THE TURKISH AUTOMOBILE INDUSTRY IN A CONTEXT OF PORTER’S DIAMOND FRAMEWORK

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Abstract
This paper attempts to examine the international competitiveness of the Turkish automobile industry within the context of Porter’s (1990) diamond framework which covers four principal determinants of competitiveness namely factor conditions, demand conditions, related and supporting industries, and firm strategy and rivalry. This analysis also provides explanations on the industry’s changing role from that of a low cost, low-tech and small-scale production site to a larger producer and consumer towards achieving a world-wide competitiveness.

Özet

1. Introduction
Since the 1960s Turkey has sought to establish an effective automobile industry, with early plans now coming close to fruition, in terms of volumes produced, local content levels, and shift from assembly to manufacture of various types of automobiles. Under Turkey’s assembly industry regulations the contribution of locally manufactured components and component assemblies in the built-up automobiles produced in Turkey has risen from an initial 20 per cent to an average of 80-85 per cent (and even more for some models) (OSD, 1994). Integrated plants manufacturing engines and transmission parts are now almost universal in Turkey’s automobile manufacturing sector. Local content levels are highest of all passenger cars and tend to be below average for (lower volume) truck and bus manufacturing operations (Karayolu Taşıtları İmalat Sanayi Raporu, 1991). Formal local content requirements for the industry were abandoned in 1983.

Such has been the progress of development in the Turkish automobile industry in recent years that the government has moved to reduce the previously high import tariffs behind which the nascent industry sheltered in its earlier years.

The long-term future of the Turkish automotive industry lies, as does that of the country itself, within the European Union - membership of which is a national aspiration. When the country will succeed in its ambition
In this respect is, of course, anyone's guess; none the less, the long term probability must be that this will happen at some point and multinational automobile manufacturers are mindful of this. At present, investment into the Turkish automobile industry is intended to take advantage of the medium-term benefits offered by the growth in the potentially substantial Turkish market itself and by the possibilities for exporting from this relatively low-cost base to countries in the Middle East, Europe and the newly independent Turkish states of Central Asia.

Once it appears that Turkish membership of the EU is likely to become a reality, major participators in the automobile sector will probably move to integrate (or further expand) their Turkish operations into their pan-European manufacturing networks. The relatively low-cost industrial environment in Turkey - provided it remains competitive - will act as a further long-term incentive in this respect. Indeed as argued by Payne (1993) that the Turkish industry is likely to have a long-term future uniquely different from that of other Asia-Pacific countries.

In this paper, potential of the Turkish automobile industry to achieve international competitiveness after the deregulation of the sector which almost goes parallel, with the trends towards restructuring of the world automobile industry, will mainly be analysed. In doing so, attention is focused on Porter's (1990) four principal determinant of competitiveness, which is so-called 'Porter's diamond framework', namely factor conditions, demand conditions, related and supporting industries, and firm strategy and rivalry.

The Porter diamond model has been widely used as a basis for examining international competitive strategies. Therefore, the changing role of Turkish automobile industry from that of a low cost, low-tech and small volume production site to a larger producer and consumer towards accomplishing a potential for worldwide automobile sectors will be examined and the areas where the deficiencies and weaknesses are likely to occur will be underlined within the context of Porter's diamond framework.

2. Porter's Framework Revisited

Porter's diamond model (1990) is well-known to both researchers and practitioners. In way of reprise, the model is based on four country-specific determinants and two external variables. These include:

1. **Factor conditions** such as: (a) the quantity, skills, and Cost of personnel; (b) the abundance, quality, accessibility, and cost of the nation's physical resources; (c) the nation's stock of knowledge resources; (d) the amount and cost of capital resources that are available to finance industry; and (e) the type, quality, and user cost of the nation's infrastructure.

2. **Demand conditions** such as (a) the composition of demand in the home market; (b) the size and growth rate of the home demand; and (c) the mechanisms through which domestic demand is internationalised and pulls a nation's products and services abroad.

3. **Related and supporting industries** such as: (a) the presence of internationally competitive supplier industries that create advantages in downstream industries through efficient early, or rapid access to cost-effective inputs; and (b) internationally competitive related industries which can coordinate and share activities in the value chain when competing or those which involve products that are complementary.

4. **Firm strategy, structure, and rivalry** such as: (a) the ways in which firms are managed and choose to compete; (b) the goals that companies seek to attain as well as the motivations of their employees and managers; and (c) the amount of domestic rivalry and the creation and persistence of competitive advantage in the respective industry.

The two outside forces, also affecting the competitiveness of a nation, but not direct determinants, are the followings:

1. The role of **chance** as caused by developments such as: (a) new inventions; (b) political decisions by foreign governments; (c) wars; (d) significant shifts in world financial markets or exchange rates; (e) discontinuities in input costs such as oil shocks; (f) surges in world or regional demand; and (g) major technological breakthroughs.

2. The various roles of **government** including: (a) subsidies; (b) education policies; (c) actions toward capital markets; (d) the establishment of local product standards and regulations; (e) the purchase of goods and services; (f) tax laws; and (g) antitrust regulation (Porter, 1990: 69-130).
Figure 1 provides an illustration of the complete system of these determinants and external variables. As can be seen, each determinant affects the others and all, in turn are affected by the role of chance and government.

3. Critique and Evaluation of the Porter Model

In applying Porter's model to international strategy, it is important to realise some key facts. First, the government is of critical importance in influencing a home nation's competitive advantage. For instance, it can use tariffs as a direct entry barrier to penalise foreign firms, and it can employ subsidies as an indirect vehicle for penalising foreign-based firms. However, the problem with government actions such as these is that they can backfire and end up creating a sheltered domestic industry that is unable to compete in the world-wide market (Rugman and Verbeke, 1990), which was the case for the auto industry in Turkey prior to deregulation of the sector.

Second, while chance is a critical factor in international business strategy, it is extremely difficult to predict and guard against it. For instance, until the day Saddam Hussein invaded Kuwait, the United States government was predicting that there would be no invasion. In a similar vein, technological breakthroughs in computer and consumer electronics have resulted in rapid change in these industries and, in many cases, were not predicted by companies that, at the time, were market leaders.

Third, in the study of international business Porter's model must be applied in terms of company specific considerations and not national advantages. As he so well notes in his book, "Firms, not nations, compete in international markets" (Porter, 1990: 33).
The Porter model, was based on statistical analysis of aggregate data on export shares for ten countries: Denmark, Italy, Japan, Singapore, Sweden, South Korea, Switzerland, the United Kingdom, the United States, and Germany. What is important about these countries is that they are drawn from the triad or other industrialised nations. As argued by Hodgetts (1993), it is highly unlikely that this model can be applied to other countries without modification, since most countries of the world do not have the same economic strength or affluence as those studied by Porter.

Finally, as stated by Grant (1991), the model has shortcomings both in theory, exposition, and empirical analysis. But when compared with its achievements these shortcomings are trivial.

The major contribution of the theory is in offering new insights into the development of industries and nations within their international contexts and in extending the theory of international trade and investment to address these issues (Grant, 1991). It also has great significance for the study of strategic management. This is partly due to reformulation of the competitive strategy framework within an international, nationally-differentiated environment, and the recasting of the analysis of competitive advantage within a dynamic context.

In the next section, we will see how national factors play critical role on the competitiveness of Turkish automobile industry by applying the Porter's diamond framework to Turkey.

4. Application of the Model

The world automobile industry has been undergoing a major restructuring in the last decade in response to greater world-wide competition, particularly from Japan. In this process Turkish automobile industry, similar to the industries and markets across both the Asia-Pasific and Latin America particularly Brazil and Mexico (Payne, 1994), has been booming in recent years. Likewise, the economy of the country has been experiencing substantial growth since 1980, initiated by a set of economic measures to liberalise the economy, now coming close to fruition in terms of a strong rise in disposable income and living standards. This has benefited the automobile producers in Turkey. Since 1985 the industry has grown rapidly and the total production in 1993 reached to a level of 348,095(OSD, 1994).

Table 1 Automobile Production in Turkey, 1981-1993

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<thead>
<tr>
<th>YEARS</th>
<th>UNITS</th>
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<td>1986</td>
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Source: OSD (Automobile Manufacturers Association)

In an interview with a senior politician, İşin Çelebi, who formerly took the office of secretary in charge of economic affairs asserted that:

"The Turkish automobile industry since 1990 has recorded a considerable progress in terms of both quantity and quality. Now the present production of automobile which is
around 300,000 will exceed 800,000 by the year 2000 and this progress has been mostly triggered by our efforts through offering an incentive package to the industry (interview with Mr. İsin Çelebi in 1994).

Now we will focus upon key factors of the Porter's diamond model in promoting domestic as well as international competitiveness of the Turkish car industry.

**Demand Conditions**

A number of factors which have led to the recovery of internal demand and accordingly increase in the total production of the car industry in Turkey can be briefly explained as:

- substantial economic growth;
- rising standards of living;
- improved economic stability with the favourable impact this has brought to consumer confidence;
- the rapid growth of the middle, entrepreneurial and professional classes across the country (which has helped to fund demand for new automobiles);
- new model introductions and innovative marketing, advertising and promotional campaigns on the part of the auto manufacturers operating within the country;
- the success of savings and financing plans for the public buying cars;
- a sharp reduction in car prices.

All these factors led to the sharp increase in car sales and in 1993 total car sales were 441,829 which was almost a 40 per cent increase over 1992 (Turkish Daily News, 1994). There is still a huge demand for automobiles in Turkey, since the number of cars per 1,000 people stands at 34 compared with one tenth of the average in Europe (SPO, 1993). In addition, the production of the automobile sector is expected to increase by 25.4 per cent in 1994 and likewise, both the import and export are estimated to increase by 16.8 and 10.9 per cent respectively according to the economic-sectoral forecasts made by SPO /1993), which is a governmental institution serving the purpose of macro-economic planning.

Due to such dramatic increase in demand, capacity utilisation rate of the industry for the first time ever in its history reached to the level of more than 100 per cent, 102 per cent in 1992 and 118 per cent in 1993 (OSD, 1994).

All these figures indicate that the demand conditions for automobiles in the domestic market will be exercising a powerful influence on the industry in terms of stimulating the drive for innovation and quality improvement as well as producing at a much larger scale that may help the industry to achieve competitiveness both in domestic and international markets.

**Factor Conditions**

Turkey has a strong, rich resource base supporting its automotive sector. More than half of the population is under the age of 20, and there is an abundance of young, skilled, adaptable labour. These workers may be even more effective when they are given training in total quality management, just-in-time inventory, and related concepts. In addition, unions in Turkey are relatively more cooperative than those prior to 1980, because of the related amendments put forward in the current 1982 Constitution.

**Related and Supporting Industries**

There are also strong supporting industries and a well-developed infrastructure in the automobile industry. There are currently just over 1,300 firms operating in auto parts industry of which approximately 200 are characterised as core firms (OSD, 1996). These companies produce for both the domestic and export markets with 170 million $ export made in 1990 and this amount is expected to increase even further to 1 billion $ in a couple of years (Gulkaya, 1991). Therefore, there are great opportunities for the automotive parts industry to export to Western Europe particularly to Germany, Italy and the UK, since these countries have currently supplier parts trade with Turkey and even have numerous firms that already invested in this sector in Turkey. This sector has also been receiving great attention in recent years with the increasing foreign investment to the automobile industry. However, under the import substitution era, the auto parts industry like the car industry sheltered behind high tariffs and duties. Hence, until the 1980's the industry suffered from low scale production, excessive number of vehicle models which obviously influenced the competitiveness of the industry both in terms of cost and quality. But the government's incentive package which was introduced in
1990 also included the auto parts industry to make it open to the foreign competition. Thus, the global integration of auto parts industry was aimed by the introduction of this package.

**Strategy, Structure and Rivalry**

Competition within the automobile industry has been intensified since the mid 1980s with the adoption of the policies towards abolishing excessive amounts of tariffs and duties on imports, which triggered the rivalry among existing competitors. However, the concentration ratio of the industry is still high that four producers account for almost 78 per cent of the total market share justifying the oligopolistic nature of the market *(Financial Times, 1994)*. The share of imports for the last couple of years increased tremendously from the initial 4 per cent in 1988 to 22 per cent in 1993 *(OSD, 1993; OSD, 1994)* thanks to liberalisation of imports. As a result, the general trend towards increasing competition within the industry is likely to provide a powerful stimulus to innovation and efficiency.

**Government**

In Turkey certain government-induced structural changes which have been discussed in previous sections have also characterised the automotive sector and helped to boost demand for production of automobiles. A general trend has been for the reduction of import duties and the removal or liberalisation of other forms of import control and restraint, with the intention being to create a more internationally competitive industry. This process will even accelerate following Turkey’s entrance to customs union with EU. The gradual declines will occur in all import levies and taxes on the automobiles until January 1, 2001 with the full abolishment of restrictions on the imports from EU envisaged by the customs union treaty *(Financial Times, 1996)*.

High level of taxes imposed on automobiles, however, has been acting as an obstacle to the car production in the country. Average tax rate currently levied on the automobiles in Turkey constitutes about 45 per cent of car retail prices *(Financial Times, 1995)* as compared to the relatively low EU levels of car taxes that revolve around 15-17 per cent *(Ilkin, 1991)* which has an unfavourable impact on the domestic demand. Local car companies, therefore, are trying to push the government to lower its very high car taxes to European levels *(Financial Times, 1995)*.

**Chance**

With the collapse of the Soviet Union a potential market has been emerging for Turkey, the newly independent Turkish states of Central Asia. Therefore, great export opportunities for domestic car producers are likely to become a reality. In addition, the scale problem of the industry can be overcome if the auto manufacturers pay attention to these emerging markets. It is even much easier for Turkish manufacturers to access to those markets, as these countries share the common cultural heritage with Turkey.

**5. Conclusion**

Turkey for so long suffered from the faulty decisions made under the import substitution model of industrialisation. Having taken the necessary lessons from these, the country now turns its face towards export-led industrialisation model which makes the country face with challenging nature of international competition. However, this situation, first of all, creates a problem of achieving the necessary competitive power for the industry. Auto industry particularly suffered from low scale production, lack of advanced technology, research and development, high content level requirements, low domestic demand which all precluded the industry from accomplishing competitiveness in terms of both cost and quality prior to 1980s and hence at that time the auto industry limited its production to the internal demand.

However, the government since 1980 has attempted to deregulate the economy and accordingly reduced tariffs and duties on imports, which meant that the import substitution era came to an end.

Sharp increase in domestic demand led by huge growth of the economy, the rise of disposable income, high population growth rate, rapid urbanisation, emergence of middle, entrepreneurial and professional classes and so forth has created a favourable economic climate for the auto industry which drives it to produce at a larger scale.

Highly abundant skilled labour force, relatively low level of unionist pressures and the rich resource base for raw materials will favourably affect the auto industry towards a potential increase in its competitiveness.

Although there exists a well-established auto parts industry, the similar trends have also been occurring in the industry with the sudden deregulation of the automotive sector,
in terms of low scale and capacity utilisation, lack of technological innovation which have been increasingly overcome for the last couple of years.

The role of government in this process was quite favourable in that it introduced an incentive package and encouraged foreign firms to make investments to the automotive sector by offering them subsidies and many other lucrative inducements. However, high level of taxes still imposed on the industry creates an unfavourable impact on the potential growth of the industry.

Geographical proximity of the country to the Middle East, Eastern Europe and particularly to those newly independent Turkish states of Central Asia due to its historical and cultural bonds creates a very significant potential for the auto industry to export to these emerging markets.

REFERENCES


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