CHAPTER-VII

CONCLUSIONS

The purpose of this study has been to analyse and evaluate empirically the industrialisation in the context of policy mix of import-substitution and export-promotion in OPEC countries with a special reference to Iranian economy. Our main objective has been to examine the industry-trade relationship in OPEC countries and to find out the main sources of industrial growth in these countries.

Given the non-availability of data for many OPEC countries, our main emphasis, however, was on Iran. Nevertheless comparison has been made with other OPEC countries, whenever the comparable data were available. Consequently, the methodologies followed were diverse, never the less we have tried to be empirical in our approach rather than theoretical.

The relative importance of oil industry in GDP, governments budget and foreign exchange earnings have been analysed using the available data for Iran and other OPEC countries. We have also used multiple regression to evaluate empirically the linkages of oil industry with other sectors of the economy in OPEC countries to find out whether the existence of oil industry has helped or not the growth of manufacturing sector in these countries.
Industrial growth and structural changes have been calculated by using multiple regression analysis. We have also used Inequality Coefficient Method to compare the relative development of industrial structure of Iran with other OPEC countries. Further we have used a measure of structural change to compare the interdecade differences in growth pattern of manufacturing industries in Iran and other OPEC countries. Here we are mainly interested to know if there has been any change in the growth and structural changes of manufacturing industries and its relation with trade in Iran in the period after the revolution as compared to the period before the revolution.

Inter-sectoral shifts in industry and trade is discussed by way of comparing industry-wise elasticity coefficients of industrial 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 studied by analysing the import-availability and export-output ratios over time. And then using these ratios we have followed Chenery's model as modified by Kavoussi to estimate the relative importance of import-substitution and export promotion in the growth of industrial sectors of Iran and other OPEC countries. We have also used Sim's causality test to evaluate statistically
cause and effect relationship between import substitution and export promotion in the process of industrialisation of Iran and other OPEC countries.

Finally we have tried to find out the main explanatory factors and determinants of industrialisation and trade pattern of OPEC countries. Our main objective has been to evaluate empirically the efficiency of industrial and trade policies of these countries, using the available data for Iran. A brief summary of main findings and policy implications emerging from the foregoing analysis has been presented in this chapter.

Industrialisation is an indispensable and a dynamic instrument for sustained self-reliant growth of developing countries and their socio-economic transformation. Most of the developing countries have adopted import-substitution at the initial phase of their industrialisation with the hope that eventually they would be able to export manufactured goods.

The Organisation of Petroleum Exporting Countries (OPEC), now comprising of Iran, Iraq, Saudi Arabia, Kuwait, UAE, Qatar, Venezuela, Ecuador, Indonesia, Libya, Gabon, Nigeria and Algeria was originally formed in 1960 to check the exploitation of their oil and other natural resources by the major international oil monopolies. The main objective of OPEC countries was to coordinate their oil policies for
raising revenues from the export of crude oil. The purpose was to utilise the oil revenues for the development of an efficient and dynamic industrial sector capable of reducing their dependence on imported manufactured goods on foreign countries and ultimately increasing the share of manufactured goods in place of oil in their exports. Realising that over dependence on a single exhaustible resource is not desirable, OPEC countries have made various attempts, during the last three decades, to diversify their economies and to develop their non-oil industrial sector.

The OPEC's drive for industrialisation, however, has not been easy but rather complicated and often a difficult process. OPEC countries differ widely in their economic and industrial structures, natural resource endowment and socio-political systems. Therefore, their development objectives are also different. Indonesia, Nigeria, and Iran are larger OPEC countries in terms of population and level of GDP, while Gabon, Qatar, UAE and Kuwait are comparatively smaller. The economies of large countries are more diversified, in the sense that the share of oil in their economy is relatively less whereas that of agriculture is relatively higher. The economies of smaller countries are however less diversified.

The growth performance of OPEC countries measured in terms of real GDP growth rate is quite impressive as compared to other developing countries and even some
developed countries. However, there has been a rapid decline in their growth rate, except for Indonesia in the 1980s as compared to 1970s. This has been largely due to the "reverse oil shock" which took place in the 1980s that adversely affected the price and export volume of oil. Political instability during the post-revolution period in Iran as well as eight years of war with Iraq have further adversely affected its economic growth and industrial development.

During the course of the last three decades, economic progress in most OPEC countries has been accompanied by transformation in the sectoral structure of their GDPs. Agriculture, which traditionally accounted for the largest share in GDP, was replaced first by oil and services and later by industry and services. Thus the structure of their economies changed from the 'traditional type' to a 'modern type' structure. This structural change was, thus, the principal trend in most of the OPEC countries. Despite these changes, industry—particularly manufacturing—remained the smallest sector in several OPEC countries, including those with a large domestic market such as Iran and Nigeria.

The service sector followed by agriculture has been the largest of all the sectors in Iran. However, in Saudi Arabia and Kuwait, the share of oil sector in GDP continues to predominate. In Indonesia, industry is leading followed
by agriculture. On the whole, the manufacturing sector accounts for less than 20 percent share in the GDP of OPEC countries except in Ecuador and Venezuela. Thus OPEC countries have not been able to develop manufacturing industry which appears to be the only alternative to oil as the engine of their economic growth. Despite the apparent structural changes in their economies and a relative growth towards modern economic structure, their industrial sector has remained underdeveloped.

Moreover, the structural changes in the economies of these countries has not been accompanied by corresponding changes in the labour force employed in different sectors. In contrast with the sectoral structure of production, the sectoral structure of employment hardly changed in OPEC countries during the period under review. The major trends in the sectoral structure of employment, however, were the same, i.e., the share of agriculture tended to decline and that of industry and services increased. The relative increase in employment in the service sector, however, was greater than that of industrial sector.

The limited production base and fragmented nature of the industrial set-up, combined with the lack of complementaries in production is well reflected in the pattern of imports and exports. The manufactured goods have accounted for the largest proportion of OPEC countries' imports whereas its share in their exports is the lowest.
Crude oil, however, has remained the main source of foreign exchange earnings in these countries. Not only oil revenue is the main source of foreign exchange earnings, but also it is an important component of their GDP and the major source of their governments' revenues. The oil industry could have influenced the economy of oil producers directly and indirectly. The direct impact of oil industry can be discussed in terms of the flow of resources between oil industry and other sectors. Oil industry could have generated demand for various outputs from indigenous industrial sector, like capital equipment, labour supplies and requirement of incidental goods and services. On the other hand there is demand from domestic economy for its cheap source of energy and raw materials for energy intensive industries like petrochemical and oil refineries. Indirectly, the influence of oil industry had been analysed in terms of its foreign exchange earnings, its share in GDP and as an important source of government revenue.

In this study, the direct impact of oil sector has been evaluated by regressing GDP, non-oil GDP and manufacturing output on current oil revenue as well as on oil revenue with one year lag and also on the lag of dependent variable, to capture the possible impact of their lagged values. Further a dummy variable is used to highlight
the possible changes in the importance of oil or oil policies of governments in Iran and other OPEC countries after 1980s. The result shows that the direct impact of oil industry in raising GDP was significant, particularly important was its lagged revenue. However, its impact on the growth of non-oil GDP and manufacturing sector was very weak. This indicates that though the oil sector's contribution to industrial growth may have stemmed from the supply of cheap energy and raw materials for such energy-intensive industries as petrochemical and oil refineries but its demand induced impact has not been strong. This may be because of two reasons: Firstly, because of the capital intensive nature of the oil industry, it has been unfavourable towards employing more labour especially in labour abundant countries like Iran, Nigeria and Indonesia. Secondly, owing to lack of sophisticated engineering industries, the domestic industrial sector might have not been able to provide capital equipment and machinery requirement for this fast growing modern industry. As a result the oil sector has been virtually isolated from the rest of the economy in OPEC countries.

However, importance of oil industry lies mainly in foreign exchange earnings and the provision of sufficient capital for investment in industry. In order to evaluate the progress made in manufacturing sector by OPEC countries, we have analysed the growth and structural changes of
manufacturing industries in these countries. The result shows that manufacturing industries grew rapidly during 1970-80, but declined sharply after 1980s except for Indonesia and Algeria. But growth propensity of manufacturing sector was greater than unity, showing that the growth rate of MVA outstripped that of GDP. As a result the percentage share of manufacturing in GDP increased everywhere but most notably in Indonesia, Saudi Arabia, UAE and Qatar mainly due to their small initial level.

To get a better picture of relative importance of manufacturing sector in different countries, the spread of manufacturing activities among selected OPEC countries has been related to the distribution of their population. A wide diversity is observed among OPEC countries. For example, per capita MVA of Iran was US $233, it was US $36 in Nigeria and US $82 in Indonesia but it was US $1197 in Qatar and US $933 in Kuwait. Thus, despite the advantages that large countries generally enjoy because of economies of scale, the per capita MVA in large OPEC countries is relatively lower as compared to small-and medium-sized countries.

The spread of manufacturing activities among the OPEC countries is examined closely by looking at the composition of each country in terms of its contribution to the growth of OPEC's MVA. The result shows that Iran's
contribution to the growth of OPEC countries' manufacturing value added declined from 9.2 percent in 1970-75 to just 0.5 percent in 1975-80. However, it increased its relative contribution in the later period so that its contribution to growth of OPEC's MVA during 1970-87 was 6.8 percent. Whereas, in UAE, Qatar, Indonesia and Algeria, it had grown rapidly and their contribution to OPEC's MVA was much higher than that of Iran. However, the contribution of the rest of OPEC countries, was either negative (Nigeria) or low (Ecuador and Venezuela). As a result the relative share of each country in OPEC's MVA changed over the years. While the shares of Iran and Venezuela in OPEC's MVA declined, those of Indonesia, Saudi Arabia and Algeria increased. Despite these changes, OPEC's MVA is dominated by Iran, Indonesia, Venezuela and Saudi Arabia. These four countries accounted for 73 percent of OPEC's MVA in 1987. Iran alone accounted for 19.3 percent of OPEC's MVA in the same year.

The expansion of manufacturing sector was associated with a gradual shift from traditional structure of manufacturing to a more advanced structure. The share of food, beverages, tobacco and textiles industries declined while the share of electrical and non-electrical machinery, chemical, basic metals and non-metalic minerals increased. The magnitude and scope of structural change was estimated by comparing the shares of expanding and contracting industries for different years. The result shows that
magnitude of structural change in 1970s was higher than that of 1980s in all the OPEC countries. Among OPEC countries, Iran, Nigeria and Indonesia had relatively higher change in their industrial structure, while in Kuwait, Saudi Arabia, Algeria and Iraq, this change was relatively lower. Comparing the structural change in output and employment of Iran and other OPEC countries, the indices of structural change show that the change in employment were relatively less marked than were shift in output in most of OPEC countries. This result further support the impression that the pace of structural change slackened in 1980s. However, the estimate shows that in Iran, the output index has undergone the highest change, while in Nigeria, Indonesia and Ecuador that of employment, but there was little differenes between the two indices in Kuwait and Venezuela.

It is commonly believed that the level of industrialisation and the composition of output are interrelated. Hoffman, Chennary and others put forward the hypothesis that as industrialisation proceeds, the ratio between light and heavy industry changes in favour of heavy industry. To test this hypothesis, structural changes in manufacturing sector of OPEC countries are analysed in terms of change in light and heavy industries overtime. Our result shows that there has been a rapid change in the relative share of light and heavy industries and, thus, the
process of transition from light to heavy industries has been shortened at the early stage of development in OPEC countries. This may probably reflect development of resource-based industries such as petrochemicals and oil refineries, and also energy-intensive industries like iron and steel etc. Thus while there has been a change from light to heavy industries this process was very rapid and has taken relatively short period of time and at the relatively early stage of industrial development.

However, as industry develops, it is likely that some industrial branches play more dynamic role in industrial development than others, linkage within industries, the question of external economies; and the significance of the market structure etc differ from one industrial branch to another. Thus, the composition of industrial output is an important determinant of the growth potential of the manufacturing sector. For this purpose we have classified industrial branches into consumer non-durable, intermediate and consumer-durable and capital goods for Iran and other OPEC countries during the period 1970-87. The result shows that while consumer-durables and capital goods had grown rapidly in Iran and other OPEC countries, the growth of consumer non-durables have either declined or remained stagnant.

The structure of manufacturing industries in Kuwait, Saudi Arabia and Iraq are dominated by intermediate
industries while in Iran, Nigeria and Indonesia the dominant industrial groups are consumer non-durables. The relative share of capital goods was the lowest in almost all the OPEC countries indicating underdevelopment and unbalanced industrial structures of these countries.

Thus our estimate clearly shows that Iran and other OPEC countries have not been able to develop a well-balanced and integrated industrial structure in their economies.

However, within OPEC, the share of capital goods was higher in Iran, Venezuela and Algeria while it was lower in other OPEC countries.

In order to compare the relative development of industrial structure of Iran with other OPEC countries, we have used the Inequality Coefficient Method taking the average structures of MVA of developed market economies - Germany, U.S.A. U.K, France and Japan for 1985 as a yardstick against which we have compared the structure of manufacturing sector of Iran and other OPEC countries and also have evaluated the progress made in these countries over time.

The result shows that there is a wide difference between industrial structure of OPEC countries, including Iran and those of developed market economies indicating relative underdevelopment of industrial structure in Iran and other OPEC countries. However, within OPEC the
Inequality Coefficient was the lowest for Iran both in 1970 and 1987, indicating a more advanced industrial structure of Iran as compared to other OPEC countries. However, this coefficient was higher in Saudi Arabia and Kuwait, indicating thereby that the structure of manufacturing sector in these countries was highly different from that of developed market economies and also from Iran.

In most branches of manufacturing industries, Iran's share is larger than other OPEC countries. In particular, it dominates in non-electrical machinery and transport equipment, basic metals and textiles. However, its share is comparatively low in petrochemical and oil refineries, which appears to be due to destruction of these industries during the war with Iraq.

However, sustained industrial growth requires transformation in the structure of production, which is compatible with the evolution of domestic demand as well as the opportunities for international trade. Thus, the question whether the sources of growth in manufacturing output stems mainly from domestic or foreign demand, requires an examination of interdependence of industry and foreign trade. We have studied these interdependencies in terms of structural changes in manufacturing gross output, manufacturing imports and exports at different levels of disaggregation for different periods at constant prices. The result shows that while industrial production and
industrial imports have undergone a drastic structural change, the export structure of industrial goods has remained more or less the same. The change in output structure includes a relative decline in the traditional and consumer goods industries, on the one hand, and emergence of modern industries, particularly, consumer durable and capital goods, on the other. Further, modern industries had also a greater impact on import than traditional one. At disaggregated level, we got some evidence of a set of new consumer goods industries expanding at more than average growth rate and this evidence alone enabled us to infer that income distribution must have tilted in such a way as to offer growing market for such luxury goods. This point could not be pursued further because of non-availability of data at disaggregated level and also because of lack of relevant data for income distribution to test it empirically.

With regard to relative importance of import substitution and export promotion in the course of Iran's industrial development, our empirical exercise show that a set of traditional industries such as textiles, wearing apparel and leather products etc. had relatively low import dependence ratio right from the beginning and offered relatively less scope for import substitution. Thus, import substitution was attempted effectively during the seventies.
in modern industries which had high import dependence ratios at the beginning of the period. This set of industries were mainly electrical machinery, non-electrical machinery and transport equipment, basic metals and chemicals. Since import substitution in these industries was feasible at a lower level of technology, import-dependence got reduced in some cases but its extent was limited.

Thus our estimates show that there were some industries where import/supply ratio were reduced during 1960-70, but remained above average in 1970. In some other cases, they reached a stage where its further reduction was difficult. All this evidence points towards the fact that import substitution in most of the consumer good industries had reached saturation level around 1970. This is further strengthened by the available evidence during 1970-75, when more imports were needed to sustain the existing as well as growing demand and output, resulting in negative import substitution during this period. Industrial recession and stagnation after the revolution further confirmed it when most of the manufacturing industries worked much below their established capacities due to shortage of needed raw material, machinery and equipments.

To evaluate the relative importance of import substitution and export promotion as the possible sources of growth of manufacturing sector we have followed Chenery's Model as modified by Kavoussi, in which in addition to the
estimates of the relative importance of import substitution, export promotion and demand expansion as the sources of growth, the change in the structure of domestic demand is also highlighted. The result shows that during 1960-87, import substitution was an important source of growth of Iran's manufacturing industries except during 1970-75, and was particularly noticeable in heavy industries like machinery and transport equipment, basic metals and chemicals. However, the main source of industrial growth was domestic demand, while contribution of export was negligible. Further, the change in the structure of demand was negative implying that as income increased demand shifted from low import content goods to higher import content goods, thereby underestimating the contribution of import substitution to industrial growth. Comparing sources of growth of manufacturing sector of Iran with those of other OPEC countries for the period 1970-85 at current prices, we find that import substitution contributed positively to the growth of most of industrial branches in other OPEC countries also. But the contribution of import-substitution was more important in the case of electrical, non electrical, basic metals and chemicals. However, export promotion was not important except in Kuwait and Indonesia. Nevertheless, the major source of industrial growth came
from domestic demand expansion in all the OPEC countries except in Kuwait.

However, since import substitution and export promotion are the two interrelated developmental strategies, our estimation of sources of growth of industries might have underestimated the importance of export as a possible source of industrial growth. To confirm our earlier findings therefore, we have used regression analysis to see the relationship between manufactured export and manufactured output in Iran and other OPEC countries. The result obtained support our earlier findings that there is a weak relationship, between manufactured export and industrial growth in OPEC countries. But even regression result obtained above does not show the causal relationship between import substitution and export promotion. In order to confirm this causal relationship, we have used Sims' Causality test to empirically estimate the causal relationship between import substitution and export promotion in the process of industrialisation of Iran and other OPEC countries. The result obtained shows that there exists a bidirectional causality in most of the cases. this indicates that these two strategies are not necessarily alternative but rather they are complementary. Therefore, the question is not choosing of either policies but rather an optimum combination of these two policies taking into account the dynamic comparative advantage at home and abroad.

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Finally, we have tried to find out the main explanatory factors and determinants of industrial output, import and export. For this purpose, we have undertaken three different empirical exercises to test different hypotheses. Firstly we have tried to see the possible impact of GNP per capita, resource mobilisation (i.e. the amount of investment undertaken by a country) and resource endowment (availability of natural resources such as oil) on the growth of industrial output. The result clearly shows that there exists a positive relationship between manufactured output and GNP per capita indicating the importance of domestic demand for the growth of industries. Specifically this factor was more noticeable in the case of consumer durables, intermediate and capital goods. Similarly resource mobilisation proved to be an important factor in the growth of industrial sector, as the coefficient of resource mobilisation was also positive and significant implying thereby that capacity of a country to develop its industry depends upon the mobilisation of its national resources rather than trade promotion guided by natural resource endowment.

However, the coefficient for resource endowment was negative and significant. Thus our study of OPEC countries supports Chenery's view that availability of rich natural resources may divert attention from development of
manufacturing to the exploitation of the advantage of low cost resources endowment.

Our second empirical exercise was related to the main determinants of Iran's imports. For this, we have tested two hypotheses: (i) that import depends on relative price and GDP per capita; and (ii) that the level of imports is determined by the level of industrial production and capacity to import. Our results showed that relative price was not a significant determinant of imports while per capita GDP was relatively significant. However, capacity to import turned out to be a significant determinant of imports of Iran. The influence of industrial production was, however, weak except for such strategic items like basic metals machinery and transport equipment. Thus the results have clearly shown that trade policy of the country was highly influenced by its import capacity as well as its policy of maintaining internal balance i.e., maintaining supply-demand equilibrium indicating that there was no coherent and co-ordinated industrial and trade policies in this country.

Further, we have tried to find out whether inadequate export promotion in manufacturing goods of OPEC countries was due to internal or external factors. For this, we have regressed industrial export on the indices of world GDP, world industrial output and relative price. The result shows that external factors are not important
determinants of industrial export of Iran. This indicates that domestic factors, possibly rigidities in supply of manufacture goods, are the main constraints in the export of manufactured goods.

These factors indicate that industrial policies of Iran and other OPEC countries have constituted a number of insufficiently related measures rather than a consistent and integrated long term development strategy. Furthermore, it appeared that these policies have not been expressed in terms of clear-cut objectives, nor these have been given the necessary continuity. Also they lacked selectivity criteria and have not carried much weight in shaping the sectoral structure. Lastly, industrial policies have not always been sufficiently integrated with overall economic policies to provide a more dynamic impetus to industrialisation. Thus the characteristics of consistency, continuity and selectivity combined with proper integration with general economic policy, appear to be the essential requisite of any future industrial strategy. Proper planning should have made it easier to meet these requirements. This, however, did not materialize in Iran and other OPEC countries reviewed above, since various instruments of industrial policies, from long term point of view, have not taken shape.

Practically, in all OPEC countries, including Iran the various policy measures and instruments for the
implementation of industrial policies and programmes are not spelt out in detail. The success of these plans and programmes will largely depend on the continuing effort of the governments to improve their administrative machinery for better coordination between various policy measures as well in various departments.

Industrialisation in the OPEC countries needs to go through a process of re-orientation and restructuring, where exports of manufactures to the international markets as well appropriate widening of the national import substitution programme, would form the basis for a new industrialisation strategy.

In formulating an industrialization strategy for OPEC countries, the following aspects will have to be considered both at the national as well as the organisational levels.

- The creation of a balanced industrial structure, through the development of a wide range of productive capacity in capital, intermediate and consumer goods, and technological capacities in engineering, chemical and electrical industries.

- The planning of import substitution within the larger framework and adequate industrial structure, particularly in coordination with development of agricultural, infrastructural and efficient services sectors.
- The development of an efficient and competitive industrial sector capable of supplying an increasing share of the local market as well as promoting exports of manufactured goods and also encouraging the development and efficient use of advanced technology and associated manpower skills.

- Necessary steps need to be taken to widen domestic market through appropriate assets and income distribution.

- In order to avoid a possible competition among OPEC countries regarding production and export of refined oil products and petrochemicals and to avoid overlapping in these industries, it is essential that OPEC countries introduce in their national policy a regional outlook which so far has been lacking in their emphasis on energy intensive industries. It would not be exaggregated to say that in the years ahead, the role and pattern of industrial growth in most of the OPEC countries may well hinge on the extent to which the countries concerned can adopt the necessary measures to quicken the pace of coordinated development programme and policies among themselves. Further cooperation with other developing countries in their campaign to change the present unequal and unfavourable trade relations with developed countries is of immense importance.