CHAPTER-I
INTRODUCTION

Industrialisation is a critical part of the development process in under-developed countries\(^1\). Domestic industrial production provide a reliable and secure source of supply to satisfy domestic needs. It is a transfer of habits, attitudes and outlooks. Industrialisation is also the most important source of income. It raises the value added component of domestic production and increases the rent on domestic resources. Moreover, industrialisation is the main source of acquiring modern technology. It also makes possible the development of products, machines and process that are better suited to local circumstances, as

well enhances the ability to adapt and adjust in changing world economic conditions. It is thus "an indispensable element and a dynamic instrument of the sustained self-reliant growth of the economies and of their social transformation".¹ Post world war period has, thus, witnessed an increasing emphasis of developing countries on industrialisation.

It is widely accepted among the leading development thinkers that import-substitution at the early stages of industrialisation is a necessary first step towards industrialisation of developing countries.²

With the emergence of markets in varying degrees for industrial goods in most developing countries, it has

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become relatively easier to go in for import substitution as national industrial strategy.\(^1\) Most of import-substitution industries produced earlier simple consumer goods which did not call for highly skilled know-how. Moreover tariff protection was available for most of them so that the danger of competition from imports could also be eliminated. An important argument in favour of import-substitution was that it would save foreign exchange. It was also widely believed that the developing countries could not compete with advance economies in the export of manufactured goods and at the same time they faced the peculiar situation in that the prices of raw material they exported relatively declined to that of final industrial goods.\(^2\) Such deterioration in terms of trade held back the growth of developing countries export earnings, which in turn led to shortage of foreign exchange and balance of payments

1 (In one of ECAFE's report it is noted that "The first phase of industrial development of most countries within the region - and in fact of all developing countries has been characterized by the development of import-substituting industries..."), UN, Industrial Development in Asia and the Far East; Progress and Problems of Industrialisation, Selected Documents, Vol. I, New York 1966, p. 94. H. B. Chenery believe that import-substitution has been a normal part of the process of growth 'Pattern of Industrial Growth' American Economic Review, Vol.50 (1960), pp. 624-54.

deficit. The latter made it difficult to increase imports to a level that would meet even the existing effective demand. As a result, early import-substitution became a kind of "economic imperative." However, the emphasis on import-substitution should not mean that export oriented industries might be neglected or else not given due attention. In fact over emphasis on import-substitution disregarding the exports is likely to have negative consequences.

Indeed a wider participation of developing countries in the foreign markets permits them to overcome the limitations of effective demand in domestic markets, utilize their idle production capacities and labour resources, and optimize the structure of their national economies. Participation in the world market compels them to raise the effectiveness of technological structure and labour productivity to world standards, thereby, reducing

1 Raul Prebisch op.cit., p. 255. Albert Hirschman, op.cit., p. 5.
their costs of production. Further increased foreign exchange earnings, would help to overcome the growth constraints imposed by external imbalances and facilitate the achievements of higher rate of growth.

However, export markets require special knowledge and business connection and present difficult financial problems which can be mastered only gradually. It is only after a sound foothold has been established in the domestic market and necessary cost reducing infrastructure has been setup, that local industry can hope to export its products.\(^1\)

This is supported by industrialisation experience of some of the South-East Asian countries, as underscored by Kubo and Robinson\(^2\) and the World Bank.\(^3\)

The Organisation of Petroleum Exporting Countries (OPEC) comprising of Iran, Iraq, Qatar, Kuwait, Saudi Arabia, United Arab Emirates (UAE), Indonesia, Venezuela, Ecuador, Libya, Algeria, Gabon and Nigeria was formed in 1960. Their purpose was to coordinate their oil policy and put a check

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2 Y. Kubo and S Robinson, 'Sources of Industrial Growth and Structural Change' paper presented at the seventh International Conference on Input-Output Technique, held at Insbruck from 9 to 13 April, 1979.

on the exploitation of their oil and other resources by major international oil companies collectively known as "majors" or seven sisters\(^1\) in order to raise the oil prices for earning sufficient revenue for their rapid industrialisation. Fortunately the energy crisis of the early 1970s provided an important opportunity to fulfil their objectives. In the wake of steady rise in oil revenue there occurred accumulation of large financial surplus by OPEC countries in the early 1970s.

The revenue from oil export by OPEC economies increased by over 33 times between 1966-80, from US $ 8.6 thousand million to US $ 284.5 thousand million. (During 1974-84 OPEC revenue from oil export amounted to US $ 1890.2 thousand million).\(^2\) Infact OPEC's export earning in 1980 far exceeded the total export earnings of all other developing countries taken together. Their respective figures are US $ 306770 million and 25072 million. At the same time, OPEC's total import bill was less than half of the latter.\(^3\) The availability of such a huge amount of

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1 This include seven big multi-national companies, five of which belong to USA, one British and one Anglo-Dutch as follows: (i) Standard oil of New Jersey (Exxon); (ii) Mobile Oil Company; (iii) Standard Oil of California; (iv) Texas Oil; (v) Gulf-Oil (all U.S. based); (vi) British Petroleum and (vii) Royal Dutch and Shell.


capital enabled OPEC countries to launch their ambitious plans of industrial development.¹

Going back into history, Iran was the first country in the Middle East to export petroleum on a significant scale following the discovery of commercial deposits of crude oil at Masjed Soleyman in the year 1908.² It is the second largest producer and exporter of crude oil after Saudi Arabia. Its revenue from oil export increased from US $ 1149 million in 1966 to US $ 20904 million in 1974 i.e by more than 18 times. Iran had also taken up development planning in 1948 before any other OPEC country.³ By now it has already completed two seven year plans and three five year plans and the fourth plan is still under implementation (i.e. the one started after the revolution which has not

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¹ Theoretically, as oil is the basic input and source of energy which industrialized world needed and the OPEC require Western technology. This relationship could be expected to provide a condition for effective cooperation between OPEC and the West and make the transfer of modern technology relatively easy. (See Karl Kaiser, 'Iran and Europe of the Nine: A Relationship of Growing Interdependence', The World Today, Vol. 32, No. 7, July 1976, pp. 243-51). E. Monroe and R. Mabaro, Oil Producer and Consumers: Conflict or Cooperation, New York, 1974.


been completed due to war and other circumstances and yet to be pursued).

Throughout the period prior to 1978 revolution, Iran had given a high priority in investment allocation to industry\(^1\) over all other sectors of its economy. This had resulted in a rapid growth of this sector during that period.\(^2\) However, foreign exchange crisis resulting from political and economic instability after the revolution during 1978-79 and the outbreak of Iran-Iraq war in 1980 had cast shadow over its further development and as a result industrial output too was adversely affected.\(^3\).

Objectives of the Study

The present study seeks to investigate critically and empirically industrialization in the context of policy mix of import substitution and export promotion in OPEC

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1. During 1966-79, the share of industry in total investment amounted on an average to 52 percent of total investment in the country (see Ministry of Budget and Planning, The Collection of Economic Indices, No.2, 1987).

2. (This led some to believe that in the end of 1970s "... Iran was starting to be represented in all those leading industrial sectors which development economists such as W.W. Rostow believe are the key to a country's achieving technological maturity"). L. Turner, and James Bedore, Middle East Industrialisation As Study of Saudi and Iranian Downstream Investment. Praeger Publishers, USA, 1979, p.39.

3. Industrial output increased at an annual average rate of 15.9 percent during 1973-77 but declined sharply to 5.1 percent during 1979-82. (see Bank Markazi Iran, The Survey of Economic Changes after the Revolution, Tehran, (n.d. approx. 1984) (in Persian), p.173.)
countries with special reference to Iranian economy. The main objectives of the study are as follows:

1. To examine the growth and structural changes for manufacturing industries in Iran and compare the pattern of industrialisation of Iran with those of other OPEC countries.

2. To examine whether oil industry has helped or not the OPEC countries to diversify their economy and trade structures through its contribution to the growth of non-oil industrial sector so as to remove these countries' dependence on oil sector.

3. To examine empirically whether increase in oil revenue has affected import substitution and export promotion process of industrialisation.

4. To find out the main sources of growth of manufacturing industries and to test statistically the relative importance of import-substitution and export promotion in the process of industrial growth of Iran and other OPEC countries.

5. To test empirically the causal relationship between import substitution and export promotion in the process of growth of manufacturing industries in these countries.

6. To find out the main determinants of industrial output, import and exports in Iran.
7. To see whether there is any change in industrialisation process, and trade policies of Iran after the revolution as compared to the period before the revolution.

Hypothesis

Given the perspective delineated above the following hypotheses are tested in this study:

1. The industrialization process of OPEC countries has led to the rapid structural changes from light to heavy industry.

2. Industrial growth and structural changes are highly correlated in the process of industrial development.

3. Increase in oil revenue has adversely affected the export promotion and import substitution process of industrialisation.

4. Import substitution is higher in heavy and capital goods than that of light and consumer goods industries in OPEC countries.

5. That oil industry had negligible linkages towards the growth of non-oil industry.

6. Export promotion and import substitution are interrelated rather than alternative strategies in the process of industrial development.

7. Industrial development is negatively related with the resource endowment (availability of oil resources) and positively to the resource mobilization (amount of investment undertaken by a country) and the level of income.
8. Imports are positively related with import capacity (oil export earnings) and negatively with industrial output.

9. Exports of manufactured goods are constrained more by domestic supply factors rather than exogeneous demand factors.

Availability, Reliability and Sources of Data

An attempt to make empirical study of relationship between industrial and trade in Iran and other OPEC countries encountered a number of statistical problems which proved to be more complex than was originally envisaged when this study was undertaken.

The enquiry centres on changes in the structure and trends in the rate of expansion of a number of variables. The basic variables are output, exports and imports. With their help we try to obtain what may be called derived variables: 'Industrialisation', 'Import-substitution' and 'Export-promotion'.

The main problem, however, arose from non-availability of time series data in disaggregated form. Being Iranian, I have visited Iran several times during course of my study to collect the required data. But the problem with national sources is that there is often a difference in the coverage of census and current statistics.
which make it difficult to link data from the two sources. (For example, in Iran, The Bank Markazi Iran publishes statistics of Industries employing 50 workers or more while Statistical Center of Iran publishes the statistics of manufacturing taking into account all types of industries even those employing less than 10 workers). It should be noted that neither the World Bank nor UN, Yearbook nor any other internationally recognised sources of data published trade data of Iran ever since 1978/79 revolution.

To meet the needs of the study, therefore considerable work, sometimes involving substantial treatment to data was necessary to arrive at a reasonably uniform data for the purpose of the analysis. It is thus the availability (or otherwise) of data that has determined the choice of our indicators.

Another problem is non-availability of data for other OPEC countries so as to give a comparative picture of industrial performance of Iran with other OPEC countries. The data for UAE, Saudi Arabia, Qatar, Gabon, Libya, Algeria and Iraq are not available and in other countries which publish data, their international comparability is often

severely limited. Also definition of industry varies in each country. For example, Iran publishes the data of manufacturing establishments employing at least 10 workers or more whereas Venezuela's data include establishments of 5 or more employee. Moreover, even within each country it is frequently the case that one variable, for example, output is not always fully comparable with another variable, for example employment or trade data and so on. Moreover the time series data are not available for any single OPEC country other than Iran in disaggregated form. Although a number of international organisations now publish national industrial statistics according to the common format, the problems referred to above are usually acknowledged rather than resolved. Thus much of the analysis of import-substitution and export-promotion is generally limited to Iran and a comparison is made with other OPEC countries only where reasonably satisfactory data could be compiled. Although the data requirements are different for different issues examined in the study and different sources of data are employed, our main sources have been the various publications of national agencies and international institutions viz. United Nations, World Bank, IMF, UNIDO, Ministry of Economy of Iran, Ministry of Budget and Planning of Iran, Ministry of Oil of Iran, Publication of OPEC, Ministry of Commerce, Bank Markazi Iran, Statistical Centre of Iran and Customs Office of Iran.
Methodology

The details of the methodology are given in the respective chapters. However, it would be useful to present a broad picture of the type of methodology that is attempted. Industrial growth and structural changes have been calculated by regressing manufactured valued added (MVA) and output on time and then using a measure of structural change in output and employment and various hypotheses of the structural changes in manufacturing industries have been analysed. Subsequently we have used Inequality Coefficient method to compare the structural changes in MVA of Iran and other OPEC countries. By taking the industrial structure of Developed Market Economies of USA, UK, Japan, Germany and France as Bench Mark, we have compared structure and performance of OPEC countries and then we regress the share of different branches of industrial output with time and further by using a measure of structural change, we compare interdecade differences of output structures. Finally an attempt is made to see the importance of income, natural resources endowment and resource mobilisation and trade position as the main explanatory variable in determining the growth and structural changes of manufacturing industries, through multiple regression.
Intersectoral shifts in industry and trade is discussed by way of comparing industrywise elasticity coefficients of production, import and export using regression analysis for each specification and comparing these elasticities with overall growth rate of industry as a whole.

The extent of import-substitution and export-promotion have been estimated using different methods. At first we analysed the change in the import availability and export-output ratio over time and then using these ratios we have followed Chenery's\(^1\) model as modified by Kavoussi\(^2\) to calculate the extent of import-substitution in Iran and other OPEC countries at global and branch level and then we have used regression analysis to evaluate statistically import-availability ratio and export-output ratio and compare inter-period differences by way of using multiple regression.

Instead of using the static and highly biased concept of Domestic Resource Cost as a criteria for judging industrial structure policy and efficiency of industrial performance, we have followed what Ajit Singh\(^3\) called neo-

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Keynsian-cum-structural approach proposed by Brailovsky\(^1\) taking various international trade indicators such as trade balance coefficients, import availability ratio, export-output ratio, import-elasticity and export-elasticity to evaluate the long term evolution of these variables for each industrial group throughout the study.

Export and industrialisation has been analysed by way of regressing industrial output on industrial exports and then we have used Sims\(^2\) test to study the causal relationship between import substitution and export-promotion in manufacturing industries of Iran and other OPEC countries in order to see the cause and effect relationship between import-substitution and export-promotion in the process of industrial growth.

Finally, we have tried to know the relative importance of main explanatory factors that probably lie behind the interrelation of industrial output and trade. For this, we have undertaken three empirical exercises. Firstly, we have tried to see the dependence of import (real) on industrial production (real) and the capacity to

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import. Second we expressed industrial production values as a function of real GNP per capita and capacity to import and third we have regressed manufactured exports on world income and world industrial output index and relative prices to estimate the importance of these variables in determining the industrial growth of Iran and other OPEC countries.

Chapter Scheme

Our chapter scheme is as follows:

Chapter two which discusses the industrial and trade characteristic of OPEC countries serves as a background study to evaluate and explore the prospect of import substitution and export promotion in the industrialization of Iran and other OPEC countries. Chapter three compares the growth pattern and structural changes of manufacturing industries in Iran and other OPEC countries. This chapter also studies in detail the various indicators of industrial development of Iran particularly emphasising on output and employment. In chapter four intersectoral shifts in industry and trade are discussed. We have also presented here elasticity coefficients for production, import and export. In chapter five, we have estimated the relative contribution of import substitution and export-promotion to the growth of industrial output in Iran and other OPEC countries at sectoral and branch level by various alternative measures. Subsequently an attempt has been made
to empirically test the relationship between import substitution and export promotion to see the relative importance of import substitution and export promotion as the source of industrial growth in Iran and other OPEC countries. Chapter six studies in detail the main explanatory factors which affect and determine the course of industrialization of Iran. In this chapter import demand function and export demand function of manufacturing industries are estimated and analysed. Chapter seven concludes the study with major findings and recommends various policy measures for rapid and self-sustained industrialization and the over-all socio-economic progress in OPEC countries.