 1.1 per cent in 1967 (Chart 1). Sinking profitability and the death of Henry Kaiser led his heirs to sell their share in *IKA* and *Transax* to *Renault* and *Ford* respectively. As a result, in late 1967 the mother company was renamed *IKA-Renault*. The firm declared huge losses the next year. The firm's profitability remained very low until 1973 and it collapsed soon afterwards.

Both *Fiat* and *Ford* passed *IKA-Renault* in sales, profits and profitability (Sourrouille, 1980). In 1972 current sales of *Fiat Concord* more than doubled those of *IKA-Renault* and the profits of the Italian subsidiary were ten times higher. Nevertheless, the profit margin at *Fiat Concord* -only 0.5 per cent- left little room for optimism. At the end of the Golden Age, *Ford Motor* was second to FIAT in terms of units produced; though its sales were much more modest (one third lower), its relative profitability was higher, reaching 2.2 per cent in 1972.

During the late Golden Age, social unrest spread within capitalist economies, after two decades of exceptional growth and low unemployment. In Argentina class conflict was particularly intensity due to the recurrent political instability and the strategies of non-cooperation adopted by political agents (Katz & Bercovich, 1993; Cipolla, 2003). A new coup brought the army back into power in 1966, now under the name of *Revolución Argentina*. On 29 May 1969, Córdoba, the province where most of the automobile industry was located, became the scene of direct confrontation between *Peronist* workers and police. In March 1972 a director of *Fiat Concord* was kidnapped by a *guevarist* organization, to be killed on 10 April. On 21 May 1973 a top executive of *Ford Motor* was also shot dead. In August 1973 another *FIAT Concord* executive was injured by a bomb which exploded at his home. All the main car companies recorded losses in 1973, except *Ford*.

On balance, it should be said that automobile production developed significantly in Argentina during the late Golden Age, albeit more slowly than in the previous period. The change of slope in Chart 2 shows that growth was much less intense than during the take-off phase of the nineteenth-fifties. However, a remarkable average rate of expansion of about 7 per cent per year was reached between 1962 and 1973, and car makers located in Argentina began to explore neighboring markets (Sourrouille, 1980; Katz & Bercovich, 1993; Katz, 2000; Barbero & Rocchi, 2003).



Sources: Production, ADEFA (1969) & ADEFA (1990); New registration has been estimated as output plus imports less exports from ADEFA (1985) & ADEFA (1990).

Exports were directly subsidized with the new legislation passed in 1971 (Kosacoff, Todesca & Vispo, 1991). Preference was given to the industry in bilateral trade agreements. As a result, automobile exports rose from less than 100 completed units in 1967 to more than 10,000 in 1973. Moreover, exports of knocked-down automobiles amounted to 75 per cent of the value of completed units (ADEFA, 1985). Argentina had become the world's thirteenth largest exporter of automobiles. A new pattern of dynamic comparative advantage was emerging (Kosacoff & Ramos, 1999; Katz, 2000).

Nevertheless, the development of the Argentinian automobile industry during the late Golden Age suffered from three main weaknesses. First, companies were producing very small series of each model and were thus unable to benefit from economies of scale. This situation was due to the sudden liberalization of the industry during the earlier phase of growth, which resulted in an excessively large number of firms and of models launched by each company. The final outcome was that firms operated with an extremely reduced profit margin.

A second negative outcome, related to the previous one, was that the *national champion* experienced a dangerous erosion of its profitability and its role in the Argentinian innovation system was jeopardized. The take over of *SIAM Di Tella* only

made things worse for profitability. The sell of Kaiser's stock to *Renault* and the lost of profitable *Transax* subsidiary, jeopardized IKA's role of *national champion* and decreased its capacity to innovate.

A final source of vulnerability came from the institutional framework. Political convulsions poisoned social bargaining. Company managers, as representatives of capital, were seen as government collaborators and were often targets for violent organizations. As the car industry was one of the fastest growing sectors, it suffered the turmoil of the late sixties and early seventies with particular intensity.

Before 1972 the Spanish industrial policy showed strong continuity with the strategic options of the fifties. Imports remained severely restricted. Investment went on subject to strict licensing. Ninety per cent of the parts used by car constructors had to be locally made.

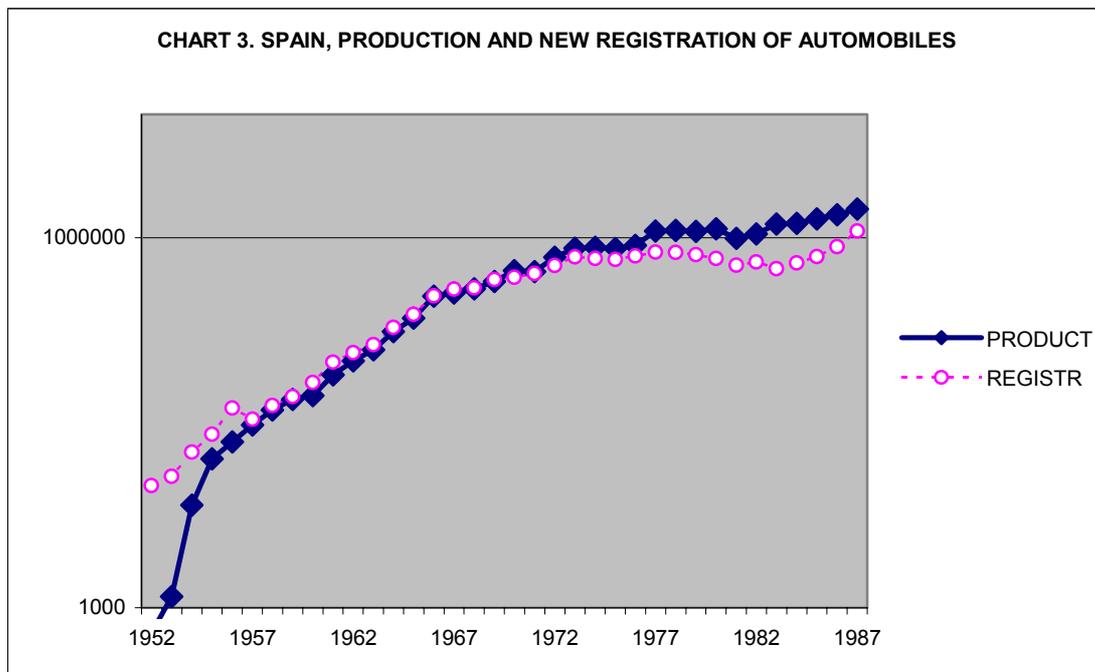
Up to 1972, the overall continuity of strategic policy was accompanied by some cautious moves. Two new projects received permission to assemble cars in Spain during the sixties and more competition was gradually introduced into the industry. The first authorization was granted to Eduardo Barreiros, an entrepreneur who previously produced diesel engines and trucks in Madrid and whose firm would finish in the hands of *Chrysler* (García Ruiz & Santos Redondo, 2001). The firm would manufacture two new models: the *Dodge Dart*, for the top segment of the market, and the SIMCA 1000, for the medium-cheap class.

Permission was also given to AUTHI to manufacture cars under a *British Leyland* license. AUTHI built a new plant in Pamplona and specialized in the medium segment, launching the *Morris 1300*, *MG 1300* and *Morris Mini 1250*.

The Ministry of Industry also promoted car exports by providing subsidies in the late sixties. In the case of the main producer, SEAT, sales abroad were originally prohibited by the contract signed with the licensing partner, FIAT, in 1948. Long negotiations between the government and the Italian firm led to an agreement signed in 1967 which entitled SEAT to export in exchange for an increase in Turin's participation in its capital. As a consequence, the public holding INI reduced its capital from 51 to 35 per cent, and FIAT expanded its share from 7 to 37 per cent. In 1970 SEAT also obtained the go-ahead to create its own R&D center (which remains the most important R&D department in the Spanish automotive industry) and to use FIAT's export network to sell abroad. The same year, Madrid signed a Preferential Agreement with the EEC, which established the gradual reduction of tariffs on Spanish cars. All these

developments favored a rapid increase in SEAT's sales abroad. SEAT's exports climbed up to 55,167 units by 1972, accounting for 54.5 per cent of total Spanish passenger car exports (Catalan, 2006). By 1974 SEAT had become the leading Spanish industrial firm in terms of R&D, with an expenditure of 1,707 million pesetas<sup>6</sup>.

*Renault* had more success than FIAT in increasing its degree of control of the firm which produced its models in Spain. In 1965 *Renault* bought up 49.9 per cent of capital of FASA, the maximum allowed by the Spanish *Foreign Investment Act*. This move made the factory of FASA-*Renault* in Valladolid, the firm's most important undertaking from outside France (Loubet, 2000; Fernández de Sevilla, 2006, 2007; Sánchez, 2006). FASA-*Renault* also benefited from the export promotion policy of the late Golden Age and sold abroad 11,087 units in 1972, about 10.6 per cent of total Spanish car exports.



Sources: Passenger cars and commercial vehicles and production and registration from García Ruiz (2003).

*Chrysler* and *Citroën* also took advantage of the export promotion incentives. Together were responsible for 32.3 per cent of Spanish passenger cars exports in 1972. Spain established itself as a car exporter during these years of the late Golden Age.

The protectionist policy of the Golden Age can be considered a success given that automobile production rose at a rate of 20 per cent per year between 1962 and 1973 (Chart 3). Spain climbed to the tenth position in the world ranking of automobile

producers. The industry began to compete abroad and Spain became the eleventh world exporter of automobiles in value.

The domestic Spanish market had become more competitive in this ten-year period, since the already existing firms increased the number of models in their ranges and the new entrants had launched alternative products. However, AUTHI, *Chrysler* and *Citroën* had difficulty in surpassing the threshold of production of 50,000 units and often recorded losses.

Labor conflict also intensified in Spain in the late sixties as the economy approached full employment and clandestine unions attempted to link the improvement of living conditions with the fight against Franco's dictatorship. Workers' leaders were sacked. In 1971, SEAT workers occupied factory workshops. A man was killed when the police charged against strikers. There were new dismissals and further strikes. As a result, labor costs increased sharply and profitability declined: between 1967 and 1971 SEAT's profit margin declined from 4.2 to 2.2 per cent (see Chart 1) (Catalan, 2006).

In 1972 SEAT's margin of profit improved slightly, to 2.7 per cent. The rate appears modest, but is not far below the level of French and Italian car companies in the original countries. By this time SEAT was producing 335,340 units per year with five basic models. The Spanish *national champion* was benefiting from economies of scale and prepared the launching of a new model, *127*, the first one with front wheel drive.

The second passenger car firm, *FASA-Renault*, also had to deal with labor conflicts, albeit less intense. The perspectives were even better than in SEAT, given that in 1969 it launched a successful product for the medium-high segment, the R-12, and in 1972, presented another future star product of the cheap segment, the R-5 (Sánchez, 2004, 2006). Although its market share was less than half of SEAT's, its profitability was slightly higher.

In South Korea the failure of *Saenara* led to a fall of output from 1,400 passenger cars in 1963 to about 200 in 1964, whereas the production of commercial vehicles stagnated, at around 900. The government supported the takeover of *Saenara* by *Shinjin Industrial*, helped by the latter's substantial contribution to the political party in power (Ravenhill, 2001). The approval of the Ministry of Trade and Industry meant a second attempt to promote a *national champion* in the car industry, *Shinjin Motor* (Chang, 1993; Lee, 2005). *Shinjin*, with experience in assembling *Mitsubishi* kits, shifted to *Toyota* as technological partner.

In July 1963, the *Ha Dong-hwan Motor Wokshop* took over *Dongbang Motor Company*. The new firm, *Ha Dong-hwan Motor Company*, focused on truck and bus construction. In May 1966 *Ha Dong-hwan* exported its H7H R-66 bus to Brunei for the first time.

*Shinjin* launched its *Corona* in 1966, assembled in Bupyong, and also produced trucks. Total Korean production reached 7,400 units. The year after, *Ha Dong-hwan* established partnership with *Shinjin*. *Ha Dong-hwan* also began to export large buses to Vietnam.

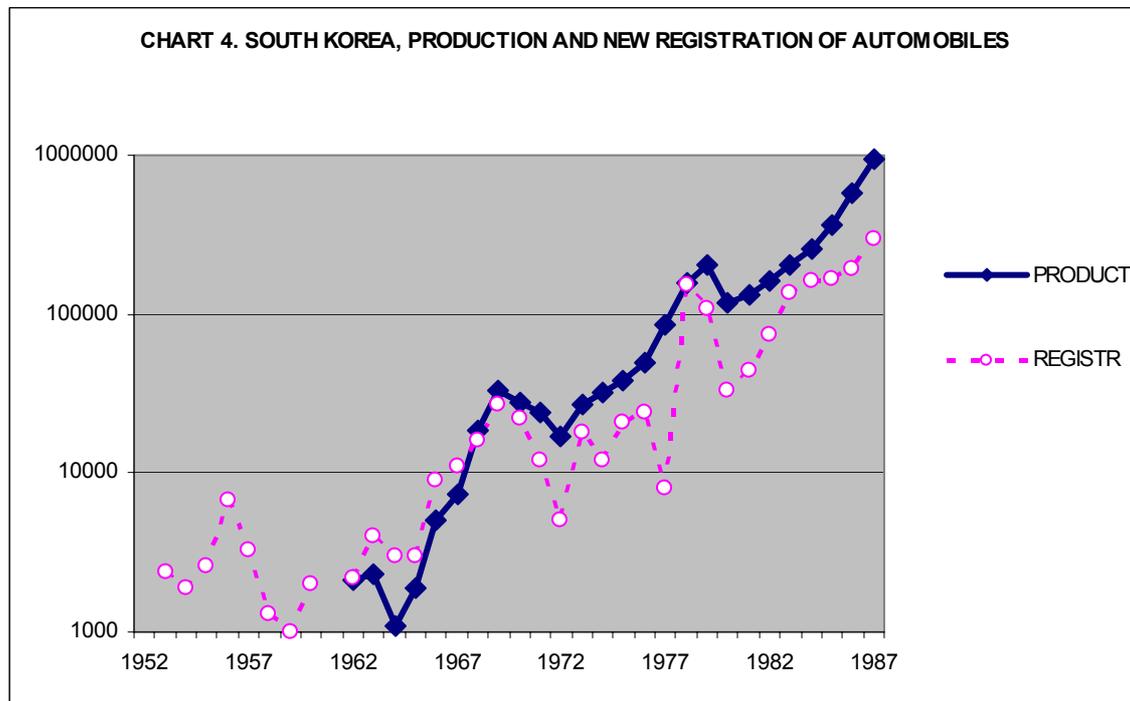
Under pressure from the parts manufacturers, the government decided to increase the number of final producers of cars and announced its *Automobile Plant Permission Standards*, which encouraged technological alliances with foreign partners (Chang, 1993; Ravenhill, 2001; Yang, Kim & Han, 2006). In December 1966 the government decided to end *Shinjin's* monopoly by authorizing two new companies to undertake passenger car production: *Asia Motors* and *Hyundai* (Lee, 2005). The *Asia Motors Company* had been founded in 1965, specializing in the production of medium-sized trucks for military use. *Hyundai*, under the lead of Ju-yung Chung, had become one of the most prosperous *chaebols* thanks to public works under Rhee and Park governments (Kirk, 1994). The subsidiary *Hyundai Motors Company*, created in 1967, would manufacture under license by *Ford*, launching the Korean *Cortina* a year later.

The end of the monopoly in passenger cars, together with the new technological alliances, stimulated South Korean output. In 1969 production of automobiles reached 33,000 units, with passenger cars accounting for 57 per cent. At this stage, assembling still dominated.

In 1970 taxes on private passenger cars were raised significantly, leading to a deep recession in the Korean motor industry (Chung, 2000). As Chart 4 shows, both car registration and production fell sharply in the early seventies. In response to the industry's uneven growth, the government decided to encourage new initiatives and authorized *Kia* to undertake the production of passenger cars in 1971. It also allowed the creation of a joint venture between *Shinjin* and *General Motors*, after *Toyota* had decided to give up its support to the former, following Chu En-lai ultimatum (Chang, 1993; Ravenhill, 2001; Greenbaum, 2002). *General Motors Korea* was born in 1972, with each partner holding equal stakes.

Both parts producers and assemblers were becoming more technologically sophisticated. In 1968 *Hyundai* imported 79 per cent of its parts, but within six years

this figure has fallen to 32 per cent (Chung, 2000). *General Motors Korea* also significantly reduced its imports of parts (Yang, Kim & Han, 2006).



Sources: Passenger cars and commercial vehicles. Production, Mitchell (2003). Registration, estimated with motor vehicles in use, Mitchell (2003).

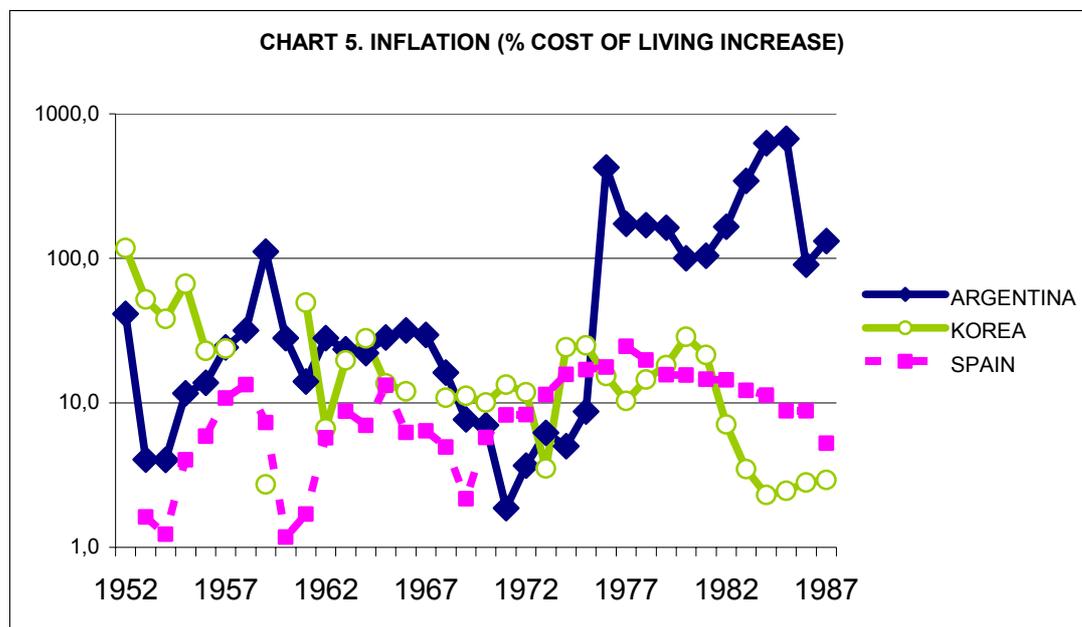
In spite of two significant recessions, output increased by 24 per cent per year between 1962 and 1972. So throughout the late Golden Age, car production in the highly protectionist South Korean market rose significantly. The monopoly on private cars production, initially granted to a single firm, not only induced rent-seeking but also disrupted the development of the industry. The relaxation of this policy was beneficial, although it was unable to completely eliminate sharp fluctuations in output. Nevertheless, the policy of making the market the exclusive domain of local firms while at the same time favoring license agreements with foreign partners helped the country's automobile industry to develop strategic capabilities that proved to of paramount importance for technological learning (Kim, 1993; Yang, Kim & Han, 2006).

#### **4. Economic crisis, restructuring and uneven evolution, 1973-87**

The expectations created by the development of a domestic automobile industry in Argentina during the Golden Age were not fulfilled. Argentinian car production reached its peak in 1973 with an output of 293,742 units (Chart 2); but by 1987 production had

sunk by a third, to 193,315 automobiles. Sixteenth in the list of the world's top automobile exporters in the early seventies, Argentina was not longer in the top twenties in the late eighties.

The main reason for the Plata Republic's failure in this period was the extreme volatility in macroeconomic policies (Katz & Bercovich, 1993; Katz, 2000; Della Paolera & Gallo, 2003). Although Argentina had had hardly been stable during the Golden Age, macroeconomic disturbances in the following years were significantly more intense and hit industrial development particularly hard. The shifts in automobile policy did not help either.



Sources: Mitchell (1993), Mitchell (2003) and Maluquer de Motes (2005).

The sharp fluctuation of the rate of inflation can be considered the main indicator of the acute macroeconomic volatility of demand management in Argentina. The Plata Republic had suffered inflationary shocks during the Golden Age, the most important occurring in the late fifties, however, as Chart 5 shows, variations in the inflation rate in Argentina before 1975 were not significantly more intense than in South Korea. In fact, in the early seventies, Argentina's inflation rate was moderate, comparable to that of the Asian and Iberian economies.

Between 1975 and 1987 Argentina experienced two inflationary shocks without parallel in either Spain or Korea. Both episodes ended with the adoption of radical restrictive policies to de-accelerate inflation, which in turn caused real recession. The

performance of the Argentinian industry in those years tends to confirm the findings of authors who stress the existence of a point of no return in Argentina's long-term economic growth around 1975 (Katz & Bercovich, 1993; Katz, 2000; Katz & Kosacoff, 2000; Barbero & Rocchi, 2003; Sanz, 2004).

In fact, the return of *Peronism* to power led to nominal wage increases of 40 per cent in 1975. The cost of living soared, multiple exchange rates encouraged black market operations, and general strikes led to the paralysis of manufacturing activities.

The army seized the power again in 1976 in another coup. The political repression under General Videla's regime was far more brutal than in previous periods of authoritarian rule. Inflation rose to three figures; as cost of living spiraled, automobile production plummeted (Chart 2). In 1976 investment also fell down to a record low (Kosacoff, Todesca & Vispo, 1991).

The Finances Minister, Martínez de Hoz, attempted to fight the domestic and external disequilibria by drastically reducing fiscal deficit and decreasing tariffs. The policy combined budget cuts, monetary restriction, real revaluation of the peso and early deregulation of the financial system (Katz & Bercovich, 1993; Katz, 2000). Contraction of domestic demand together with lower real protection of the industry pushed automobile production to its second minimum in 1978, when output was only 62 per cent of the figure of five year earlier. At this point, *General Motor*, the first world producer, decided to leave the country. Since the previous year *GM*, *Fiat*, *Chrysler*, *SAFRAR* and *Citroën* had declared huge losses (Sourrouille, 1980; Katz & Bercovich, 1993; Bisang, Burachik & Katz, 1996; Katz & Kosacoff, 2000).

In 1979 quotas for car imports were replaced by a system of decreasing tariff protection. Restrictions on imports of parts were also eased, as the regulations on locally made components were relaxed. As a result, imports of automobiles increased from 458 units in 1978 to 68,361 in 1980 (ADEFA, 1985; Kosacoff, Todesca & Vispo, 1991; Bisang, Burachik & Katz, 1996).

The restrictive macroeconomic policy temporary brought inflation down to 100 per cent per year during the biennium 1979-80. Automobile production also seemed to recover, rising from 179,160 to 281,793 units from 1978 to 1980. Nevertheless, the expectations were so dark that some of the automobile companies opted to leave Argentina or to restructure their activities. *Citroën* and *Industrias Mecánicas del Estado* (the old IAME) closed its doors. *Chrysler* sold its subsidiary to *Volkswagen* in May

1980. *Peugeot* and *FIAT* merged into *Sociedad Europea de Vehículos (SEVEL)* (Bisang, Burachik & Katz, 1996).

But the worst was not over. The restrictive policy was abandoned under the government of General Viola in 1981. General Galtieri's Finance Minister, Roberto Alemann, again attempted sudden liberalization, although he showed himself in favor of balancing the budget. The Falklands War newly fostered public deficit and pumped new money into the market. Inflation accelerated once more in 1982. Imports and registered cars expanded for a while but production sank to only 132,117 units. At this moment, the absolute lowpoint for the Argentinian car industry, output fell to only 45 per cent of its 1973 level. Most automobile firms ran up huge foreign debts as a result of the crisis: *Renault*, *Mercedes Benz* and *Ford Motor* belonged to the club of top debtor firms in 1982. Foreign borrowing had been encouraged by government's guarantee of exchange insurance. The nationalization of private debt in 1982 made Argentina one of the top foreign debtors in the world.

The return to democracy under the *radical* presidency of Alfonsín brought neither economic growth nor domestic equilibrium to the country. Growth was hampered by the burden of servicing foreign debt and additional volatility in the fight against inflation. Figures for automobile registration and production figures remained far below the 1973 levels. Automobile firms continued in the red. The survivors again tried to restructure by merging: in 1987, the leader of the market since 1975, *Ford Motor*, joined forces with *Volkswagen Argentina*, to create *Autolatina* (Schvarzer, 1995).

To sum up, between 1973 and 1987 the automobile industry undertook deep restructuring guided by market forces under highly volatile macroeconomic policies and dramatic demand shocks. Of Argentina's four main producers, *IKA-Renault*, *Fiat*, *Ford* and *General Motors*, the last left the country (Katz & Bercovich, 1993; Bisang, Burachik & Katz, 1996; Katz & Kosacoff, 2000). *Fiat* and *Ford* proved unable to maintain autonomous business, and the old *IKA* felt under complete control of *Renault* in 1975. Although *Renault Argentina* maintained the production of the *Torino*, the only remaining local model, in the future would limit itself to introducing French models.

As has been argued, the overwhelming responsibility for the decline of the automobile industry in the Plata Republic after 1973 was the highly volatile macroeconomic policy, inside an extremely polarized political system. Nevertheless, the automobile sector's difficulties were increased by the lack of an industrial policy supporting the exploitation of economies of scale by firms. The low number of units produced of the most

successful car models illustrates this point: at *Fiat Concord*, the leader up to 1975, the most produced model was the *600* -365,768 units between 1960 and 1982, an average below 16,000 units per year. In SEAT the same model (produced from 1957 to 1973) recorded averages above 46,000 units. *Ford Motor Argentina's* blockbuster model turned out to be the *Falcon*, with 494,208 units produced during 1962-91, again, around 16,000 units per year. In Spain, a comparable car, the *R-12* was produced from 1969 to 1983, with a total output of 455,006 units and annual average of above 30,000 units.

Table 1. Top exporters of passenger cars and commercial vehicles  
Exports in thousand dollars

	1973		1987
1 GERMANY	6483517	1 JAPAN	44288960
2 CANADA	3103489	2 GERMANY	37442083
3 JAPAN	3494511	3 CANADA	15669396
4 FRANCE	2825848	4 BELGIUM	10502252
5 USA	2613063	5 USA	10131876
6 BELGIUM	1872860	6 FRANCE	9684875
7 ITALY	1378487	7 ITALY	4947497
8 UK	1314852	8 SWEDEN	4890615
9 SWEDEN	867996	<b>9 SPAIN</b>	<b>4116020</b>
10 NETEHLADS	219683	10 UK	3911305
<b>11 SPAIN</b>	<b>175271</b>	11 BRAZIL	3059590
12 AUSTRALIA	167368	<b>12 KOREA</b>	<b>2788923</b>
<b>13 ARGENTINA</b>	<b>61555</b>	13 MEXICO	1120465
14 AUSTRIA	55459	14 NETHERLANDS	716188
15 MEXICO	39659	15 DENMARK	543025
16 BRAZIL	37043	16 AUSTRIA	510104
17 FINLAND	31416	17 YUGOSLAVIA	489669
18 SINGAPORE	28659	18 FINLAND	385307
19 LEBANON	21527	19 NORWAY	242004
20 DENMARK	21516	20 PORTUGAL	232071

Note: The source excludes central planned economies

Source: *Yearbook of International Trade Statistics, New York*

Without benefiting from economies of scale, Argentina's exports could not sustain competition in the world market. Table 1 shows how the expectations opened up for the Argentinian exports during the Golden Age were not fulfilled afterwards. In addition, the share of the automobil sector in total added value of Argentinian industry declined from 10.9 per cent in 1970 to 6.4 per cent in 1990 (Katz & Stumpo, 2001)<sup>7</sup>.

Democracy returned to Spain in the mid seventies, and the country experienced accelerating inflation up to 1977. The Moncloa Pact (signed that year by the political

parties) together with restrictive demand management brought cost of living under control (Chart 5). Centrist governments until 1982 and social-democratic ones afterwards, all gave priority to price stability. Although Spain experienced dramatic economic depression and rising unemployment, expansionist macroeconomic management was out of question during the decade following the signature of the Moncloa Pact. In short, the volatility of macroeconomic management was low (Trullén, 1995).

On the other hand, Spanish industrial policy of this period contrasted sharply with that during the Golden Age. The shift began in 1972, when the regulations regarding the proportions of locally made parts in automobile manufacturing were relaxed (Catalan, 2000, 2006; García Ruiz, 2001, 2003; Perez Sanchó, 2003). Henry Ford II obtained a change of legislation from the Spanish government bringing down the required level of local content from 90 to only 50 percent for new automobile firms established in Spain. Moreover, the Dearborn firm was also granted permission to build a new plant in the country. The factory, located in the surroundings of Valencia, would produce the *Fiesta* model, a small front-drive car, a direct competitor for the SEAT blockbuster of the moment, the *127*. The *Fiesta* was launched in 1976. Within two years, *Ford* was producing 260,939 units in Valencia (Tolliday, 2003).

The shift of 1972 was consolidated in 1979, when the local content requirement was reduced to 60 per cent for all firms in the industry. At the same time, Madrid gave permission to *General Motors* to establish a new factory near Saragossa. Again a small utilitarian would be produced for the medium-cheap segment, the *Opel Corsa*. The new vehicle would be ready in 1983. By 1986 GM was manufacturing 304,090 units in Saragossa.

Last but not least, controls on automobile imports began to be relaxed. The number of new imported passenger cars went up from 12,070 units in 1978 to 57,229 units in 1980<sup>8</sup>: a threefold increase in only three years. The process would continue during the following years, in particular after 1986, when Spain joined the EEC.

The new industrial policy intensified competition within the domestic market and improved the efficiency of producers located in Spain. Both *Ford* and *General Motors* made large investments in Spain to take advantage of the country's impending entrance in the Common Market. By 1987, Spain had risen to ninth in the list of car exporters (Table 1) and improvement would continue afterwards.

The firm hit hardest by this policy was SEAT, the old *national champion* and a key actor in the emerging *national system of innovation*, which had focused its efforts on the popular segment. Its share of the Spanish market sank dramatically from 51 per cent in 1973 to only 26 per cent in 1980. The firm's losses rocketed from the moment of the arrival of the *Ford Fiesta* (Chart 1). SEAT had taken over AUTHI in 1975 in return for the promise of a government veto on GM setting up in Spain. Nevertheless, the transition governments did not respect their predecessor's commitment and GM was authorized to set up in Spain at the very moment that SEAT was recording the heaviest losses in its history (Chart 1). As a result, FIAT decided to leave Spain and gave SEAT back to INI in 1981. SEAT, now owned completely by INI, tried to survive as an independent producer but suffered again from the launch of the *Opel Corsa* in 1983. Its output recorded only 240,005 units, only 66 per cent of its 1974 level.

As an independent manufacturer, SEAT contacted *Ital Design* in 1981 (Molineri, 1999). Giorgetto Giugiaro designed a new small-medium model, the *Ibiza*, which would become the firm's future blockbuster. Nevertheless, the launching of the *Ibiza* was postponed until 1984. In the meantime, SEAT had signed a technical cooperation agreement with *Volkswagen*. In 1986, when SEAT was beginning its recovery, the Socialist government decided to transfer 51 per cent of its capital to Wolfsburg. The policy of supporting a *national champion* in the automobile industry was definitively over and the emerging *national system of innovation* resulted seriously jeopardized.

FASA-*Renault* did not suffer as much as SEAT because it was not as dependent on the cheaper segments of the market. R-12 and R-6 continued to sell well throughout the seventies (Sánchez, 2004, 2006). The R-5 also performed very satisfactorily before the launch of the *Corsa*. *Renault* became the new Spanish market leader between 1980 and 1983, but it was later overtaken by *Opel*, which took the first place during 1984-85.

To sum up, Spain experienced relative macroeconomic stability after 1972 and completely overhauled its industrial policy. The protectionist policy came to an end and efforts were made to attract the main American automobile producers to Spain and to prepare the country's entry into the EEC. The policy of supporting the creation of a *national champion* in the industry was abandoned. These changes led to Spain's consolidation as a world exporter of cars in the medium-low segment. Efficiency and competitiveness improved. However, decisions over the future of the industry would now be taken abroad and the bulk of R&D of the Spanish car industry would depend on

foreign headquarters. In addition, the progression of the industry would experience a significant slow-down compared with the previous period.

The stability of macroeconomic policy in the Republic of Korea during the 1973-87 periode resembles the situation in Spain more than that in Argentina. As Chart 5 indicates, the low volatility of demand management in the Asian country helped to create the necessary conditions for the development of the automobile industry, which were lacking in the Plata Republic. Moreover, in contrast to Spain, Korean industrial policy did not experience dramatic shifts and contributed to overcoming significant weaknesses in the development process. Also unlike Spain, South Korea remained very cautious in accepting new foreign investments and import liberalization, concentrating its efforts on encouraging domestic producers to take full advantage of economies of scale and to decrease technological dependency.

After the soft coup known as the *October Restoration*, Park's nationalistic policies were strengthened in South Korea (Chang, 1993; Jenkins, 1995; Lee, 2005). The *Heavy and Chemical Industries Program* designed a pack of strategic activities for export promotion, including the automobile industry. In 1973 the *Long-Term Automobile Promotion Plan* invited producers to submit plans for launching an indigenous people's car (Amsden, 1989; Green, 1992; Hyun, 1995; Kang, 1997; Yang, Kim & Han, 2006). Series of 50,000 vehicles were required. Ninety per cent of parts had to be locally made (Green, 1992; Chang, 1993; Jenkins, 1995; Ravenhill, 2001; Lee, 2005). *Kia*, *Hyundai* and *General Motors Korea's* proposals were accepted but *Asia Motor* was excluded from the passenger car market (Chang, 1993). Public policy promoted specialization of the former firms according to segments (Yang, Kim & Han, 2006). *Asia Motors* was to focus on jeep production.

In 1973 *Kia* produced the first gasoline engine at its new Sohari plant, a factory which was a pioneer in incorporating the conveyor system in Korea (Kang, 1997). Soon afterwards it launched its new passenger vehicle, *Brisa*, which borrowed *Mazda* technology. In 1975 *Kia* was the first firm to produce more than 10,000 units in Korea and temporarily became the market leader. In 1976, the company created its subsidiary *Kia Machine Tools*, which started production of its own equipment under a technical license from *Hitachi* (Lee, 2000).

*General Motors* licensed GMK to produce new models, and made large-scale investments to expand productive capacity. In 1976, when the firm was renamed *Saehan Motors*, it was able to produce several thousands of passenger vehicles.

*Hyundai Motors* took the government policy more seriously and spent more time trying to create a people's car, focusing its efforts on developing its own hybrid technology. The *chaebol* had been negotiating for three years with *Ford* to make Dearborn accept a joint venture with minor American participation (Hyun, 1995). Finally negotiations broke down. In 1973 HMC cancelled its agreement with *Ford* (Lee, 2005). The president of the company, Se-yung Chung, opted to build a new indigenous vehicle independently, creating his own R&D center in 1974 (Kirk, 1994; Hyun, 1995). The outcome was the *Pony*, a new model (1200 cc) partially conceived as reverse engineering from *Ford Marina*. George Turnbull, former Director at *British Leyland*, was hired as vice-president to work on the product development. The prototype was redesigned by Giorgetto Giugiaro and the engine and transmissions supplied by *Mitsubishi* (Green, 1992; Molinari, 1999; Chung, 2000; Yang, Kim & Han, 2006). Chung-goo Lee, who had been heavily involved in the design of the *Pony*, had studied engineering and product development at *Ital Design*, Giugiaro's headquarters in Turin during 1973-74 (Hyun, 1995; Molinari, 1999). It should be stressed that *Pony* was not a particularly modern product for the time, because it still had rear-wheel drive at a time when front-wheel drive was taking over. Nevertheless, the *Pony*, launched in December 1975, turned out to be a hybrid but indigenous Korean model from a firm under independent managerial control. The Ulshan plant had a production capacity of above 50,000 units per year, the highest yet recorded in Korea, and incorporated the principles of flow production (Kang, 1997). *Hyundai Motors* became the new Korean *national champion*.

The success of the *Pony* strategy established HMC as the leader of the Korean car market. Its output jumped from 7,092 units in 1975 to 61,239 in 1980, and its share in domestic production rose from 19.1 to 49.7 per cent in this period (Hyun, 1995). Above 85 per cent of parts were locally made (Green, 1992; Jenkins, 1995; Chung, 2000). On the other hand, HMC's hegemony created substantial trouble for the rest of Korean producers. *Brisa* faced tremendous difficulties (Lee, 2005). *General Motors'* models had little appeal and led to a sales' crisis. As a result, *Shinjin's* stake in *Saehan* was bought by the *Korean Development Bank*, which sold it to *Daewoo* in 1978.

In 1977 the government selected the car industry as strategic sector for export, setting targets and offering support. HMC tried to sell the *Pony* in foreign markets, beginning with Ecuador (Green, 1992). Other markets such as Belgium, the Netherlands and Greece, were also explored. In 1978 *Hyundai* exports reached 12,000 units, but the

company appeared unable to expand much above this threshold before 1984 (Chung , 2000). Initial exports in fact took the form of dumping: it was estimated that in 1979 the cost of producing the *Pony* was \$ 3,745; it was exported for \$ 2,150; and its domestic price was \$ 4,980 (Kim, 1992; Jenkins, 1995).

HMC also decided to create its own machine-tools division, which became independent in 1978. The following year it would build its first special purpose machine. The division would become the base of a powerful capital-goods industry (Lee, 2000).

The assassination of President Park at the end of 1979 was followed by dramatic recession, bringing automobile production down by 42 per cent in 1980 (Chart 4). A new coup put General Chun in power, but nationalist policy did not come to an end: on the contrary, the *Order of Automobile Industry Unification* attempted to strengthen specialization within the industry by direct government pressure. The military government attempted to support further exploitation of scale economies by promoting mergers (Jenkins, 1995; Lee, 2005). The *national champion* was to take over *Saehan*. *Kia*, then the smallest firm, was to merge with *Donga Motor* (name of *Ha Dong-hwan* since 1977) and specialize in trucks and buses. *Asia* should devote itself to military vehicles. *Kowha* would produce civilian jeeps.

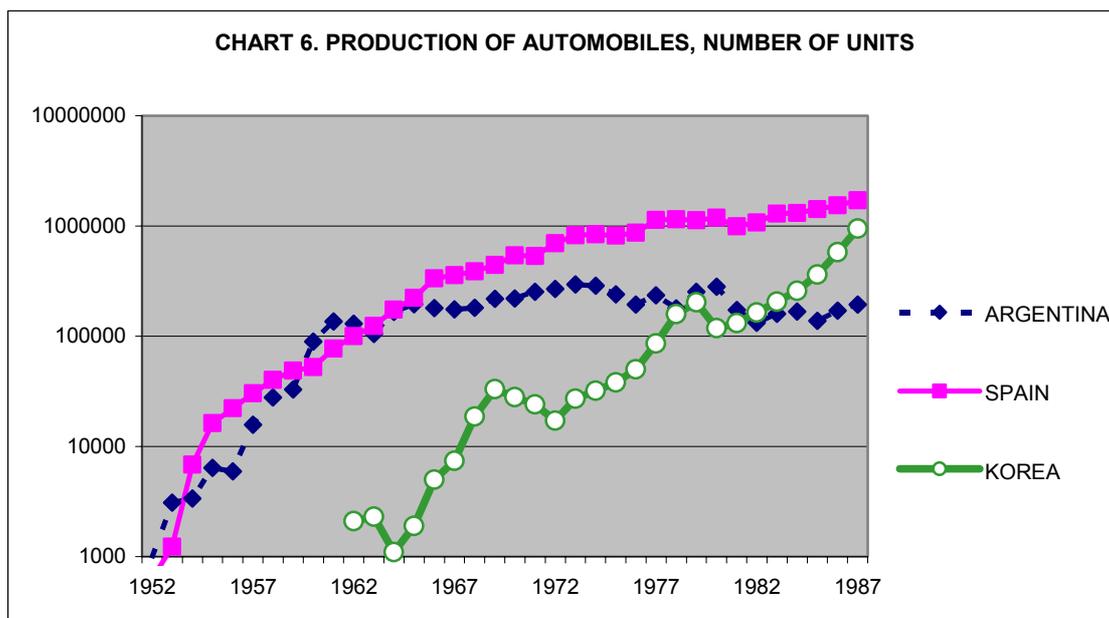
However, firms tended to resist the government's plans, especially *General Motors*, with its large stake in *Saehan*. An agreement was reached in 1981, under the *Order of Automobile Industry Rationalization*. Finally, passenger cars production would be restricted to two companies: on the one hand, *Hyundai*, on the other, *Saehan* (Chung, 2000). *Kia* was to give up passenger car production and focus on heavy vehicles, with the promise of future authorization if demand improved (Chang, 1993). *General Motors* would continue to have its stake in *Saehan*, but the Korean partner, *Daewoo*, would assume managerial responsibility. The name of the firm changed again in 1982, to *Daewoo Motor Corporation* (Green, 1995; Lee, 2005). Continued cooperation with GM led to the launch of new products such as the *Pontiac Le Mans*, based on *Opel's* developments (Green, 1995; Kang, 1997).

The government's reduction of the number of firms coincided with the improved profitability of *Hyundai Motors*. As can be seen in Chart 1, the profit margin, negative in 1980, went into black afterwards (Chung, 2000). In the meantime, the *national champion* had been working on the creation of new capacities, the improvement of its blockbuster model, the production of its own capital goods, the development of new

cars and the conquest of foreign markets. HMC nurtured technological learning by setting highly ambitious goals (Kim, 1998). The number of people engaged in R&D increased from 197 in 1975 to 1,422 in 1985, indicating the consolidation of a key feature of the *national innovation system* within South Korea (Hyun, 1995). In 1982 *Pony-II* was launched, to be followed by *Stellar*, *Excel* (the first front wheel drive car) and *Presto*. The company was aiming at the American market and had established *Hyundai Auto Canada* in 1983. Production rose from 78,071 units in 1982 to 545,100 in 1987. The firm's share of the domestic market remained above 50 per cent (Chung, 2000). Exports rocketed after 1984, surpassing the threshold of 400,000 units by 1987. Its main market was North America. We should add that the firm was not very profitable, because of this radical expansion (in fact, the profit margin was very similar to SEAT figures in the early seventies, as Chart 1 shows). However, its margin (above 2 per cent) can be considered satisfactory, if we bear in mind the reduced profitability of the international automobile industry.

Once the Korean car industry had established itself in foreign markets, the government began an extremely cautious process towards liberalization. In 1984, tariffs on car imports rose to 60 per cent with the prospects of increasing import quotas. Nevertheless, the following year the Ministry of Commerce and Industry decided to postpone liberalization, and in 1986 the government selected the automobile industry for further rationalization. *Kia* obtained permission to return to the production of passenger cars from 1987 onwards. A partial reduction of controls on commercial vehicles imports was introduced, but the liberalization of passenger cars imports was again postponed until the end of the decade.

In 1987 the Korean passenger car industry had been consolidated as a highly oligopolistic market with the same number of producers as in the late nineteenth sixties: *Hyundai* (56 per cent of output), *Daewoo* (31 per cent) and *Kia* (12 per cent). All three had foreign technological partners, but control remained in domestic hands. This was especially the case with the *national champion*, HMC, in which *Mitsubishi* had a minority stake since 1982 (Hyun, 1995; Chung, 2000).



Notes and sources: See Charts 2 to 4.

In short, even though Korea experienced both political turmoil (with assassination of President Park) and economic recession (with a fall in real per capita GDP in 1980) during the period under consideration, no government attempted to suddenly withdraw its protectionist policy in support of an indigenous car industry. This strategic option, together with a wise management of demand, helped to make South Korea a leading car producer and exporter. In addition, *Hyundai* took the lead as *national champion*, which gradually overcame its initially high technological dependence. As Chart 6 shows, during the 1973-87 period the Republic of Korea caught up with the two other countries under consideration. The basis for convergence began to be created throughout the Golden Age, when the main agents of transformation came on to scene, but, after the first oil shock, the public support for a *national car* and the strategic regulation of competition invigorated the domestic industry. When the Argentinian industry collapsed and the Spanish slowed down, South Korea caught up and succeeded in creating its own indigenous models and capital goods on a key industry, thus strengthening its *national innovation system*<sup>9</sup>.

## Conclusions

The automobile industry in the three countries experienced significant growth during the period under consideration. Strategic policies, more than social structures, turned out to be crucial in the early stages of development of mass production. This article corroborates Friedrich List's defense of protection to infant industries in countries with a medium-large domestic market.

The experience of *Saenara-Shinjin* suggests that monopoly was harmful for the expansion of the Korean industry. On the other hand, the sudden de-regulation of competition also created inefficiencies as occurred in Argentina with the *Revolución Libertadora*, and Frondizi's and Videla's governments.

Foreign licensing stimulated technology transfer, it was conducive to growth and it could favor creative imitation. Initially it was the main instrument of technological learning in the three countries under consideration. Successful *national champions* during the flourishing phases of the industry depended on foreign partners: IKA on *Kaiser* and *Renault*; SEAT on FIAT and *Volkswagen*; or HMC on *Ford* and *Mitsubishi*.

Foreign investment might contribute to the long term development of the sector, but this was not always the case. Because of large economies of scale in the industry, too many firms producing reduced series could jeopardize long-term expansion, as illustrated by the failures of IKA in the sixties and SEAT in the seventies. As a result, Argentina and Spain seriously reduced their capacity to promote technological learning and domestic R&D in the automobile industry, and their potential for creating a solid *national system of innovation*.

Support for a *national champion* could help to overcome technological dependence provided that the market preserved some degree of competition. The nationalist priorities of accelerating the industrial change and supporting the creation of indigenous technologies concern in favor of indigenous technology might contribute to the desired results, but for them to completely succeed it was important that domestic firms should not be fully controlled by foreign interests, and that the number of firms should be limited. This was the case in Korea with HMC throughout the seventies and eighties: The Korean government could even force rivals to temporarily withdraw from passenger car production.

The high volatility of macroeconomic demand management was extremely harmful for the development of the industry. Even though the Argentinian automobile industry had

faced significant diseconomies of scale before 1973, it rose steadily in the ranking of world producers and exporters throughout the Golden Age. The complete collapse of the industry after this date was due mainly to the macroeconomic instability of the country caused by dramatic policy shocks under Isabel Perón's government, the military juntas, and during the transition to democracy.

Industrial policy also experienced sudden shifts in Argentina during the late fifties and seventies, and Spain, during the early seventies, which abruptly reduced protection and encouraged the settlement of foreign rivals regardless of the previous patterns of specialization. As a result, both countries fostered overproduction and put at a disadvantage the companies with the greatest potential to develop autonomous R&D. In contrast, the Republic of Korea always moved extremely cautiously and subordinated liberalization to national interests. South Korea's industrial policy, far from being immobile, evolved steadily in spite of the changes of political regime and economic recessions. Long-term agreements between government and leading firms contributed to a positive interaction between the indigenous automobile industry and the Korean *national system of innovation*.

In a nutshell, the experience of Argentina, Spain and South Korea confirms that the success of late-comers in the automobile industry depended on the long-term adoption of policies which openly departed from free trade. The Republic of Korea had a remarkable success in developing its car industry and strengthening its *national innovation system* up to 1987. Spain also succeeded in expanding its industry but policy discontinuity during the seventies and eighties made it less autonomous to promote R&D in the long-run. The Argentinian industry, in spite of a promising beginning during the early Golden Age, sank completely after 1973 because of the tremendous volatility of its macroeconomic management and adoption of a too liberal industrial policy.

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**FOOTNOTES**

<sup>1</sup> The period analyzed is 1945-87 because it can be considered a long-term cycle of expansion and crisis and therefore it can be used to evaluate the long-run costs and the dynamic efficiency of the policies adopted during the Golden Age (Freeman & Louça, 2001). The year of 1987 is taken as the closing date for two reasons. It marked the lowest point in Latin America's depression. Moreover economic policies began to shift towards de-regulation and privatization in the developed world.

<sup>2</sup> See also Jenkins, 1977; Amsden, 1989; Hyun, 1995; Kosacoff & Ramos, 1999; Chung, 2000; and Freeman & Louça, 2001.

<sup>3</sup> Data on population and GDP come from Maddison (1997).

<sup>4</sup> Ju-yung Chung founded the *Hyundai Engineering and Construction Company* in 1947.

<sup>5</sup> Data on Argentinian firms' profitability in Sourrouille (1980).

<sup>6</sup> Ministerio de Industria (1976), *Las 500 grandes empresas industriales españolas en 1974*, Dayton, Madrid. The next Spanish firms in terms of absolute value of R& D were an electricity-producer, *Iberduero* (1,365 million pesetas) and a refining company, *Enpetrol* (911 million pesetas).

<sup>7</sup> The reverse was the case during the following decade, when industrial policy gave priority to the development of the automobile industry. As a result, the share of industry increased again to 9.9 per cent of Argentinian industrial added value in 1999. In addition, the gap of relative productivity in relation to the US fell sharply during the decade after 1989 (Katz & Stumpo, 2001).

<sup>8</sup> ANFAC, *Memoria 1980*, Madrid.

<sup>9</sup> Biggart & Guillén (1999) and Guillén (2003) regard Spain a more successful case than South Korea because of its better performance in the exports of parts. In my view, however, final producer brands under indigenous control contribute more significantly to the development of a *national system of innovation* for three reasons. First, as discussed in the text, R&D performed in the country of origin by final producers tends to be higher. Second, consolidated brands, in consumption markets of differentiated products, constitute a guarantee against sales volatility and are more typical of final producers than parts manufacturers. Last but not least, from the economic point of view, the most significant issue is the amount of added value generated by the whole automobile industry within the country. In the long-term the added value generated by the automobile industry in Korea has been higher than in Spain: according to IYIS, the share of the Korean industry of motor vehicles, trailers and semi-trailers (ISIC 34) accounted for 3.3 per cent of the world total added value of the industry in 2004, compared with a figure of only 2.3 for Spain. UNIDO (2006), *International Yearbook of International Statistics*, Vienna.