

**DEVELOPMENT STRATEGY FOR THE
UNITED ARAB EMIRATES**

BY

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ABSTRACT

Twenty years ago the UAE was one of the least developed countries of the world. Now, the UAE has achieved an income level comparable to that of the industrialized countries. The UAE did not pass through the hypothetical development "stages" that most developed countries are argued to have passed through. Rather, the UAE's large oil-revenues have enabled her to move immediately to the stage of high mass consumption. However, the UAE is still dependent on the export of a single depletable product, oil, and would be unable to maintain its economic growth if there were to be a fall in oil prices.

Looking ahead to the economic development of the UAE in the twenty-first century, this thesis reviews alternative strategies of development that take into account new insights from economics and social science.

The thesis explores a possible role for exports of services from the UAE, to diversify the economy and to sustain economic development. It is claimed in the thesis that there is a link between international trade in services and induced "*knowledge-based*" growth, which can contribute to development.

The thesis concludes that a development strategy based on knowledge-based services could diversify the sources of national income in the UAE and sustain long-run economic growth performance. It explores further the policy implications of such a development strategy.

CHAPTER ONE:
AN INTRODUCTION TO THE THESIS

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- 1.1- INTRODUCTION**
- 1.2- OBJECTIVES AND RATIONALE**
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- 1.6- OVERVIEW OF THE CONCLUSIONS**

1.1- INTRODUCTION

The United Arab Emirates (UAE), established on December 2nd 1971, is a federation of seven Emirates (States): Abu Dhabi, Dubai, Sharjah, Ras Al-Khaimah, Fujairah, Umm Al-Qaiwain, and Ajman. The UAE lies in the south-eastern corner of the Arabian Peninsula and covers a total area of 30,000 square miles.

1.2- OBJECTIVES AND RATIONALE

Large oil revenues have enabled the UAE to short-cut the usually difficult and lengthy process of saving and capital accumulation necessary for economic development. Given an abundance of natural resource endowments (oil and gas), the UAE has embraced resource-based industries (RBI) as a development strategy. By resource-based industries we indicate an industrial strategy that is based on utilization of natural resources. There has been a strategy of deployment of windfall income, largely directed at a "once-for-all" boost to the social and economic infrastructure, which has enabled the UAE to achieve economic development in a very short time, during the period 1973 to 1982. This was a period of relatively high oil prices.

The thesis examines critically the impact of RBI on the UAE's economic development. The literature on

RBI has concluded that in small oil-producing economies, RBI has failed to diversify the economy and to promote "healthy" structural change, and has perpetuated dependence on the oil sector.¹ It is argued that RBI must be a part of a broader development strategy which promotes the tradeable sectors (agriculture and manufacturing).

The UAE has reached a satisfactory level of economic development, but may be unable to sustain its economic growth if there were to be a fall in oil prices. Therefore, the thesis attempts to answer the following question: given substantial oil revenues, and huge oil and natural gas reserves (estimated to last for more than 134 years in the UAE), but coupled with certain economic and institutional constraints, and with only modest expectations from RBI and agriculture, what kind of development strategies can be recommended for the future, in order to diversify the economy and to sustain economic development?

The thesis explores a possible role for international trade in services from the UAE to sustain economic development, building on a supposed link between international trade in services and induced knowledge-based growth.

¹ Auty (1990).

1.3- METHODOLOGY

The methodology used in this thesis is best understood as a holistic pattern model. Unlike formal models which provide policy guidelines based on predictions deduced from a set of assumptions, the pattern approach traces changes in events by identifying their place in a pattern, looking for the processes of change in the whole system. Changes such as structural transformation, which take place in the process of economic development, have been identified from historical studies, from international cross-section analysis, and from a combination of country and time series data.

Although economic development proceeds along paths that vary from country to country, there are some features of the development process that are common to most countries. The pattern approach focuses on the search for paradigms of development and the main sources of change and growth. Therefore, much of the interest in the pattern approach derives from its possible implication for development policy.

Our method of inquiry utilizes theories from both economics and social science. New insights from economics such as endogenous growth theories, which emphasize human capital, have been taken into account. Theories of international trade, including those based

on comparative advantage, and focusing particularly on trade in services and knowledge-based growth, are called upon in order to devise new development strategies.

For a development strategy to be successful, however, one must take into account specific institutional factors. Institutions are defined as a set of constraints which govern the behavioural relations among individuals or groups. Institutions consist of formal rules (e.g. laws, constitutions, property rights) and informal constraints (e.g. traditions, customs, rules of conduct). The literature on institutions emphasizes the importance of understanding the local environment, and in particular the relevant institutions, for the appropriate design of development policy. The importance of institutions to development economics is highlighted because institutions provide the foundations of an economy that shapes the direction and pattern of growth.

A number of economists have placed institutional change at the heart of the long-run process of economic growth, furnishing the link between growth and development. It is for this reason, arguing the relevance of institutions to development economics, that this thesis deals initially with the

institutional, legal, and political framework of the UAE. It is argued that the institutional framework is highly important for understanding development issues. We remember also the distinguished development economist and Nobel prizewinner, the late Sir Arthur Lewis's warning:

"... at issue is the kind of thesis that we demand from Ph.D students. Development Economics will certainly die if they come to think, rightly or wrongly, that work on economic institutions will not count for distinction in Ph.D exams." [Lewis (1984), p.8].

The parallel line of inquiry in this thesis is to examine the human factor both as an input (an economic resource) in economic development and as an object (beneficiary) of the development process. It is argued in the thesis that human welfare is the ultimate goal of economic development. The human factor is also affected by key indicators such as health and education. The main human development indicators in the UAE are analyzed in two respects: a) nationally, from the creation of the UAE in 1971 up to the latest years for which data are available; and b) internationally, utilizing comparisons with both developing and industrial countries. In national terms, we can explore the rate, structure, and character of human development in the UAE. Internationally, we can examine the degree of human development in the UAE compared to both developing and developed countries.

In summary, our method of inquiry takes account of the fact that development economics cannot be separated out from the institutional, social, cultural, economic and political context. It also takes into account the all-important human factor both as a goal and as a source of economic development.

1.4- ORGANIZATION

The thesis is divided into four parts. Part I: The United Arab Emirates consists of two chapters. It introduces the main institutional features of the UAE. In addition, it provides a detailed profile of the UAE's population and labour force, which is essential to the subsequent analysis and debates.

Part II: Development Performance consists of three chapters, critically examining industrial development, human development, and structural change in the UAE.

Part III: Devising an Alternative Development Strategy consists of two chapters. It is intended both as a general literature survey and as providing the theoretical and empirical framework for discussion of policy alternatives in Part IV.

Part IV: New Thinking on Development Strategies for the UAE suggests alternative development strategies to diversify national income and sustain economic development in the UAE.

1.5- OUTLINE OF THE THESIS

1.5.1- PART I: THE UNITED ARAB EMIRATES

It is helpful when studying the economy of a country to take account of its features, viz its location, historical background, political structure, climate, geographical features, and natural resources, including agricultural, fishing, oil, and mineral resources. This is particularly so in the case of the UAE because its particular institutional, locational, and geographic background is unfamiliar to many people. Yet it is a highly important context for the discussion of economic policy.

Chapter Two, The United Arab Emirates: The Institutional Context, provides a profile of the UAE. The political and historical background, location, climate, and geographical features are briefly described. The context is the institutional features which prescribe and constrain development performance.

Within an institutional framework, the definition of the "state" is an important issue of concern. The

definition of the state is required to explain the interaction of political and economic institutions, and to disclose the importance of the state, its size, and its impact on economic development.

Chapter Three, Population and Labour Force, presents a demographic profile of the UAE, outlining the key characteristics of the population as reflected in its ethnic composition, age, and sex structure. Furthermore, Chapter Three describes the labour force outlining the key features of the labour market by sector. It introduces the special features of the UAE's labour market, prompted by the pervading domestic labour shortage. The implications of the special features of the labour market for the UAE's economic development are discussed.

The UAE's population is essentially small in number. However, after the discovery of oil and its exportation in the last two decades, the UAE's population has experienced very rapid growth, the result of a combination of high natural rates of increase of population among the indigenous citizenry, and massive inward migration of expatriates who now comprise more than three quarters of the population. Thus, a small indigenous population, a large expatriate population, and immense wealth generated by

oil are the dominant socio-economic features of the UAE.

The population, age, and sex structure of the UAE is very uneven, being characterized by (i) a high proportion of males (69%) compared to females in the population, and (ii) a young age structure whereby the majority of the population (85%) are under the age of 40.

In addition to population size and age composition, religious and social factors in the UAE have a great impact in determining the size of the UAE's labour force. Female participation in the UAE's labour force was very small (16.3%) in 1990. However, incentives and legislation have aimed to enhance female participation in the UAE's work force. There is the possibility of greater female participation as a way of increasing the UAE's indigenous labour force and lessening the country's dependence on foreign labour.

A two-tier labour market has emerged in the UAE. At the top is the indigenous labour force, which constitutes about 10% of the total work force. Below this is an unlimited supply of foreign labour. The UAE has reaped benefits from foreign skilled and unskilled workers, who initiated its economic

development in the early 1970s, and subsequently have come to sustain it.

The employment pattern in the UAE does not reflect the structure of output. The oil sector employs only 2% of the UAE's labour force, reflecting the capital-intensive nature of the industry. Nearly 67% of the labour force is engaged in the service sector. The unemployment rate in the UAE (0.5%) is remarkably low (3,938 unemployed in 1990), which means that the UAE's economy is effectively at full employment.

The UAE is highly urbanized. This has been attributed to the clustering of public services, transportation and communications, financial markets, and service-based industries in the cities.

In the government sector, UAE citizens are given priority over non-nationals in government jobs. This applies both to the necessary academic qualifications, and to the experience required. UAE citizens earn high salaries coupled with yearly promotion, incentive allowances, social security allowances, and generous pensions. High wages in the public sector increase expectations regarding income and job stability, and draw UAE citizens out of other economic sectors. The result is that the indigenous labour force in the

public sector often takes the form of "*disguised unemployment*". The political need to provide secure and permanent jobs for nationals has contributed to the distortion of the labour market in the UAE.

1.5.2- PART II: DEVELOPMENT PERFORMANCE

Chapter Four, Industrial Development, reviews industrial development during the period 1950-1994. The chapter addresses both the problems of and the obstacles facing the industrial sector (e.g. limited non-mineral resources and the small size of the domestic market). Also discussed are the incentives for industrial development in the UAE (e.g. the abundance of natural mineral resources, the ready availability of financial capital, a well-developed physical infrastructure, a flexible labour and employment policy, the availability of cheap energy, industrial zones, and various incentives in legislation, plus political and social stability). In addition, Chapter Four provides evidence on the main industrial indicators of the UAE (value added, number of industrial establishments, types of exportable industrial products, and the share of employment accounted for by the industrial sector).

Chapter Four also introduces the concept of resource-based industrialization (RBI), the industrial

strategy that is based on utilization of natural resources. The dominant costs in all resource-based industries are capital charges and raw material input. Processing tends to have high capital-labour ratios. Because resource-based industries are not labour-intensive, their contribution to direct or indirect employment creation is likely to be small. Countries such as the industrial countries with relatively cheap capital and oil-exporting countries appear to have a comparative advantage in RBI. The main barriers that face countries embarking on RBI are technology and markets. In the case of countries with small populations, where resource-based exports are the main vehicle for economic development, choosing an appropriate trade policy is a vital decision for successful RBI.

The literature on RBI has concluded that RBI lacks the flexibility for successful export-led growth. Chapter Four argues that the massive capital investment, high risk, sophisticated technology, and slow creation of viable employment of RBI render it an inappropriate tool for development even for capital-surplus countries such as the UAE.

Chapter Five, Human Development, addresses the philosophy of the human development approach, viz its

definition, conceptual framework, quantitative measurement, and policy implications.

Chapter Five surveys the changes in human development indicators that took place in the UAE from the early 1970s to 1994. The chapter deals in particular with the United Nations Development Program's (UNDP's) Human Development Index (HDI) and evaluates its rationale, composition, and mathematical construction. The UAE's human development indicators are analyzed at the national and international levels. At the national level, the UAE has achieved impressive improvements in many human development indicators during the past two decades. At the international level, the UAE has recorded high levels of development bearing comparison with the average of the developing countries, and even with some individual industrial countries. Chapter Five emphasizes the high levels of human development in the UAE, together with a relatively good record on human rights.

Chapter Five concludes that successful implementation of human development policy in the UAE can go hand in hand with industrialization and urbanization. Indeed, human advancement (particularly in health and education) in the UAE has been a conspicuously successful aspect of its development.

Chapter Six, Patterns of Structural Change, scrutinizes structural changes in the UAE. Modern economic growth is associated with large systematic changes in the structure of production, factor use, product use, foreign trade, location of economic activities, and other economic and demographic variables.

Chapter Six reviews the main structural changes in the UAE: in output, labour force, and foreign trade. The chapter discerns distinct sectors of economic activity, to determine how these sectors will respond to the changes in demand to which the development process subjects them. This partition of the economy into sectors permits greater understanding of the problems of development and the likely impact of alternative development strategies.

1.5.3- PART III: DEVISING AN ALTERNATIVE DEVELOPMENT STRATEGY

Chapter Seven, Trade in Services, reviews the literature on trade in services, its importance to the global economy, and, in particular, its relevance for economic development. The chapter provides a theoretical analysis of the rise of services and their contribution to gross domestic product (GDP) and employment. It addresses the notion of the "service

(post-industrial) economy" and its implications for developing countries.

Chapter Seven presents a theoretical framework for discussion of the nature of international service transactions. It addresses the importance of international trade in services in the development process. It analyzes further the determinants of comparative advantage in trade in services and examines how these factors may affect the emergence of developing countries (such as the UAE) as exporters of services.

Conventional trade theories not only apply to goods but also to services. Chapter Seven sketches a number of economic factors that emerge as determinants of comparative advantage of trade in services. The availability of physical and human capital are the main factors that affect comparative advantage in trade in services. Location and scale economies are also important factors for certain service industries. Other comparative advantages relevant to trade in services are innovation; knowledge, accumulated skills, location, and specific natural advantages; cultural advantages; domestic market size; financial availability; effective use of telecommunications, information technologies, and the network system; established relationships between producers and

customers; presence in major markets; provision of a package of services; and finally prudent government incentives.

Chapter Seven focuses on the distinct characteristics of services. The chapter highlights the link between tradeability in services, barriers to trade in services, and the issues involved in the liberalization of trade in services under the GATT umbrella.

Chapter Seven concludes that service industries provide a fertile base for innovation. It reviews the concept of the so called "*splintering process*" whereby goods splinter from services and services, in turn, splinter from goods. Technological progress in the communications and information sector has eliminated the need for the provider and the user to be within physical proximity. It is evident that a whole range of services may be traded internationally as services, or may be incorporated into traded goods.

Chapter Eight, Knowledge-Based Growth, explores new approaches to the question of economic growth, providing a survey of the contemporary and expanding body of literature on "endogenous growth theories" or "new growth theories", which emphasize the importance of human capital as being the crucial determinant of

the growth process. The literature on endogenous growth models identifies human capital, or embodied knowledge, as the driving force in the growth process. Endogenous growth models identify a research and development (R & D) sector which provides ideas and which emphasizes human capital to produce new knowledge.

1.5.4- PART IV: NEW THINKING ON DEVELOPMENT STRATEGIES FOR THE UAE

Chapter Nine, Knowledge-Based Services, critically discusses the results of the previous chapters, exploring the possibilities of a development strategy involving knowledge-based services. The chapter offers some explanation of the concept "knowledge-based", utilizing in this context the OECD's range of indicators to measure the knowledge intensity of an industry. In addition, the chapter outlines the main objectives of a knowledge-based services strategy. Finally, Chapter Nine utilizes some recent research [© K. Padmore & N. Topham (1995)] to shed further light on the requirements of such a strategy, in terms of the knowledge transfer process. In this context, certain policy conclusions are drawn.

Chapter Ten, General Conclusions is devoted to general conclusions. Policy guidelines are brought forward.

1.6- OVERVIEW OF THE CONCLUSIONS

The UAE was formed on December 2nd 1971 by seven Emirates known as the Trucial States. The federation allows joint policies in foreign relations, defence, trade, education, health, social services, immigration, internal security and Home Office affairs, and development, with each member state keeping its internal local system of government headed by its own ruler. The provisional constitution provides for four main structures of federal government: the Supreme Council, the Council of Ministers, the Federal National Council, and the Federal Supreme Court.

Before the discovery and exportation of oil, the economy of the UAE depended mainly on subsistence agriculture, nomadic animal husbandry, the extracting of and trade in pearls, fishing, and seafaring. The period before the discovery of oil was therefore one of limited available natural resources and a simple nomad economy.

In spite of the fact that the UAE has experienced a significant transformation of its economy since 1971, from a traditional (subsistence) economy to a more mature and modern economy, it would be unable to sustain its present rate of economic growth if it were to suffer a fall in oil prices.

The growth of service industries is one of the most distinctive features of the current global economic restructuring. The service sector is equally important in developing countries as in developed ones. Services are an important and even crucial element in economic development.

Taking into account the UAE's institutional, social, economic, financial, and resource constraints on the one hand, and the realities of the world trade system on the other, the thesis explores a possible role for international trade in services from the UAE in order to diversify the economy and to sustain economic growth in the coming twenty-first century.

The thesis suggests that the supposed theoretical link between international trade in services and induced knowledge-based growth can contribute to the debate. The thesis claims that a development strategy based on exporting knowledge-based services can contribute to diversifying national income and to

sustaining the country's economic growth in the long term.

Knowledge-based services such as data processing, telecommunications, information-related services, computer services, and software development are highly skilled services, related to technological know-how, which itself is linked to the human factor. This being so, the government must facilitate the acquisition of such skills through investment in education, training, and research and development.

The facilitating of contacts with multinational corporations may provide a) the quickest path for local citizens to acquire such knowledge and skills, and b) a cost-effective method to strengthen comparative advantage in knowledge-based services. It follows that pursuing protection of property rights (such as patents and copyrights) will promote the creation of knowledge-based industries.

Furthermore, a knowledge-based services strategy necessitates a liberal trade policy since openness to international trade capitalizes on gains from specialization based on comparative advantage.

It should be emphasized, however, that this knowledge-based services strategy must be considered

as a part of wider development policy. For instance, in the case of the UAE, the requirement is for policies which sustain and improve the infrastructure, maintain successful agricultural and industrial incentives, enhance female participation in the labour force, and confront under-utilized employment in the public sector.

PART I:

THE UNITED ARAB EMIRATES

CHAPTER TWO:
THE UNITED ARAB EMIRATES:
THE INSTITUTIONAL CONTEXT

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2.1- INTRODUCTION

It is helpful when studying the economy of a country to take account of its features, viz its location, historical background, political structure, climate, geographical features, and natural resources, including agricultural, fishing, oil, and mineral resources. This is particularly so in the case of the UAE because its particular institutional, locational, and geographic background is unfamiliar to many people. Yet it is a highly important context for the discussion of economic policy.

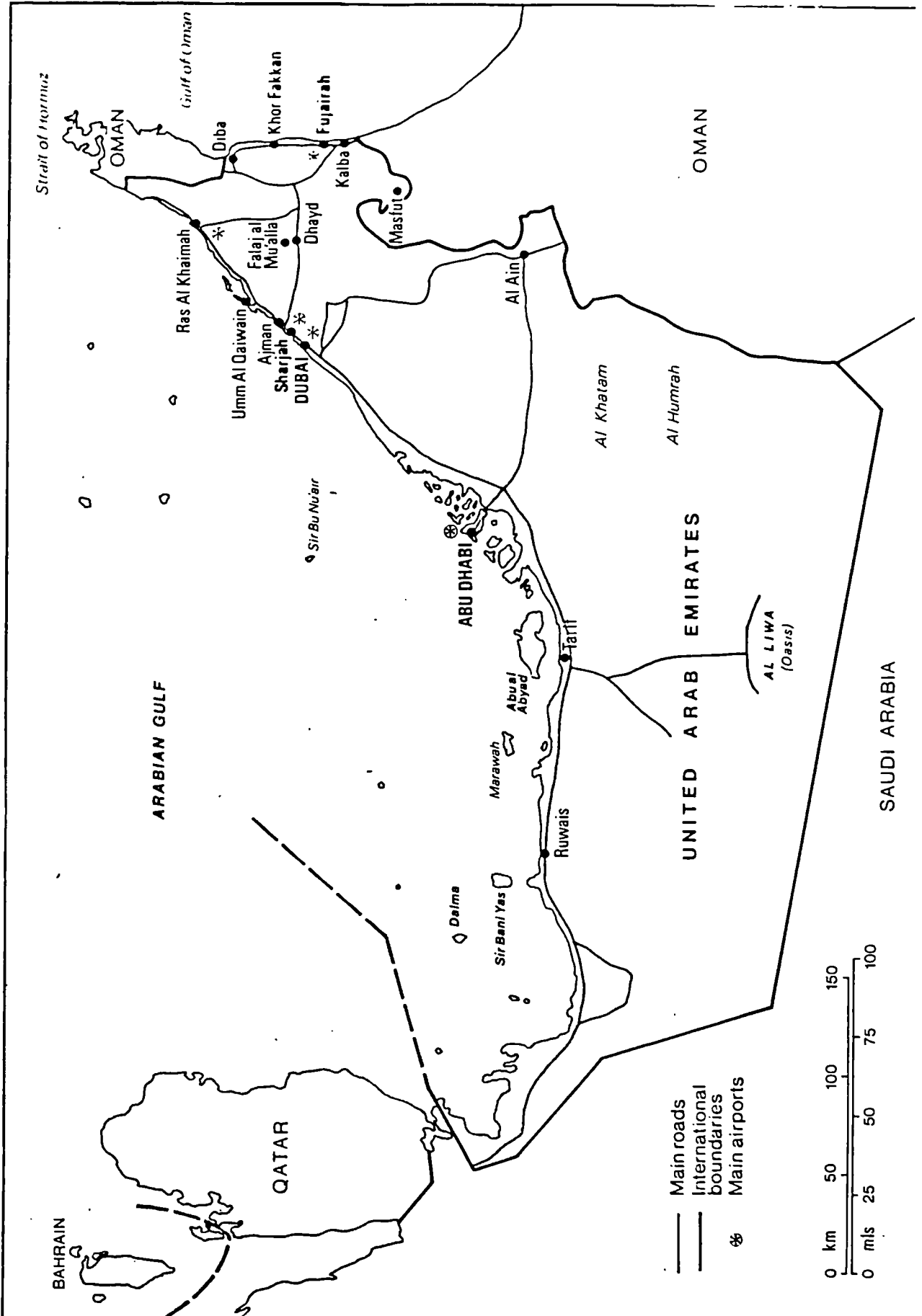
2.2- THE UNITED ARAB EMIRATES

2.2.1- LOCATION

The UAE lies in the south-eastern corner of the Arabian Peninsula and covers a total area of 30,000 square miles, in addition to more than 200 islands in the Arabian Gulf with a total area of about 2,000 square miles. The UAE is bordered on the north and northeast by the Arabian Gulf, on the west by the State of Qatar and Saudi Arabia, on the south by the Sultanate of Oman and Saudi Arabia, and in the east by the Sultanate of Oman and the Gulf of Oman. It has a total boundary length of 1,206 miles.

Figure 2.1:

Map of the United Arab Emirates



2.2.2- GEOGRAPHICAL FEATURES

The UAE is a part of the geographical subdivision of south-eastern Arabia. A large part of the country is a desert called the Rub Al-Khali or Empty Quarter. The desert is the conspicuous feature of the UAE. More than two-thirds of the country are sandy desert with varying amounts of sparse seasonal vegetation. What is the world's largest desert, Rub Al-khali, separates the Arab Gulf States from Yemen and Saudi Arabia.

Landforms in the UAE are identified as sand dunes, mostly composed of coarse-textured sand. Inter-dune depressions are frequent and many are shallow over rock or hard carbonate or organic crusts. Many inter-dune depressions are associated with mud (called *sabkha* in the UAE) and display a high degree of salinity which means that they cannot support any vegetation.

2.2.3- CLIMATE

The climate of the UAE is one which is characteristic of a hot desert zone, with meagre and variable rainfall and high temperature. The UAE lies in the sub-tropical arid zone, stretching across Asia and north Africa. Here the strong ocean effects from the Gulf and the Indian Ocean have a direct bearing on

the climate. This explains the high temperature in summer associated with very high degrees of humidity.

June, July, and August are the hottest months. The average temperature is 37.7° Celsius and relative humidity is 96%. This hot and harsh climate in summer imposes additional energy costs on industries and households, since life and work are difficult without air-conditioning.

Although winds are generally light, the area is occasionally hit by storms originating from Rub Al-Khali in the Arabian Peninsula, and foggy weather is usually experienced during the months of February, June, and September.

2.2.4- HISTORICAL BACKGROUND

Before December 2nd 1971, the UAE was known as the Trucial States. Arab tribes have lived from earliest times on the Arabian Gulf coast, where they established scattered ports for trade along the Arabian coast. During the life of the Prophet Muhammad (AD 571-632), the Islamic religion spread over the Arabian Peninsula and the territories now known as the UAE became a part of the Islamic Arab world.

Both European and Arab pirates were very active in the Gulf during the 17th and 18th centuries, to the extent that the Gulf was called "the *Pirate Coast*". In 1820 the British forces destroyed the pirate fleets, after which, in 1835, the British negotiated a successful maritime truce with the rulers of the Arab coastal states. This treaty was further strengthened by separate treaties between Great Britain and each of the Trucial Coast rulers in the late 19th century - when France, Germany, and Russia also showed interest in the Arabian Gulf area. According to these treaties, Great Britain controlled the Emirates' foreign affairs and external defence, yet each Emirate retained its own individual autonomy and sovereignty. Thus, what had been called the *Pirate Coast* was renamed the Trucial Coast.

After War World II, Great Britain set up the Trucial States Council in 1951 with the view to an eventual federation of the small states. The Council members of the seven rulers was to meet at least twice annually, under the chairmanship of the British representative at Dubai, to discuss administrative matters as a first step toward the formation of a federation of the Trucial States.

On January 16th 1968, Britain announced its intention to withdraw from the Gulf region by the end

of 1971. Without delay, the initial step towards the union was taken by the two most influential Emirates: Abu Dhabi and Dubai. A union between them covering foreign affairs, internal security, defence, social services, and immigration matters was formed [MoI (1971)].

An invitation was sent to the other Trucial States, as well as to Bahrain and Qatar, to join in the new federation of the Arab Gulf States. The nine rulers of the Trucial States, Bahrain, and Qatar, agreed to set up a federation under a Supreme Council of Ministers. They appointed multi-disciplinary experts to draft a constitution for the new federation; to unify policies on foreign affairs, economic development strategies, education, health, communications; and to adopt a national flag, national anthem, and a single monetary currency.

Progress towards a federation of the nine Emirates faltered after the decisions of Bahrain and Qatar, in 1970, to work towards separate independence outside the federation. However, the Emirates of Abu Dhabi and Dubai declared that they would form a federation with any number of the remaining Emirates.

The United Arab Emirates was formed on December 2nd 1971. The UAE was recognized and admitted as a

full member of the Arab League. The following year, the UAE was admitted to the United Nations to become the 132nd state member.

2.2.5- POLITICAL INSTITUTIONS

Political institutions are the system that govern the operations of the government of a particular society (e.g. political parties, formal power structure, and mechanism of getting into power).

The UAE, established on December 2nd 1971, is a federation of seven Emirates (States or Sheikdoms), comprising Abu Dhabi, Dubai, Sharjah, Ras Al-Khaimah, Fujairah, Umm Al-Qaiwain, and Ajman.

The Emirate of Abu Dhabi is the largest of the seven Emirates which form the UAE. Its land space covers 26,000 square miles, that is more than 86% of the UAE's total area. In addition, the Emirate of Abu Dhabi, whose oil and gas reserves are amongst the largest in the world, is the largest oil and gas producer in the UAE. The city of Abu Dhabi is the nation's capital and seat of the Federal Government.

Since the UAE's foundation, the federation has operated with a provisional constitution, renewed at five-yearly intervals. At a meeting of the Federal

National Council in early 1993, it was announced that the provisional constitution would continue indefinitely. The provisional constitution provides for four main structures of federal government: the Supreme Council, the Council of Ministers (and ministries they represent), the Federal National Council, and the Federal Supreme Court.

The UAE has a two-tier government system: the Federal Government and the individual Emirates' local governments. Each Emirate is a monarchical state and is ruled by a Sheik on a hereditary system. Each retains a considerable degree of autonomy and has full control over land-ownership and over its natural resources affairs. However, federal institutions have assumed responsibility in other spheres, such as defence, foreign policy, trade, education, health, social services, immigration, internal security, and home office affairs.

The seven Rulers (Sheiks) of the Emirates comprise the UAE Federal Supreme Council, the highest political body in the UAE. However, the President of the UAE, who is at the same time a member of the Supreme Council, is elected by the seven Rulers of the Emirates to serve for five-year renewable terms of office. The President also acts as commander-in-chief of the armed forces.

The President of the UAE, after consultation with members of the Supreme Council, appoints the Prime Minister and the Federal Council of Ministers (the Cabinet), which acts as the second political executive body.

The Federal Council of Ministers is monitored by a third federal body, the Federal National Council (the Parliament) whose 40 members are nominated by the Rulers of the seven Emirates. The FNC members are drawn proportionately from each Emirate as follows: eight members each from Abu Dhabi and Dubai; six members each from Sharjah and Ras Al-Khaimah; and four members each from the remaining three Emirates.

The Federal National Council has the legitimate power to amend and review all legislation, to summon Ministers, to evaluate and criticize the work of the Ministries, to debate government policies, to approve the UAE's federal budget, and to discuss other related parliamentary matters. The Federal National Council is considered a landmark of the country's constitutional and legislative process in expanding the people's participation in development, and in political and economic matters.

Table 2.1

THE UAE's Economic Indicators, 1989-1995.

Economic Indicators	1989	1990	1991	1992	1993	1994*	1995*
GDP at current prices (Dh. billion)	101.1	125.3	126.0	128.4	131.7	..	..
Real GDP growth (%)	10.6	11.9	-2.4	-0.9	-0.6	-2.4	-0.8
Population (million)	1.81	1.84	1.91	2.01	2.09	..	..
Total Exports (fob), (US\$ billion)	15.53	21.25	22.15	23.37	23.31	21.78	23.44
Imports (fob) (US\$ billion)	10.13	11.69	13.92	15.83	17.75	18.25	18.98
Current account (US\$ billion)	4.00	5.09	1.53	3.00	0.18	-0.72	0.36
Reserves excluding gold (US\$ billion)	4.46	4.58	5.37	5.71	6.10	..	..
Oil production (million barrels/day)	1.91	2.12	2.42	2.29	2.22	2.17	2.22
Oil price (average) (US\$/barrel)	..	..	..	18.5	16.4	14.3	15.5
Crude oil exports (US\$ billion)	..	..	..	14.10	12.10	10.28	11.44
Exchange rate Dh:US\$ (average)	3.671	3.671	3.671	3.671	3.671	..	..
Inflation (%)	..	..	..	5.5	3.2	5.0	5.5

Source: EIU (1994), *Country Report: United Arab Emirates*, 3rd Quarter 1994, (June), p.3, 5.

* EIU (1994) estimates.
.. not provided.

2.3- ECONOMIC AND INSTITUTIONAL CONSTRAINTS

Before the discovery and exportation of oil, the economy of the Trucial States (which today form the UAE) depended mainly on subsistence agriculture, nomadic animal husbandry, the extracting of and the trade in pearls, fishing, and seafaring.

The fact that the Trucial States were not a British colony, but only related to Great Britain in defence treaties, had prevented the Trucial States from taking the advantage of typical British aid and development assistance to its colonies. Before oil, the UAE did not have a single school, clinic, or any form of institutional establishment. Literacy, national pride, and the absence of political-economic institutions during that period were factors that deflected the UAE from asking Great Britain or other developed countries for development assistance. The period before the discovery of oil, therefore, reflected limited natural resources and resulted in a simple nomad economy.

The epoch of economic development in the UAE (or the UAE's *First Development Decade*) began in the early 1970s, coinciding with:

- i) its formation on December 2nd 1971;

- ii) the establishment of its formal institutions (economic, social, and political);¹
- iii) a massive increase in both oil production and oil exports;
- iv) an explosive rise in oil prices in 1973.

The rapid adjustment of the UAE tribal society to the new formal institutions, established shortly after the formation of the UAE and the discovery of oil, appears to refute Douglass North's argument that "*in some primitive institutional settings, the kind of knowledge and skills that will pay off will not result in institutional evolution towards more productive economies*" [North (1991), p.102].

In practice the UAE's nomads - with their primitive institutions - welcomed modernization, delineated in the newly introduced institutions. This was evident by the smooth transformation of the UAE's tribal society to an urban one, accompanied by an enthusiastic desire for modernization.

¹ Informal as opposed to formal institutions, viz traditions, codes of conduct, customs, and religious precepts, have dominated the UAE from early history. Muslims view Islam as "a package of institutions" that order society, defining mankind's spiritual, social, political, and economic status. Informal institutions thus have a much longer history than the formal structures.

2.3.1- AGRICULTURAL RESOURCES

The condition of agriculture depends on many factors, institutional as well as economic. Physical conditions are also of importance. For instance, climate particularly affects the conditions of production. Heat debilitates individuals. Extremes of heat and humidity also deteriorate the quality of the soil and contribute to low productivity of certain crops.

The total area of land under agriculture and forestry constitutes only under 1.5% of the total land area of the UAE. These uses are sustained by costly irrigation. Agriculture has made only a small contribution to GDP (2% in 1991).

The most significant agro-climate factors in the UAE relate to rainfall, temperature, and evapotranspiration. In terms of crop water requirements, the amounts of rainfall received even in the wettest months are insufficient to meet crop requirements. Water requirements for crops grown during the summer months are extremely high. The UAE is an arid country which has no river system or lakes. Agriculture, therefore, relies entirely upon costly irrigation. Winter rains are also insufficient to maintain soil salinity at sufficiently low levels.

Most of the land area of the UAE is covered by soils which are unsuitable for agriculture. The soils of the UAE are typical of the arid zone. Virtually all the soils are coarse textured (sandy) and they have weakly defined topsoil with low organic matter contents. Most of the soils are calcareous, containing calcium carbonate, which affects the uptake of nutrients from the soil, and therefore interferes with plant nutrition.

There has, however, been a consistent and substantial increase in the amount of land devoted to agriculture and forestry over the past twenty years as the result of sustained efforts by the UAE Government to promote agricultural development using the following incentives:

1. agricultural plots are granted free to any UAE citizen.
2. land is levelled and prepared mechanically without charge.
3. production inputs such as seeds, fertilizers, and insecticides are provided at half cost.
4. water wells are drilled for free.
5. there is provision of free technical services such as installation of water pumps.
6. an agricultural credit line was established in 1978 to grant farmers loans for water pumps, fence wires, fishing boat engines, greenhouses,

and drip irrigation systems. This agricultural credit attracts no interest.

7. a market is secured by government intervention. Small farmers are protected from foreign competition by buying the farmers' products at favourable prices.

The UAE is considered to be unique in providing this range of inducements to promote agricultural development. The food import dependency ratio (the ratio of food imports to the food available for internal distribution) fell from 114.7% for the period 1969-1971 to 98% for the period 1986-1988. Even so, the UAE has the third largest food import dependency ratio after Hong Kong (120.3%) and Singapore (309.4%). For the period 1975-1991, agricultural output comprised about 2% of GDP (see Chapter Six).

Though these inducements are not economically efficient (because incentives are costly and food is cheaper to import), for non-economic reasons (political and social reasons) the UAE has continued to pay large subsidies to promote its agricultural sector. The area occupied by agricultural holdings throughout the UAE more than doubled in the ten years after 1973.

Vegetables and fruits are the chief crops produced in the UAE, accounting for 84% of the total planted area. Field crops (alfalfa, tobacco, wheat, and corn) are confined to a small area, 16% of the total planted area. Farmers have had most success with five types of vegetables (tomatoes, cabbages, aubergines, courgettes, and cauliflowers) which are produced at certain times of the year. Fruit production consists mainly of dates, citrus, watermelons, sweet melons, and mangoes.

Livestock in the UAE is mainly camels, goats and sheep. Traditionally, herds survived on desert grazing. However, with the rapid decline in the nomadic life style, many animals are now kept domestically, in small farms, or within special enclosures. Although the animals are allowed to graze during the day, their food intake relies heavily on fodder (mostly imported), concentrates, and, in the case of racing camels, on dairy milk.

The very limited agricultural potential of the UAE, with unsuitable land, water scarcity, and harsh climate, has not been an obstacle to its economic development. Clark (1984) argues that although improvement in agricultural productivity is a necessary condition for successful development, there are exceptions when a developing country (particularly

one richly endowed with minerals) produces what he terms "*food substitutes*", i.e. mineral or forest products, which can be exported to world markets, purchasing food imports which can partially substitute for the productivity of the country's own agriculture.

2.3.2- FISHERY RESOURCES

The Arabian Gulf is shallow and productive, and contains a wide diversity of marine natural resources. Fish resources are relatively abundant along the UAE's coastline. They may be grouped in two main categories: resident fish, which include more than 300 commercially exportable species, and migratory fish, which travel through the country's waters between September and May.

It has been estimated that the potential sustainable yield of fish from the UAE's waters at below 10 meters' depth is around 115,000 tonnes per year. In 1990, the maximum catch in the UAE was estimated at 95,100 tonnes yearly of which 70,000 tonnes were caught below 10 meters. Around 60% of the total supportable yield, therefore, is currently fished.

2.3.3- OIL AND MINERAL RESOURCES

The UAE is endowed with vast resources of oil, explored and produced on the mainland and offshore. Associated gas, from crude production and non-associated gas, is also produced on the mainland and offshore.

Since the early 1970s, the UAE's phenomenal growth has depended entirely on the discovery and exploitation of oil. The oil and gas industries are well managed and technology is continuously harnessed to increase productive efficiency.

According to the UAE Ministry of Petroleum and Mineral Resources, the UAE's maximum sustainable daily capacity of oil production (maximum production rate that can be sustained daily for one year in present conditions of exploitation) is 2 million barrels a day. Its installed production capacity is over 3.5 million barrels per day. In 1992, proven oil reserves in the UAE were 98,100 million barrels, the second largest oil reserves after Saudi Arabia, (260,340 million barrels). The UAE's proven oil reserves were estimated to be 9.82% of the proven world oil reserves at January 1st 1994 [EIU (1994)]. On the basis of current daily oil production of 2 million barrels per day, oil reserves in the UAE are estimated to last for more than 134 years.

Proven gas reserves were estimated (in 1992) to be 5,794 billion cubic feet. The UAE was estimated to have natural gas reserves equivalent to 4.6% of the known world gas reserves at the beginning of 1992. The UAE holds the third largest natural gas reserves in the world. Daily gas production was estimated in 1992 to be 1,806 million cubic feet: 1,067 million cubic feet from inshore fields and 739 million cubic feet from offshore fields. Gas reserves are estimated to last for more than 60 years. The UAE possesses, therefore, huge reserves of oil and gas, capable of sustaining long-term economic growth.

Other mineral resources in the UAE are divided into three categories: i) rocks, ii) sands and soils, iii) metals. The exploitation of minerals is restricted to rocks and sands. Rocks and gravel are used for construction. Limestone, sand, marl, and gypsum are used to manufacture cement. None of the metals or other minerals of interest is exploited.

2.4- DOMESTIC MARKET

Although the rapid economic development in the UAE has necessitated massive inward migration of expatriate workers, the UAE population increased to only 2.01 millions in 1992.² The population of the

² For further details, see Chapter Three.

UAE is very small compared to the country's area (30,000 square miles) and to its huge mineral resources. Population is a major determinant of the size of the domestic market and trade orientation [Morris and Adelman (1989)]. The UAE's meagre population severely limits the size of its domestic market, particularly since only a small fraction of expatriate incomes is spent domestically. The remainder is remitted abroad to respective countries.

Despite its relatively small geographical size, the UAE is the second most important market among the Arab Gulf Cooperation Council (AGCC) countries.³ The UAE has high per capita income and a relatively large population by AGCC standards (see Table 2.2). This population is spread over the main urban cities, leading to easier distribution. Thus, the UAE is a very attractive market for domestic and foreign producers.

³ The Arab Gulf Cooperation Council (AGCC) comprises the Arab Gulf states of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE in a body intended to promote coordination and economic development.

Table 2.2

Profile of the AGCC States, 1992.

Country	Population (million)	Per Capita Income (US\$)	GDP (US\$ million)	Geographical size (km ²)
UAE	2.01	17,414	35,003.0	83,600
Bahrain	0.54	8,309	4,486.7	670
Kuwait	1.40	15,506	21,708.1	17,818
Oman	1.62	7,092	11,488.7	300,000
Qatar	0.52	14,371	7,473.1	11,437
Saudi Arabia	15.14	7,999	121,104.0	2,149,690

Source:

Arab Monetary Fund, (1993), *Arab Countries: Economic Indicators 1982-1992*.

The consumer market is an important part of an economy. It involves the gross household expenditure on final goods and services. The UAE's consumer market is overwhelmingly dominated by imported goods. The UAE's domestic market is characterized by a strong heterogeneity with respect to ethnic background. Consumers are divided into four major groups based on their respective origins: Arabs, Europeans, those from the Indian subcontinent, and those from the Far East. Arabs and Europeans have high purchasing power per capita, whereas those from the Indian subcontinent and the Far East dominate markets by numbers rather than by purchasing power per head. There are few products which appeal to all ethnic groups.

The small size of the UAE's domestic market, therefore, militates against a policy of industrialization based on import substitution.

2.5- EXPORT EXPANSION AND FOREIGN DEPENDENCE

The UAE economy depends almost entirely on a single depletable resource, oil, which has a highly volatile and uncertain market. Oil accounts for over 70% of the UAE's total export earnings and for more than 85% of government revenue. Oil income, therefore, is the single principal source of the UAE's

gross domestic product (GDP). In addition, much of the non-petroleum economic activity is stimulated by the oil sector.⁴ The UAE's national income, therefore, is derived mainly from the extraction and export of its depletable national asset, oil.⁵

Fluctuations and uncertainties in oil markets became a serious problem during the recession after 1983 and the oil price crash of 1986. This necessitated cuts in domestic investment and infrastructural projects by one third. Indeed, the cost of adjustments could have been much greater if not for the cushion provided by the UAE Central Bank's reserves and the UAE's foreign portfolio investments.

The UAE is a member of the Organization of Petroleum Exporting Countries (OPEC). The complex relations with OPEC ultimately determine the level of oil output, and this represents a key variable in government resources and GNP. For instance, before the invasion of Kuwait on August 2nd 1990, the UAE's quota set by OPEC was 1.5 million barrels per day. In the aftermath of the invasion, the world market lost oil supplies of 4 million barrels per day - the

⁴ For more examples of non-petroleum economic activities, see Chapter Four.

⁵ Although the UAE's oil reserves are estimated to last for more than 134 years, it can be argued that, inevitably, oil is a depletable resource.

combined production of Iraq and Kuwait. The UAE together with two major producers, namely Saudi Arabia and Venezuela, was called upon to meet this shortfall in world oil supply. Consequently, the UAE's oil production increased to 2.5 million barrels per day in 1991. If required, this capacity can be increased to 3.5 million barrels per day. In February 1993, however, the UAE accepted a new OPEC quota of 2.17 million barrels per day as the cartel sought to reimpose production control on its members.

Post-invasion, average oil prices were around US\$ 30 per barrel in 1990 (falling to US\$ 16 per barrel in 1991). For the year 1990, this increase reached Dh. 54 billion, compared to 1989 oil export earnings (Dh. 39 billion), an increase of 38.5% in export earnings. As a result, GNP registered a significant growth.

2.6- MONETARY INSTITUTIONS

The Emirates did not have a uniform currency until May 19th 1973. Previously there were three currencies used in the Emirates; namely, the Gold Sterling Pound, the Maria Teresa Silver Rial, and the Indian Rupee. In addition, Turkish currency had been used on a limited bases during the Ottoman Empire [Al-Oteibah (1977)]. The use of these currencies promoted

trade between the Emirates and the countries of their respective origins, particularly with India.

In 1973 the UAE officially issued its own currency, the UAE Dirham (Dh) (= 100 fils), equivalent to 0.186621 grams of pure gold. Later, according to this equivalent price, the UAE Dh was pegged to the US dollar at a rate of 1 US\$ = 3.671 Dh.

The UAE Central Bank is the prominent monetary institution that controls the supply of money, determines discount rates, issues the UAE monetary currency (the UAE Dh), heavily regulates legal and monetary relationships among commercial banks and between banks and customers, determines the legal minimum required reserves to which commercial banks are subject by law, and executes the UAE's Federal Government monetary policy.⁶

The UAE Central Bank's investment policy has been dictated by concern for liquidity and safety rather than by growth of its portfolio and rate of return. By 1989, the external account surpluses (averaging US\$1.24 billion yearly during 1985-1989) enabled the UAE's Central Bank to accumulate foreign assets estimated at US\$4.5 billion. In addition to US\$184

⁶ The UAE Central Bank is thus equivalent to the Bank of England in the UK, and the Federal Reserve System (the Fed) in the USA.

million in gold, the UAE Central Bank's foreign assets are held in current accounts and deposits (60%), treasury bills and notes (15%), fixed-income securities issued or guaranteed by foreign governments or international institutions (9%), and in first-grade corporations' securities of up to three years' maturity (5%).⁷

The vital importance of the UAE Central Bank was clearly demonstrated by the end of 1990 during the Gulf War when the psychological impact of the crisis led the UAE population (both nationals and expatriates) to transfer their savings outside the country.⁸ The Dirham was on the verge of collapse and lost ground to major currencies. The UAE Central Bank pumped US\$ 29 million into the UAE market to provide each commercial bank with its needs for dollars. This action stunned speculators, and ultimately restored confidence and order in the financial market. In a few days the Dirham regained its position and its previous exchange rate with the US dollar (1 US\$=3.671 Dh) and other major currencies.

Without divergence from the UAE's commitment to a free market and without infringement of the

⁷ Farzin (1993), p.515.

⁸ The UAE Central Bank estimates this flight of funds at Dh 1.4 billion, with gross liquidity shrinking by Dh 7.1 billion during August 1990.

sovereignty of the population in their financial transactions, the powerful financial status of the Central Bank was able to confirm its role as an authoritative monetary institution, contributing to sustained economic development in the UAE.

2.6.1- DOMESTIC FINANCIAL CAPITAL MARKET

Charging interest, *riba* in Arabic, is prohibited in the *Holy Koran*.⁹ *Riba* is a forbidden activity in the Islamic economy, as was the case before the formation of the UAE. However, faced with the reality of economic and trade interactions with the rest of the world, it has not proved practical to ban the charging of interest. Commercial banks, therefore, charge interest on all types of loans. The interest rate is determined freely by market forces. Yet government loans are granted free of interest, partly to meet Islam's principles and also to provide the financial capital needed for the country's development.

Few Islamic banks are active in granting loans, but they impose a "*service charge*" equivalent to the prevailing interest rate. Islamic banks accept saving deposits granting "*profits on partnership basis*".

⁹ "God has permitted trading and forbidden taking interest" (Koran 2: 275).

Investors are compensated by means of *mudharabah*, i.e. profit-and-loss sharing. *Mudharabah* specifies a sharing contract in which the return to lenders is according to an agreed ratio of the profit/loss outcome of the project in which the parties have invested.¹⁰ Therefore, banks that follow the Islamic Law may still play the role of intermediary between borrowers and lenders, but rather than charge interest on loans and pay interest on deposits, the banks take a predetermined percentage of the borrowing firm's profit until the loan is repaid. These profits shares earned by the bank are then passed on to depositors. In addition to profit-sharing deposits, Islamic banks offer checking accounts, travellers' checks, and various trade-related services on a fee basis.

At the personal level, however, personal loans among Muslims are entirely interest free. There is no *riba*. This is voluntarily dictated by the Muslim population desiring to meet Islamic rules. Interest on personal loans, outside the domain of the official commercial banks, is dismissed by Islamic courts. A borrower accepting a loan at a personal level (person to person) can refuse to pay interest. The borrower can ask for the implementation of Islamic rules. Consequently, court protection is based on the Islamic

¹⁰ For a recent review of Islamic economics, see Presley and Sessions (1994).

prohibition of *riba*. Husted and Melvin (1993) conclude that Islamic banks offer a valuable service to Muslim depositors, that meets both the dictates of their religious beliefs and the profitability requirements of modern banking.

When examining institutions in the UAE, one should not ignore the prominence of Islam and its social-economic influence on a society. Islam has always been, and remains, the source of inspiration for all aspects of life of the Arab people. Islam plays a major role in organizing and shaping the Muslims' political, social, and economic activities.

In any advanced economy, the role of financial services is significant. However, in comparison with other Arab Gulf Cooperation Council (AGCC) countries, the financial capital markets of the UAE are undeveloped. There is no formal stock exchange in the UAE, although Bahrain, Kuwait, Oman, and Saudi Arabia have all established stock exchange trading systems. However, shares in twenty-three joint-stock companies are informally traded and their prices published in the local press. Fourteen of the companies traded are banks, four are insurance companies, and the remaining five are in the service sector [EIU (1993)]. Share price movements are monitored by the National Bank of Abu Dhabi through its own index.

The special structure of the UAE Government has limited the authority of the Central Bank and of the Federal Government. The Government of Abu Dhabi is in fact the major supplier of financial capital to the private sector, and to individuals, on preferential, "soft" loan terms. The immaturity of the financial capital markets of the UAE is reflected in the importance and centralized nature of Abu Dhabi within the UAE economy.

Abu Dhabi, as the capital of the UAE, has attracted the regional financial institutions such as the Arab Monetary Fund (AMF). However, based on self-reliance and liberal policies in international trade, the second-largest Emirate, Dubai, has now successfully initiated plans for developing its own financial capital markets. The other Emirates appear to be following the same strategy.

In addition to some 19 locally owned banks with 216 branches in 1993, there are 28 overseas banks with 119 branches in the UAE. The banking, insurance, and real estate sectors each account for 3% to 5% of GDP. The banking and insurance sectors have been the fastest growing sectors since 1975 (see Chapter Six).

2.6.2- FOREIGN INVESTMENT

The UAE is a very wealthy country. Its huge oil resources have enabled the UAE to accumulate a sizable current account balance, held mainly by the governments of the individual Emirates and partly by other private establishments.

It is important to distinguish between wealth held by the Emirate of Abu Dhabi in international assets, and other forms of security held by the other Emirates and individuals. The latter are not necessarily available to fund investment within the UAE. Since the formation of the UAE, the Emirate of Abu Dhabi has taken on the responsibility of providing the financial capital needed for the UAE Federal Government current expenditure, and its investments in physical infrastructure.

In the light of constraints on the UAE's absorption capacity (particularly, the small size of the domestic market), the UAE has been active in the international financial market since the early oil-boom years. The UAE has invested in a variety of assets ranging from bank deposits and fixed income securities to shares, real estate (with US real estate in the lead and the UK second), and direct investment in business worldwide. The exact size of foreign

assets, held either by the UAE Government or the private sector, is not publicly available.

Private investing institutions include commercial banks, and financial and trading companies. In terms of geographical allocation of assets, private investments have been targeted mainly to US markets, but also to European, Japanese, and Far Eastern markets [Farzin (1993)].

In the public sector, since the UAE Central Bank is limited to short-term investments and is prohibited from investing in equity, the most important foreign investor is the Abu Dhabi Investment Authority (ADIA), established in 1976 and owned solely by the Emirate of Abu Dhabi. ADIA has been given the task of investing the Emirate's surplus of oil revenues (after the Abu Dhabi Emirate and the UAE Federal Government budget requirements) to provide the Abu Dhabi Government with significant financial resources (in addition to direct oil revenues) for the country's future development.¹¹ Because the size, composition, and rate of return of ADIA's portfolio are strictly secret, none of these indicators can be examined.

¹¹ The Emirate of Abu Dhabi is obliged to pay 50% of its income from oil to the UAE Federal Government budget.

The International Petroleum Investment Corporation (IPIC) was established in May 1984 with a financial capital of US\$ 500 million, as a joint venture between Abu Dhabi National Oil Company (ADNOC) and the Abu Dhabi Investment Company (ADIC), the commercial arm of ADIA. Its objectives were defined as undertaking oil and petrochemical ventures (including refining operations abroad) outside the UAE. It is reported that IPIC's principal aim is to secure markets for the UAE's crude oil production.

Farzin (1993) indicates that the UAE's foreign investment decisions have been governed by an attitude of "*ultra risk-aversion*". Therefore, the UAE holds a disproportionately large share of its foreign assets in liquid assets for which the real rates of return have been negligible.

2.7- TRANSPORTATION SYSTEM

The UAE has invested heavily in the transport and communication system, and currently has the basic infrastructure to meet current demands. The UAE is served by road, air, and sea transport. No rail networks, however, exist. Much of the infrastructure has capacity for growth, and is programmed to meet identifiable shortfalls.

The national road network system provides linkage between all major cities. From the Federal Capital, the city of Abu Dhabi, the principal strategic road runs parallel to the coast providing communications internationally to Qatar and Saudi Arabia in the west, and to Dubai and the other Emirates in the north-east. Construction of the road network, some 5,000 km of surfaced roads, was advanced substantially in the late 1970s and early 1980s. The current rate of road construction is at a lower level, reflecting the completion of strategic road needs.

Public transport is provided by buses and taxis. Low fares on public transport reflect a financial subsidy provided by the government. Taxis comprise 35% of the traffic flow on the principal roads of the major UAE cities, revealing the high level of service provided.¹²

International goods transport is by air, sea, and road. Most Emirates have established their own sea ports. Intra-Emirate movements of goods are made by road, and by coastal ferry services to the islands.

Five of the seven Emirates have an international airport and a sixth is at Al-Ain, the second largest

¹² Taxis are owned by UAE citizens but are mostly driven by expatriate labour.

city in the Emirate of Abu Dhabi. Abu Dhabi International Airport, opened at the beginning of 1982, has a capacity of 6 million passengers a year. In addition, Abu Dhabi Airport is annexed to an aircraft maintenance centre. However, Dubai International Airport is the busiest in the UAE, handling about 4.5 million passengers a year [EIU (1993)]. *Emirates*, the UAE International Airline, and more than 60 international airlines link the UAE's cities with over 100 cities worldwide.

2.8- CONCLUDING REMARKS

The epoch of economic development in the UAE began in the early 1970s. The rapid adjustment of the UAE tribal society to new formal institutions, established shortly after the formation of the UAE and the discovery of oil, comes as something of a surprise.

Though the UAE has a very limited agricultural potential, there has been a consistent and substantial increase in the amount of land devoted to agriculture and forestry over the past twenty years as the result of efforts to promote agricultural development.

The UAE economy depends almost entirely on oil. Oil accounts for over 70% of the UAE's total export

earnings and for more than 85% of government revenue. Oil income, therefore, is the single principal source of UAE's GDP. In addition, much of the non-petroleum economic activity is stimulated by the oil sector. The UAE's recent phenomenal growth since the early 1970s has depended entirely on the discovery and exploitation of oil. On the basis of current oil production of 2 million barrels per day, oil reserves in the UAE are estimated to last for more than 134 years. Proven gas reserves are estimated to be 5,794 billion cubic feet.

The UAE's small population severely limits the size of its domestic market, particularly because only a small fraction of expatriates' incomes are spent domestically.

The Central Bank is a powerful monetary institution, but its investment policy has been dictated by concern for liquidity and safety rather than for growth of its portfolio and rate of return.

The major surpluses achieved have enabled the UAE to accumulate a sizable current account balance, held mainly by the governments of the individual Emirates and partly by other private establishments.

Government policies, particularly economic policies, determine the nature of market institutions, property rights, the nature of land tenure and distribution of assets, human resource development, the size of transportation investment, and, arguably therefore, determine the spread and character of economic growth.

CHAPTER THREE:
POPULATION AND LABOUR FORCE

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3.1- INTRODUCTION

The exploitation of mineral resources has provided rapid economic development in the UAE whilst necessitating the introduction of a large expatriate labour force and their dependents. In assessing the impact of industrialization on the UAE's economic development, it is helpful to consider linkages between population, labour force, and economic development.

This chapter provides a demographic profile of the UAE, outlining the key characteristics of the population as reflected by ethnic composition, age, and sex structure. In addition, it delineates the labour force both as an input and as an object of the development process.

3.2- POPULATION GROWTH AND ECONOMIC DEVELOPMENT

While economic growth is a crucial component of development, human welfare is the ultimate goal of economic development policies. It is essential, therefore, to evaluate the impact of economic development on the population, the recipients or the beneficiaries of development in the country under study.

The *Human Development Report 1991* [UNDP (1991)] highlights the connection between economic growth, human development and development policies as follows:

"Just as economic growth is necessary for human development, human development is critical to economic growth. This two-way link must be at the heart of any enlightened policy action." [UNDP (1991), pp.1-2].

The major sources of economic growth can be perceived as being capital accumulation, the growth in the labour force, and technical progress, plus increases in the productivity and efficiency with which these inputs are used (see Chapter Six).

Growth accounting procedures indicate the need for improvement in the quality of labour. Labour productivity is affected by the health and nutrition of the working population. Labour quality may be enhanced by education as well as by improved health services. (Education and health are discussed in Chapter Five).

Some economists have assumed a positive role for population growth and associated increases in the labour force, as an essential ingredient for stimulating economic development. A larger population may also increase the size of domestic markets and thereby stimulate growth in industry, services, and agricultural productivity, through scale economies

[Clark (1969, 1970), Boserup (1965), Ram and Schultz (1979), Simon (1981, 1986)].

Clark (1969, 1970) further expounded the case that the world's resources, rationally used, are sufficient to provide adequate food for any foreseeable growth of population and that growth of population, and growth of real per capita income are positively correlated. Kuznets (1967) found a positive correlation between population growth and per capita income for a sample of forty developing countries.

In contrast, some economists view population growth as a major cause of poverty, malnutrition, and inadequate health care, together with other socio-economic problems [Coale and Hoover, (1958), Enke (1971), Paul and Ehrlich (1972), Brown (1974)]. This pessimistic view was first expounded by Ricardo, and more famously by Thomas Malthus in his *Essay on the Principle of Population*. Modern neo-Malthusians argue that the world's finite resources cannot sustain high growth rates without major economic and social disasters.

It is possible to view the current worldwide interest in the level of population growth as an aspect of the desire to increase human welfare.

Population and the labour force are to be regarded not only as an input factor of development, but as an object of development, where "*human development*" is defined as improvement in the population's income and employment opportunities, health, and education, together with a clean and safe physical environment [UNDP (1991)]. Goulet (1971) adds that the definition of development should encompass the population's self-esteem, respect, dignity, and freedom to choose.

Accordingly, in dealing with the human factor as an economic resource in economic development, it needs to be recognized that population and the labour force play a dual role in the development process. Where "*population*" is the ultimate beneficiary, it is not to be regarded as only an input in the process of economic development.

3.3- POPULATION IN THE UAE

The UAE's population (180,226 persons in 1968) grew to 2.01 millions in 1992. It is relatively small compared to the country's area (30,000 square miles). Population density is only 67 inhabitants per square mile. Nevertheless, since the discovery of oil and its exportation, the UAE has experienced a rapid increase in population growth. The dominant feature of the UAE is the small *indigenous* population base,

together with great wealth generated by the discovery of major crude oil reserves.

3.3.1- POPULATION DATA

Under the British Protectorate, Her Majesty's Government, through The Trucial States Development Council, conducted the first census in 1968, three years before the formation of the UAE. The UAE Government has conducted since then three full-scale population censuses in 1975, 1980, and 1985. They have been implemented in accordance with the UAE's policy of conducting a census every five years. The Ministry of Planning is the official authority for the population censuses in the UAE. A population census was not carried out in 1990 owing to the crisis in the Gulf created by Iraq's invasion of Kuwait.

Detailed results of these censuses remain inaccessible, and there are long delays in publication. This reduces the value of the information to researchers. The ratio of UAE nationals to expatriates is an extremely sensitive issue and official statistics on the breakdown are not available.

Juma (1988) suggests that because of the composition of the population by nationality, it has

been difficult to release detailed results of the 1975 population census. The 1975 population census had security implications. The primary figures for the 1985 census were released to the media on November 14th 1986, but the detailed results have not yet been published. The proportion of migrants in the UAE is estimated to be 70% of the total population, UAE nationals accounting for the remaining 30%. The total enumerated population was 557,887 in 1975 (see Table 3.1).

Regarding the 1985 census, Ghanem (1992) states that the five-year plan project for 1981-1985 aimed at a total population of 1,040,000 by 1985, with no significant increase on that of 1980 (1,042,099). An increase in the indigenous population, resulting from normal growth during the period of the Plan, was envisaged to be balanced by an equivalent decrease in the number of expatriates.

Table 3.1

Population of the UAE by Nationality
1968-1992

Nationality	1968	%	1975	%	1980	%	1985	1992*
UAE Nationals	114444	63.5	187366	30	242663	23.3	n.a.	n.a.
Expatriates	65782	36.5	390521	70	799436	76.7	n.a.	n.a.
Total	180226	100	577887	100	1042099	100	1622464	2011400

Sources:

1- MoP (1977), Central Statistical Department, *Population Census 1975 of the UAE*, Part 3.

2- MoP (1982), Central Statistical Department, *Population Census 1980 of the UAE*, Part 3.

3- MoP (1988), *Annual Statistical Abstract, 1988*.

4- MoP (1992), *Annual Statistical Abstract, 1992*.

n.a. not available

* Official estimate, MoP (1992).

In contrast, by 1985, the population had increased by over 56% to 1,622,464. The UAE Government had failed to achieve a drop in the ratio of expatriates to the total population as envisaged in the Plan. Ghanem (1992) maintains that the ratio of expatriates has most probably increased because the poorer immigrants were allowed during the 1984-1987 recession, to bring their families to the UAE for social reasons. He adds to this possible economic reasons, such as the need to "bail out" owners of vacant properties, by allowing more expatriates residents.

This thesis examines the UAE's population and work force according to data from the population censuses of 1975, 1980, and 1985. These are the data that have been released, though the more detailed information underlying the trends is not available.

It is evident from the data that the rapid development in the UAE has attracted substantial inward migration of expatriates workers. Census figures reveal that this population was already well established by 1975, by which date almost three quarters of the population were classified as non-nationals (see Table 3.1).

3.3.2- ETHNIC COMPOSITION

The population of the UAE comprises two basic groups: nationals who are the UAE citizens, and non-nationals who are expatriates. The two groups have different characteristics with respect to migration, mortality, fertility, age, and sex distribution. The two groups have always been discussed separately by those who have studied the socio-economic features of the UAE. This chapter attempts to facilitate understanding of the development issues, through their impact both on the UAE's total population, and on the UAE's indigenous population.

UAE nationals are those who hold UAE citizenship. UAE official statistics customarily denote the UAE nationals as UAE indigenous population, UAE citizens, or the UAE native population. For our purposes, any of the above definitions refers to UAE nationals who hold UAE citizenship.

The racial composition of expatriates is not available. Data on work permits issued in 1990 indicated that most of the expatriates were from Asia (82.6%) primarily from India (46.22%) and Pakistan (18.48%). Expatriates from Western countries were 3.4% of the total (see Table 3.2).

Table 3.2

Persons Granted Work Permits by Nationality, 1990.

Nationality	Number	Percentage
Arabs	16,133	13.75
Indians	54,209	46.22
Pakistanis	21,674	18.48
Other Asians	20,981	17.86
Non-Arab Africans	203	0.17
Europeans	3494	2.98
Americans	492	0.42
Oceanics	109	0.09
Total Work Permits	117,295	100

Source: MoP (Ministry of Planning, UAE), 1992, *Annual Statistical Abstract*, Table. 73, p.113.

3.3.3- DEMOGRAPHIC CHARACTERISTICS

The rate of population increase is quantitatively measured as the percentage yearly net increase in population size due to natural increase and net international migration. The rate of natural increase is the difference between the birth rate and death rate, in percentage terms.

The population of the UAE has been growing rapidly. It tripled between 1968 and 1975 (from 180,226 in 1968 to 557,887 in 1975), increasing at an annual growth rate of 17.5%. The population in 1980 (1,042,099) had doubled since 1975 (557,887), but the annual growth rate of 12.5% was slowing down. The UAE population increased by 55.7% during the intercensal period 1980-1985 (from 1,042,099 to 1,622,464), with a declining annual growth rate of 8.8%.¹

Statistics for the 1985 population census reveal that the numeric dominance of expatriates is highest in main urban areas, particularly in the Federal Capital, Abu Dhabi, and in the city of Dubai. In Abu Dhabi city, 12% of the population are recorded as comprising UAE nationals. In the Abu Dhabi Emirate's rural districts, the census shows that almost 38% of

¹ Demographic statistical figures are for the overall UAE population, unless it is indicated for UAE nationals or expatriates.

the population are UAE citizens, a percentage which has increased since 1975.

Overall in the UAE, the crude death rate (deaths per thousand of population) decreased from 7.3 per 1,000 in 1975 to 4 per 1,000 in 1992. The infant mortality rate (i.e. the number of children who die before their first birthday out of every 1,000 live births) dropped from 145 per 1,000 in 1960 to 23 per 1,000 in 1991, reflecting improved health services, nutrition, public education, and standard of living.²

On the other hand, the crude birth rate, i.e. births per thousand of population, was high for the overall UAE population (22 per 1,000) in 1992. In addition, life expectancy at birth, i.e. the average number of years members of a given population are expected to live, rose from 53 years in 1960 to 70.8 years in 1992.³ According to Preston's (1975) analysis, this rise in life expectancy reflects the increase in literacy and the spread of health technology together with the increase in real income.

The high birth rates of UAE nationals can be attributed to: a) social factors, such as the prestige

² UNDP (1994), *Human Development Report 1994*.

³ Life expectancy at birth is the form of the statistic most often cited. However, the concept refers to expected years of remaining life.

of having a large family; b) income distribution factors, such as the government's provision of public housing and accommodation; and c) financial incentives in the form of a monthly allowance of 300 Dh per child paid to all UAE citizens working in the government sector.

The rate of increase of population for UAE nationals is estimated to be around 7.6% for 1975-1980 and 6.4% for the five following years (1980-1985). For non-nationals the rate of increase is 16.1% for 1975-1980 and 5.5% for the period 1980-1985.

The high growth rate of the UAE population cannot be explained by natural increases, but by the massive influx of expatriates during the 1970s and 1980s. This needs to be spelled out. There is a ceiling on the natural rate of population growth, given by the age-structure of the population.

Juma (1990) suggests that 3% of the growth rate of population of UAE nationals is due to the flexible policy to naturalize Arabs -particularly Arabs of the Arabian Gulf, Oman, and Yemen. Birks and Sinclair (1980), estimated that some 55,000 Arab expatriates received UAE citizenship between 1968 and 1975.

The aim of naturalizing Arabs is to increase the indigenous Arab population and reduce the percentage of non-Arabs in the UAE. "Arabism" - that is, the belief in a united Arabia, an Arabic race, Arabic language, Arabic history and heritage, and common aspiration of the Arabs - is the official reason given by the UAE statesmen for the naturalization policy. Nonetheless, there is no explicitly declared policy regarding the enlargement of the UAE population through naturalization.

The rate of emigration of UAE nationals has been very small. For instance, in 1980, slightly under 1% of the total of UAE nationals was out of the country. Most of these people were students. Others were diplomats and their families.

In contrast, the expatriate population is highly mobile with a large number moving into and out of the UAE each year. Nevertheless, according to the 1985 population census, a high proportion of expatriates, 55%, have been resident for more than five years. The extent to which this continues will be affected by several factors including the socio-economic profile of the expatriate population, the availability of employment, and immigration policies both for employees and their spouses.

3.3.4- AGE AND SEX STRUCTURE

The rapid increase of the non-national population in the UAE has produced a very uneven demographic profile with a high proportion of males of working age.

The distribution of the total population by sex in 1980 (Table 3.3) revealed that males were 721,302 (69.2% of the population) and females were 320,797 (30.8% of the population). For the UAE as a whole, some two thirds of the population are males.

According to 1980 figures, the predominance of expatriate workers in the UAE was pronounced, with males constituting 74.6% of the total non-national population. This unbalanced sex ratio reflects the high proportion of single male migrants who come to the UAE seeking employment. Furthermore, Table 3.3 reveals that the non-national population is dominated by the 20 to 39 age group. This unbalanced age composition and sex ratio in the UAE led Juma (1988) to describe the UAE community as a "*young-males community*".

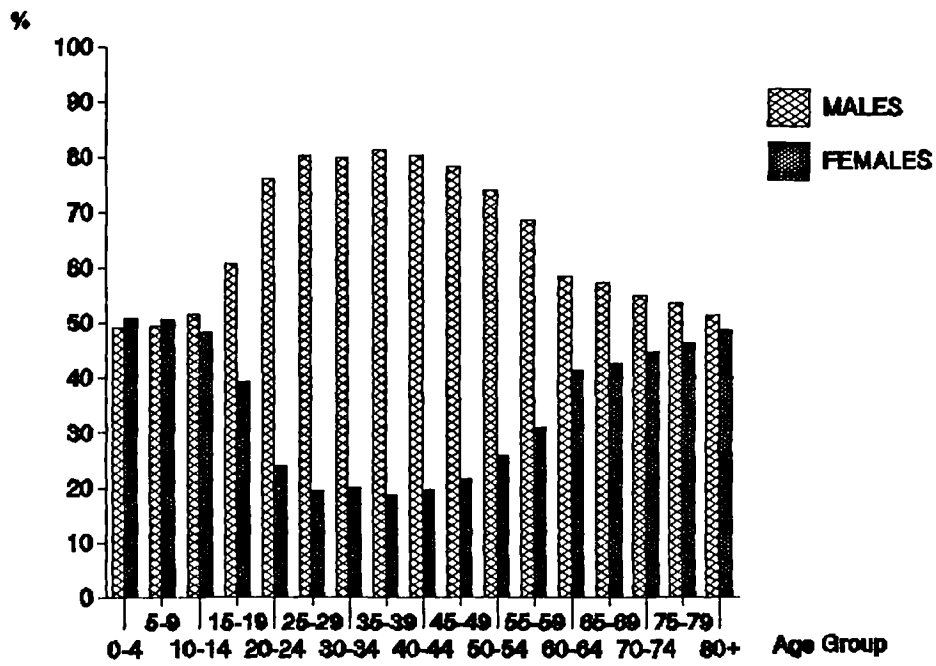
Table 3.3

UAE Population by Nationality, Age, and Sex, 1980

Age group	UAE Nationals			Non-nationals			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-4	26848	25796	52644	41229	44664	85893	68077	70460	138537
5-9	19855	19855	39710	28000	29143	57143	47855	48998	96853
10-14	14073	14073	28146	18230	16167	34397	32303	30240	62543
15-19	10640	9436	20076	24234	13049	37283	34874	22485	57359
20-24	10041	8904	18945	85884	21471	107355	95925	30375	126300
25-29	8838	7528	16366	137350	28132	165482	146188	35660	181848
30-34	8273	8274	16547	101926	19415	121341	110199	27689	137888
35-39	5170	4967	10137	69717	12303	82020	74887	17270	92157
40-44	4736	4737	9473	42768	6962	49730	47504	11699	59203
45-49	4624	3939	8563	23320	3796	27116	27944	7735	35679
50-54	3139	2674	5813	13402	3144	16546	16541	5818	22359
55-59	2158	1914	4072	5031	1338	6369	7189	3252	10441
60-64	1630	1446	3076	2983	1829	4812	4613	3275	7888
65-69	2064	1558	3622	988	716	1704	3052	2274	5326
70-74	1531	938	2469	666	847	1513	2197	1785	3982
75-79	628	559	1187	201	159	360	829	718	1547
80+	854	963	1817	271	101	372	1125	1064	2189
Total	125102	117561	242663	596200	203236	799436	721302	320797	1042099

Source: Ministry of Planning, UAE, Central Statistical Department, *Population Census 1980 of the UAE*, Part 3, June (1982).

Figure 3.1
Age and Sex Distribution of the UAE Population, 1980
 (By Percentage)



Immigration policies are particularly relevant with respect to bringing into the country the dependents of expatriate employees. For instance, the UAE immigration laws require an expatriate to be earning monthly more than 3,000 Dh before he (she) may apply to bring his (her) family to the UAE. This law was designed to ensure that expatriates are able to support their families financially in the UAE.

The policy implication is that it is possible for UAE immigration policies to affect the rate of household formation for expatriates and, consequently, the demand for housing and social and recreational facilities. Hovanessian (1986) points out that the presence of the large masses of expatriates in the oil-rich countries has created new demands in terms of housing, social and physical infrastructure, and other services. In turn, this has necessitated additional foreign labour to meet these demands.

The distribution by sex for UAE nationals (native citizens) disclosed that males were 125,102 (51.5%) and females were 117,561 (48.5%). The sex ratio for the UAE nationals was 106 males per 100 females, which is considered a common ratio in many countries.

In summary, the total population of the UAE has increased rapidly, reflecting a high natural rate of

increase of UAE indigenous citizens and massive inward migration of expatriates, who comprised more than three quarters of the population in 1980. As a result, the population structure is very uneven and characterized by:

- a high proportion of males (69%) compared to females,
- a majority of the population (85%) under the age of 40,
- almost half of the UAE indigenous population (49.7%) under the age of 15, reflecting falling mortality rates and high fertility rates,
- the overall effect of the falling infant mortality rates and high fertility rates, manifested in a young age profile for the population of the UAE.

3.4- LABOUR FORCE

The labour force is defined as the portion of the population with a job or actively looking for one. The size of the work force is influenced by three factors:

- 1- the size of population, since the rise in the number of potential workers is closely related to the increase in population;
- 2- the composition of the work force in terms of age ("workers" are calculated from the age of 15 to 64 years in the UAE) and sexes (males and females);

3- the labour force participation rate of different groups, which reflects religious and social factors, such as the willingness of women to work outside the home.

An assessment of labour's role in the economy requires discussion of the structure of labour markets, of growth in numbers in the labour force, of the share of labour in different economic sectors, the regional distribution of the labour force, and methods of measuring labour supply and its utilization. We will take up these issues in turn.

3.4.1- LABOUR MARKET

It has long been argued that in many developing countries the supply of unskilled labour is not a constraint on development, because labour can be drawn from the agricultural primary sector [Lewis (1954)]. In the case of the UAE (see Table 3.4), there is an acute shortage both of skilled and of unskilled indigenous labour.

Table 3.4

UAE Work Force by Nationality for 1975, 1980.

Work Force	1975	1980
-----	-----	-----
Indigenous	42,272	50,396
Expatriates	251,516	509,564
-----	-----	-----
Total	293,788	559,960

Source: Ministry of Planning, UAE, (1988), *Annual Statistical Abstract*, 13th Edition.

The agricultural sector in the UAE, constituting about 2% of GDP, is very small and the population is clustered in the main urban cities. In addition, a large proportion of the UAE population (50%) is below working age (15 years). Furthermore, the participation of UAE women in the labour force is negligible, amounting to only 16.3% of the UAE's total work force (see Table 3.5).

The labour force in the UAE, like the UAE population, can be divided into two groups: the indigenous labour force, that is the UAE's indigenous labour force, constituting about 10% of the total work force; and the expatriate labour force, constituting 90% of the total work force, who live in the UAE for the purpose of working. The growth of the labour force in the UAE is given in Table 3.5.

Table 3.5

UAE Labour Force, 1968, 1975, 1980, 1985, 1990.

Labour Force	1968	1975	1980	1985	1990*
Males	76651	283985	531693	618410	724856
Females	1420	9803	28267	65415	141444
Total	78071	293788	559960	683825	866300

Source:

Ministry of Planning, UAE, (1988), *Annual Statistical Abstract*.

* estimate, Ministry of Planning, UAE, (1992), *Annual Statistical Abstract*.

Rapid economic development in the early 1970s required inputs from highly educated personnel, professionals, technicians, experienced and skilled labourers, and unskilled workers. An unlimited supply of foreign labour has provided the UAE with all its labour needs and has paved the way for rapid economic development. In applying a flexible employment policy of importing foreign labour, the UAE took full advantage of the so-called "*brain drain*" to meet its requirements for professionals, scientists, and other highly educated personnel. Todaro (1989) defines "*brain drain*" as the emigration of highly educated and skilled professional and technical manpower from developing to developed countries.

Table 3.6 reveals that university graduates and post-graduates in various academic fields comprise about 9% of the UAE's total work force.

Table 3.6

The UAE's Labour Force by Educational Status, 1980-1990.

Educational status	1980		1985		1990*	
	Number	%	Number	%	Number	%
Illiterate	171177	30.6	185368	27.1	181612	21.0
Literate	120566	21.5	166524	24.4	194080	22.4
School graduates (primary, preparatory, secondary)	199544	35.6	232422	34.0	319565	36.9
University undergraduates	18172	3.2	28387	4.2	58711	6.8
University graduates	46312	8.3	64678	9.5	101332	11.7
Post-graduates	4172	0.7	6266	0.9	11000	1.3
Not stated	17	0.0	180	0.0	-	
Total	559960	100	683825	100	866300	100

Sources:

- 1- Ministry of Planning, UAE, (1988), *Annual Statistical Abstract 1982-1987*.
- 2- Ministry of Planning, UAE, (1992), *Annual Statistical Abstract 1992*.

* Official estimate, MoP (1992).

Table 3.7 breaks down the UAE economy's demand for labour by professions and occupations. It shows that professionals and technicians in the UAE economy, in the mid 1970s, were only 7% of the total work force. The mid 1970s witnessed some crucial events such as the formation of the UAE on December 2nd 1971, a period of oil extraction and exportation, the abrupt increase in oil prices in 1973, and ultimately the country's first steps towards economic development, during which time educational institutions were being established and UAE citizens, most of whom were illiterate, were just beginning enrolment in schools.

The demand for semi-skilled workers, such as clerks, sales workers, service workers (32% of the total work force) exceeded the country's supply of labour. Consequently, the UAE needed to import foreign labour (skilled and unskilled) to satisfy the economy's demand for labour. Gerschenkron (1962) pointed out that for most presumed prerequisites for economic development there are usually "*substitutes*". The most common substitute for domestic labour with a lack of relevant experience is arrived at by importing foreigners (who have the required experience) to fill the gap.

Table 3.7

The UAE's Labour Force by Main Occupation,
1975, 1980, 1985, 1990.

Occupation	1975	1980	1985	1990
Professionals and technicians	22,023	55,695	76,472	100,793
Administrative and managerial	5,839	11,709	14,557	18,435
Clerks and related workers	30,769	73,206	81,531	88,816
Sales workers	17,930	33,770	52,193	79,272
Service workers	46,143	93,189	141,904	231,412
Agricultural workers & fishermen	13,529	25,587	48,927	85,803
Production workers, operators, labourers	153,436	264,126	264,478	257,831
Occupation not adequately defined	136	68	2	-
Not stated	431	171	524	-
Unemployed	3,552	2,439	3,237	3,938
Total	293,788	559,960	683,825	866,300

Sources:

- 1- Ministry of Planning, (1988), *Annual Statistical Abstract*, Table 35, p.72.
- 2- Ministry of Planning, (1992), *Annual Statistical Abstract*, Table 64, p.104.

Stern (1991) argues that in addition to physical capital accumulation and inputs of human capital, other inputs such as research, development and innovation, management, and organization are important determinants of economic growth, providing greater output from given inputs. Foreign skilled labour has provided the UAE with the required management skills and knowledge, which have contributed significantly to the UAE's economic development.

Professional and skilled personnel are usually hired through the so-called "*foreign contract*", whereby required skills are advertised internationally on the basis of very attractive and competitive remuneration which includes return air tickets (including those for dependants); provision of accommodation; educational tuition for children; paid telephone, water, and electricity bills; social and sports clubs membership; and other financial benefits which vary according to the importance of the required skill and to the employment policy of the hiring authority.

On the other hand, foreign unskilled labour (construction labourers, domestic helpers, gardeners, agricultural workers, etc.) are imported from many developing countries, particularly from India, Iran,

Pakistan, the Philippines, and Sri Lanka, to meet the country's demand for such labour.

Unskilled workers are hired through private employment agencies at much lower wages, which reflect their opportunity cost in their countries of origin. For example, a Sri Lankan or Indian housekeeper's monthly salary (excluding accommodation, clothing, and food, and a return air ticket every two years) is 300 Dh; a Filipino housekeeper's monthly salary is 550 Dh; while for other housekeepers from Egypt or Morocco the monthly salary reaches 1,500 Dh.

Although these wages based on opportunity costs may be regarded as unfair, if not unethical, our purpose is only to underline the sources of the unlimited supply of foreign labour (in quantity and quality) to support the argument that a shortage of indigenous labour in the UAE has never been an obstacle to economic development. Coincidentally, however, discriminative wages may turn out to be one of the factors which have contributed to the distortion of the labour market. Foreign labour (highly educated, skilled, or unskilled) is an internationally tradeable commodity, for which the UAE is in desperate need. This trade has facilitated the UAE's economic development. Once again, Adam Smith,

the father of modern economics, has been proved right. Trade is the key to economic development.

3.4.1.1- THE NON-NATIONAL LABOUR MARKET

Owing to the success of the UAE's liberal policies in recruiting foreign labour without difficulty at all levels (skilled and unskilled), the supply of foreign labour can be regarded as elastic. A two-tier labour market has emerged in the UAE. Foreign labourers are brought to the UAE through a sponsorship system. Their wages are determined by the opportunity cost of labourers in their country of origin, not by market forces in the UAE. Furthermore, wages are not determined by any form of collective bargaining (that is, the process by which unions and management settle upon the terms of a labour contract) since labour unions and strikes are prohibited in the UAE. Instead, protection, security, and the welfare of all workers is in theory guaranteed by the UAE's employment laws.

Ghanem (1992) argues that because the UAE's labour market is not a closed one but extends to other countries which provide virtually unlimited supplies of labour, it is not reasonable to expect the market to provide price signals to indigenous labour.

The situation is further complicated because foreign labour from developed countries is either highly educated, skilled, and more experienced than domestic labour or unskilled (mostly from low income countries) where opportunity cost is low.

The most important characteristic of the UAE's labour force is the magnitude of expatriate labour, which has overtaken indigenous labour in the private sector. The unlimited supply of foreign labour has not only prevented an increase in the wages of UAE citizens, but has also made it difficult for them to secure jobs in the private sector.

3.4.1.2- THE UAE'S INDIGENOUS LABOUR MARKET

In the oil sector and publicly-owned industries, and in the government sector (public sector), UAE citizens have a right to replace expatriates. UAE nationals are assumed to have priority over non-nationals in government jobs, irrespective of academic qualifications and experience requirements. Furthermore, UAE nationals enjoy high salaries coupled with yearly promotion. UAE citizens working in the public sector, the oil sector, and all public-owned enterprises are also covered under a generous pension and social security scheme. The characteristics and

privileges of the UAE's indigenous labour force are discussed in detail below in Section 3.5.

UAE citizens who work in the private sector usually work in family-owned businesses. Some of those who work in the public sector (including professionals, such as engineers and physicians) may also work in the private sector after fulfilling the required number of working hours in their public-sector employment.

3.4.2- FEMALE LABOUR MARKET IN THE UAE

According to Table 3.5, female participation in the UAE's labour force was 141,444 out of the total work force of 866,300 in 1990. Females accounted for 16.3% of the UAE's labour force in 1990. In industrialized countries, females account for about 40% of the labour force.

In addition to population size and age composition, religious and social factors in the UAE have a great impact in determining the size of the UAE's labour force.

In the pertinent literature, social factors are claimed to limit the job horizons for UAE women. These factors can be summarized as follows:

- a- marital status. Married women are discouraged from labour force participation by their conservative husbands [Nasser and Yaghmoor (1984)].
- b- there is constitutional and political discrimination against women [Al-Awadi (1985)].
- c- discrimination may exist against women, such as the claim that women cannot perform dangerous jobs, particularly in the oil fields, rescue and fire fighting, and remote industrial zones [Sloane (1985)] (though the UAE Government has successfully recruited females in the police and armed forces).
- d- there is prohibition against women's work on night shifts in many industries. In the UAE women are allowed to work night shifts only in special cases specified by article 28 of the labour act of 1980, such as in the health services.
- e- there are doubts about the willingness of women to work. For example, a large number of the women in the UAE no longer perform even domestic duties. Ghanem (1992) argues that the availability of cheap Asiatic housemaids has made it possible for some UAE females to take up jobs, but has converted many others into ladies of leisure.

Nevertheless, the picture of working women in the UAE is not so disappointing as it might appear at first sight. For religious and social reasons, legislation exists to enhance female participation in

the UAE's work force. There may also be the desire to provide incentives for greater labour force participation. For example:

- Article 35 of the Provisional Constitution of the UAE states that access to government jobs is open to all UAE citizens on an equal opportunity basis.
- Article 32 of the Federal Labour Act, Number 8, of 1980, states that " ... a women has to be given the same salary as a man working in the same job."
- Article 51 of the Federal Civil Service Bill of 1973 grants working women 45 days' paid maternity leave.
- Article 52 of the Federal Civil Service Bill of 1973 grants a working woman whose husband dies four months' and ten days' (130 days') paid leave for mourning (Muslim women only).

In addition, there are a few UAE females who have reached very senior posts, such as Assistant Under Secretary of a Ministry. Females in the UAE also work as university lecturers, teachers, physicians, dentists, engineers, and in administrative, managerial, and other professional and technical posts. In 1990, the government sector (community, social, and personal services) employed 124,386 females, which accounted for 87.9% of all females in the work force, and 14.4% of the UAE total work force in 1990 (see Table 3.8).

Table 3.8

The UAE's Labour Force by Sex and Industry, 1990.

Industry	Males	Females	Total
Agriculture, fishing	98,894	48	98,942
Mining, Quarrying & petroleum extraction	14,103	772	14,875
Manufacturing	73,467	1,854	75,321
Electricity, gas, & water	15,802	73	15,875
Building & construction	75,113	665	75,778
Trade, restaurants, hotels	103,900	5,596	109,496
Transport, storage & communications	51,669	2,637	54,306
Finance, insurance, real estate, business services	30,880	4,591	35,471
Community, social & personal services	257,912	124,386	382,298
Unemployed	3,116	822	3,938
Total	724,856	141,444	866,300

Source: Ministry of Planning, (1992),
Annual Statistical Abstract.

3.4.3- LABOUR FORCE SHARES IN ECONOMIC SECTORS

Sectoral allocation of the labour force has been the interest of many economists, such as Fisher (1939), Clark (1940), Chenery and Syrquin (1975), and others (see Chapter Six).

Table 3.8 shows the distribution of the UAE labour force by economic sector and sex in 1990. It reveals that 44.1% of the labour force (382298) are engaged in public administration (Federal and Local Governments), defence, community, social, and personal services. Thus, the public sector is the major direct and indirect employer of both UAE citizens and non-nationals.

According to the definition of service-based industries which includes wholesale and retail trade, restaurants, hotels, transport, storage, communications, finance, insurance, real estate, and business services, the service-based sector ranks second place in size of employment (in 1990), engaging 199,273 employees (109,496 in trade, restaurants, and hotels; 54,306 in transport, storage, and communications; plus 35,471 in finance, insurance, real estate, and business services), or 23% of the labour force, which reflects the powerful dominance of the service-based sector in the UAE.

The oil sector employs only 1.7% of the UAE's labour force, reflecting its capital-intensive nature.

In 1990, the unemployment rate in the UAE was 0.5%, a very impressive mere 3,938 unemployed, which means that the UAE economy is virtually at full employment.

Table 3.9

**The Labour Force in the UAE by Economic Sectors,
1975, 1980, 1985, 1990**

Sector	1975	1980	1985	1990
Mining & oil	6,862	11,852	13,985	14,875
Manufacture	17,127	34,875	50,674	75,321
Agriculture	13,372	25,613	51,867	98,942
Construction	93,575	154,978	113,002	75,778
Electricity & water	6,249	10,952	14,317	15,875
Trade, restaurants, hotels	37,506	74,332	96,943	109,496
Finance, insurance, real estate, and business services	5,980	14,946	23,200	35,471
Transport, storage, and communications	23,536	42,038	51,138	54,306
Community, social, & personal services	85,451	187,696	264,814	382,298
Others (undefined activities)	49	32	18	--
Not stated	529	207	630	--
Unemployed	3,552	2,439	3,237	3,938
Total	293,788	559,960	683,825	866,300

Sources:

- 1- Ministry of Planning, (1988), *Annual Statistical Abstract 1988*.
- 2- Ministry of Planning, (1992), *Annual Statistical Abstract 1992*.

3.4.4- LABOUR FORCE BY REGIONAL DISTRIBUTION

The 1985 population census indicated that the total UAE labour force was 683,825. Abu Dhabi Emirate comprised the largest constituent part with an economically active population of 297,406 (43% of the total). This emphasizes the primacy of the financial and economic position of the Emirate of Abu Dhabi in the UAE, due to the fact that she is the largest oil and gas producer in the UAE. Dubai and Sharjah had labour forces of 200,963 (29% of the total) and 104,026 (15% of the total) respectively. The labour force of the other Emirates, Ras Al-Khaimah (36,801), Ajman (21,327), Fujairah (15,056), and Umm Al-Qaiwain (8,246), comprised the remainder (13% of the total).

About 81% of the labour force (555,201) in 1985 worked in urban areas, while the remaining 19% (128,624) lived and worked in rural areas. This reflects the close relationship between the share of urban population and the sectoral composition of employment [Chenery and Syrquin (1975)]. The trend towards urbanization, accompanying industrial development, is evident in their cross-country comparisons.

In addition, the clustering of public services, industrial zones, transport and communications

facilities, financial markets, and other domestic and international service-based industries mainly in the cities, coupled with the completion of the infrastructural base, have contributed to the high rate of urban employment in the UAE.

3.5- "BIASED DOMESTIC LABOUR FORCE" (BDLF)

3.5.1- DEFINING BDLF

High wages in the oil sector, and in the public sector (civil service), plus increased expectations regarding income and job stability, draw nationals (UAE citizens) out of other sectors. This becomes a critical issue, especially in oil-producing countries (with small populations) where the offer of a secure job to nationals is a political obligation.

Resource-based industries and the government service are two of the options available to governments wishing to fulfil obligations in terms of secure jobs for nationals. In early 1993 the Ministry of Labour estimated that UAE nationals accounted for about 30% of government posts, the figure in the private sector being much lower. The picture is that ministries in the government sector are "overmanned" with indigenous graduates in disguised unemployment. The political need to provide secure and permanent

jobs for nationals has increased the opportunity cost of domestic labour even where marginal productivity is low.

Moreover, political obligations appear to have had negative effects on the attitudes of domestic labour. Political commitment has infused an illusive self-esteem into the domestic work force. One manifestation of this has been that the domestic work force (nationals) compete for control of the top and middle administrative positions in two sectors of the economy - the natural resource-based sector and the government sector - leaving skilled technical positions (machine operators, maintenance, electricians, etc.) and supportive positions (secretaries, clerks, telephone operators, etc.) to foreign labour. For simplicity in this thesis we will refer to this phenomenon as "*biased domestic labour force*" (BDLF). A BDLF is the remarkable employment pattern discernible in rich oil-producing countries with small populations, where securing state-owned jobs for nationals is a political commitment. Huge revenues from resource-based industrialization, used to finance political obligations, has fuelled this phenomenon.

3.5.2- FINANCING BDLF

The financing of BDLF has been through high remuneration, incentive allowances, social security allowances, and generous pensions. For example, a typical UAE graduate citizen with no previous experience, working in the government sector, earns 4,200 Dh monthly as a basic salary, which increases to 12,000 Dh (for a position as under-secretary). In addition, the following allowances are added to the basic salary:

transport allowance, 500 Dh; social allowance, 800 Dh; child allowance, 300 Dh per child; accommodation allowance, 2000 Dh; inflation allowance, 500 Dh. Thus, a fresh, inexperienced UAE graduate citizen working in the public sector (with one child) earns a gross monthly salary of 8,300 Dh (99,600 Dh per annum).

It should be noted, however, that this monthly salary (8,300 Dh) is a standard monthly salary for a typical UAE graduate citizen with no experience; thus, salaries are higher for experienced employees and employees holding certain jobs (director, adviser, consultant, under-secretary, secretary) which attract a maximum monthly salary of 32,000 Dh.

In addition, a lump sum of 30,000 Dh is paid for a UAE citizen as furniture allowance for the first

four years in service, that is 625 Dh on average monthly. Furthermore, a free car is provided, including its petroleum consumption and maintenance, to citizens who hold senior posts. UAE graduate citizens in managerial positions are also entitled to two free telephones, one for office use and another for residence use, including telephone bills - 400 Dh and 200 Dh for office and residence use respectively.

Therefore, a typical UAE graduate citizen working in the government sector receives direct monthly income equal to 8,300 Dh and indirect monthly income (associated with the salary) equal to 1,225 Dh, which add up to 9,525 Dh as total direct and indirect monthly salary, that is 114,300 Dh per annum.

An average UAE indigenous graduate employee with one child earns direct and indirect income of US\$ 31,100 per annum (tax free). Personal income tends to equal disposable income in the UAE.

The World Bank (1991) recorded the per capita income for the UAE as US\$ 31,660 in 1981, one of the highest per capita incomes in the world.

Regarding retirement and pensions, UAE pensioners are entitled to a life-time monthly allowance equal to the sum of the last basic salary. In the event of the

beneficiary's death, the pension allowance extends to his (her) family, or next of kin, until the youngest child reaches the age of eighteen.

Furthermore, UAE citizens, working only in the government sector, are entitled to an overseas scholarship (tuition fees, return air tickets, health insurance) to pursue further studies and research (a Master or PhD programme) with full paid salary.

The years spent on a research programme do not affect the employee's rights in salary or job promotion, but rather they are added to the total years of service. After graduation, an extra five years work experience is credited for those who hold an MSc degree, and ten years for those who hold a PhD degree. Thus, an employee with an MSc or PhD degree will be promoted, will carry greater responsibilities, be given a prestigious job title and, consequently, a higher salary.

For those who do not wish to pursue further research, attending local or overseas seminars is essential for promotion. Therefore, seminars are widely encouraged, and a 200 Dh daily allowance is granted for the seminar's duration. A standard English language course, from 3 to 6 months, which usually takes place in the UK or the USA, is

considered a seminar. All scholarship benefits are awarded in addition to the daily allowance.

In short, given the extraordinary financial incentives for the UAE indigenous labour force, when working in the government sector, it is to be expected that the UAE labour market exhibits distortions.

3.5.3- HANDLING BDLF

Employment in the public sector, where the cost of labour exceeds its marginal product, can be viewed as a means of redistributing oil wealth to the indigenous population. However, the following issues arise:

- a) how practical is it to concentrate on the indigenous labour force in the government sector, bearing in mind the need to balance equity and efficiency?
- b) can the private sector (or other sector, e.g. knowledge-based services) be developed to provide employment opportunities for UAE nationals?

Employees in the public sector do have jobs, but the contribution of nationals to output is small. With some reallocation of resources and improvement of institutions, the indigenous labour force could be made more productive (see Chapter Nine). However,

politically, this is a major challenge for development policy.

3.6- CONCLUSION

The UAE population is small. However, after the discovery of oil and its exportation in the last two decades, the UAE population has experienced very rapid growth, the result of a combination of high natural rates of increase in the UAE's indigenous population and massive inward migration of expatriates, who comprise more than three quarters of the population. Thus, a small indigenous population, a large expatriate population, and immense wealth generated by oil are the dominant socio-economic features of the UAE.

Expatriates have created new demands in terms of housing, social and physical infrastructure, and other services.

The population's age and sex structure is very uneven and characterized by a) a high proportion of males (69%) compared to females; and b) a young age structure whereby the majority of the population (85%) is under the age of 40.

A two-tier labour market has emerged in the UAE, comprising the indigenous labour force, which constitutes about 10% of the total work force, together with an unlimited supply of foreign labourers.

The UAE has reaped benefits from foreign skilled and unskilled workers not only in the initial stages of its economic development (in the early 1970s), but also as a means of sustaining it.

In the government sector, UAE citizens have an advantage in replacing expatriates and are given priority over non-nationals in government jobs, notwithstanding academic qualifications and experience. They have high salaries coupled with yearly promotion.

In addition to the population's size and age composition, religious and social factors in the UAE have a great impact in determining the size of the UAE's labour force. Female participation in the UAE's labour force is very small (16.3%). However, incentives and legislation have strived to enhance female participation in the UAE's work force.

The UAE is highly urbanized. This may be attributed to the clustering of public services,

transport and communications facilities, financial markets, and service-based industries in the cities as well as to the completion of the economic and social infrastructure.

The young age structure of the UAE's population will create an increased demand for physical and social facilities, in particular, a demand for education and health facilities. This requires the construction of new facilities and ongoing expenditure to operate these facilities.

A second implication is the necessity to create employment opportunities, after adequate training, for the growing number of UAE nationals who will be entering the labour force.

In a country such as the UAE where indigenous female participation is low, the possibility of greater female participation is an attractive avenue to increase the UAE's indigenous labour force and to reduce the country's dependence on foreign labour.

High wages in the public sector increase expectations regarding income and job stability, and draw UAE citizens out of other sectors causing BDLF. The use of huge oil revenues in financing political obligations has augmented this phenomenon. BDLF is

associated with high salaries, incentive allowances, social security allowances, and generous pensions. These have contributed to the distortion of the labour market in the UAE.

PART II:
DEVELOPMENT PERFORMANCE

CHAPTER FOUR:
INDUSTRIAL DEVELOPMENT

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4.1- INTRODUCTION

Part II of this thesis examines the development performance to date of the UAE, as a necessary prelude to delineation and discussion of possible alternative development strategies for the twenty-first century. Essentially, the thesis explores three aspects of development performance to date: industrial development, human development, and the process of structural change. Reviewing experience to date provides clues as to likely successful (and less successful) strategies for the future and provides a basis for the alternative strategies set out in Part IV of the thesis.

The purpose of Chapter Four, dealing with industrial development, is to provide a general profile of the industrial sector in the UAE. The chapter reviews the UAE's industrial development after the formation of the UAE in 1971. In addition, it addresses the question of the various obstacles to industrialization in the UAE. Finally, the chapter presents the main industrial indicators for the UAE. The chapter concludes with a review of the impact of the UAE's industrialization on regional growth.

In the pertinent literature, the term "*industry*" has been defined in many ways. However, the terms "*industry*" and "*industrialization*" will be used in

this chapter to denote manufacturing activity, that is, the activity of transforming raw materials into semi-fabricated or fully-fabricated products, including activities such as product mixing, assembling, disassembling, filling or packing.

4.2- INDUSTRIALIZATION AND DEVELOPMENT GOALS

On the basis of historical experience, economic development and industrialization tend to be taken as synonymous. Early development literature claimed that economic development could be achieved only through substantial capital accumulation and rapid industrial development. The dominant criterion for economic development was the rise in per capita income brought about by industrialization. Industrialization was seen as a key to increasing per capita income. It became a goal of many developing countries fuelled by the desire to reduce dependency. Manufacturing was the recipe for development, providing opportunities for efficient import substitution and increasing exports.

After the intensive efforts directed to industrialization in the developing countries since the end of the Second World War, much literature is now critical of these efforts. Pack (1988) described

the effects of the emphasis on expanding the manufacturing sector as resulting in inefficient and in-egalitarian growth with deleterious impacts on other productive sectors such as agriculture. He attributed much of this inefficiency to poor management and inappropriate technology. Nevertheless, he concluded optimistically that trade liberalization and improvements in technological capacity could result in the emerging of a competitive industrial sector in many countries.

4.3- INDUSTRIALIZATION AND STRUCTURAL CHANGE

Many attempts have been made to identify and analyze by quantitative methods the structural changes that occur in the process of growth and development. This is particularly the case for industrial development, where the objective has been to identify a consistent pattern of industrial development. Following the pioneer work of Simon Kuznets in the field of historical studies of growth and transformation, Chenery and Taylor (1968), by applying more formal econometric methods, tested the hypothesis that there are uniform patterns of change in the structure of production as income levels increase.¹ The use of the term "*structure*" in development

¹ See, for example, Kuznets (1957, 1966).

economics refers to a change in the relative importance of sectors in terms of production and factor use (see Chapter Six).

Modern economic growth is associated with changes in the structure of trade, production, factor use, product use, employment, location of economic activity, and other economic and demographic variables [see, for example, Kuznets (1957, 1966) and Chenery (1960), (1979), Chenery and Taylor (1968), Chenery, Robinson, and Syrquin (1986), Chenery and Syrquin (1975), Syrquin (1988), Syrquin and Chenery (1986)]. The most dramatic change in economic structure is the decline in the share of the primary producing sectors (particularly agriculture) and the rise in the share of industry (particularly manufacturing industry) in output, exports, and employment. Chenery (1980) defines the "*structural transformation*" of developing countries as the period in which the rising share of manufacturing in GNP approaches that of primary production and a significant portion of manufactured goods begin to be exported as a source of foreign exchange. Consequently, countries that reach this stage are referred to as "*semi-industrial*" or "*newly industrialized*" countries.

The importance attached to industrialization lies in the close association that appears to exist between

real income per capita and industrialization, and between the growth of industrial output and the growth of output as a whole.

Chenery, Robinson, and Syrquin (1986) distinguish three stages of transformation:

- 1) primary production: identified by the predominance of primary activities (mainly agriculture) as the main source of increasing output of tradable goods.
- 2) industrialization: characterized by the shift of the economy from primary production to manufacturing as per capita income increases. Industrialization, therefore, is viewed as the central process of structural change in the economy. Engel's law is reported as a part of the explanation for the declining share of agriculture in GNP.² Since the main function of the agricultural sector is to produce food, it follows that the demand for agricultural output would not grow as rapidly as the demand for industrial products and services, and hence the share of agriculture in national product would decline.
- 3) the developed economy: associated with the relative decline in both the manufacturing and agricultural output.

² In the 19th century Ernst Engel discovered that as incomes of families rose, the proportion of their budget spent on food declined.

Quantitative analysis suggests that there are patterns that are broadly similar among large groups of countries. However, most economists agree that there is no single pattern of industrial development that all countries have to follow. The critics of "normal" patterns analyses have tended to focus on the assumptions that underlie these exercises and point to the data limitations and statistical problems associated with them. They question the relevance of the conclusions that can be drawn from them to assist policy formation in developing countries. Yet economists' debates on *balanced* and *unbalanced growth* predate much of the quantitative work on patterns of development.

4.4- INDUSTRIALIZATION STRATEGIES

Advocates of "*balanced growth*" [such as Rosenstein-Rodan (1943) and Nurkse (1953)] argued that countries need to develop a wide range of industries simultaneously if they are ever to succeed in achieving sustained growth. This program has been referred to as a "*big push*".

On the other hand, proponents of "*unbalanced growth*" [particularly Hirschman (1958)] argue that economic development typically follows a path of uneven growth. Hirschman stressed the impossibility

of balanced growth in the sense of the simultaneous establishment of many industries all at the same time. He pointed out that most developing countries lack sufficient resources for investing in more than one or a few modern projects at a given time. Therefore, he suggested that developing countries could concentrate their resources on a few sectors during the early stages of development. A concept which leads to similar conclusions is provided by Leibenstein (1957), who put forward the idea of the "*minimum critical effort*" necessary for development.

With the central concepts of "*linkages*" (backward and forward), Hirschman (1958, 1977) developed the idea of unbalanced growth into a general interpretation of how development ought to proceed.³ Thus, industries are linked to other industries in ways that can be assessed when deciding on a development policy. For instance, industries with backward linkages make use of inputs from other industries. An example of backward linkages effects from Hirschman (1958: p.100), is that "*every nonprimary economic activity, will induce attempts to supply through domestic production the inputs needed in that activity.*"

³ For more on the development of the linkage hypothesis with balanced growth, see Riedel (1976).

Forward linkages occur in industries that produce goods that then become inputs into other industries. Hirschman (ibid) defined forward linkages effects by stating that *"every activity that does not by its nature cater exclusively to final demands, will induce attempts to utilize its outputs as inputs in some new activities."*

The forward linkage arises when the availability of the product produced by the industry encourages new uses and generates new demands. For example, the oil industry in the UAE encouraged the adoption of a policy establishing its own refineries and petrochemical complexes rather than shipping its crude oil to other countries for processing.

It is assumed that both backward and forward linkages generate pressures that lead to the creation of new industries, which in turn create additional pressures. For Hirschman, if manufacturing (in particular early developing branches of manufacturing) are to lead to economic development, they should have more backward linkages than other sectors.⁴ Gillis et al. (1992) conclude that since the very concept of linkages is that extreme imbalances will force a country back toward a more balanced route, the

⁴ For details of attempts to measure linkages, see Yotopoulos and Nugent (1976), pp.299-306.

ultimate objective is a degree of balance in the development process.

Emerging from the fact that industrialization and trade are inextricably linked, two strategies of industrialization emerged: the import substitution strategy and the export-oriented strategy. The issue of inward- versus outward-looking strategies is also closely related to the issue of financial liberalism (free trade) versus intervention [Dornbusch (1992)]. The import substitution strategy contrasts with an export promotion strategy. The import substitution strategy concentrates on consumer goods and erects barriers to imports, in the expectation of complete integration of production domestically, stretching back to domestic raw materials.

The 1950s saw a great emphasis on import substitution as a means to industrialization and growth. This was greatly influenced by Prebisch (1950) and Singer (1950) who supported the view that developing countries had to develop a strategy that involved industrialization. They argued in favour of reducing the role of primary exports because of the low income and price elasticities of demand for primary products. The initial attraction of industrialization's potential role in fostering development lay in the perception of its favourable

characteristics: creation of employment, its continued growth via the systematic application of science, the perception that the international prices of industrial products would increase relative to those of primary products, and the externalities in the form of skill accumulation and technology acquisition which were assumed to flow to other sectors as a result of labour mobility.

"*Import substitution*", that is the substitution of domestic production for imports, is one avenue whereby a country can find a ready market for one of its own industries. Import substitution is the most widely practised and documented development strategy [Bruton (1970, 1988)]. Import substitution is viewed as an initial step towards industrialization on a limited and selective basis rather than following a large-scale balanced or unbalanced big push. Import substitution (or an inward-looking strategy) has been conceived with the idea of stimulating *infant industry* growth and self-sustained industrialization by creating backward and forward linkages with the rest of the economy.⁵ It has been argued, however, that the outcome of the import-substitution strategy of

⁵ *Infant industry*: a newly established industry usually associated with the imposition of protective barriers (tariffs, i.e. high taxes on imports) to get the new industry started, as a part of a policy of import substitution.

industrialization in many developing countries has for the most part been unsuccessful.⁶

The disappointing record of import-substituting development in many developing countries has led to a gradual shift towards export-led growth, in favour of industries assumed to have a comparative advantage. Therefore, as long as it is favoured by expanding world trade, export-led growth (or outward-looking strategy) is considered to be a much more successful development strategy.

On the basis of cross-sectional data, Chenery (1979) observed that import substituting industrialization has typically been preferred by large economies, and in general it has been the smaller countries that have followed the outward-looking, export-oriented strategy of industrialization. Therefore, if the natural resource base and size of the domestic market are limited, continued industrial expansion will require production for export markets at an early stage. Export-oriented industrialization, therefore, is another way for industrialization to proceed.

⁶ For further analyses and critiques of import-substitution policies in LDCs, see Little, Scitovsky, and Scott (1970), and Schnitz (1984). In defence of import substitution, see Bruton (1988).

Balassa (1978) argued that the pursuit of an export-oriented industrialization strategy will generate a better growth performance than import-substitution industrialization. He further explained:

"This result is said to obtain because export-oriented policies, which provide similar incentives to sales in domestic and in foreign markets, lead to resource allocation according to comparative advantage, allow for greater capacity utilization, permit the exploitation of economies of scale, generate technological improvements in response to competition abroad and, in labour-surplus countries, contribute to increased employment." [Balassa (1978), p.181].

Kirkpatrick et al. (1984) warned against the danger of "over-generalization" and "over-simplification" in the formulation of development objectives and policy instruments for the industrial sector. They concluded that it cannot not be assumed for all cases that import-substituting industrialization has failed and thus should be abandoned or that export-oriented industrialization similarly has been successful for all cases and thus should be adopted. However, they emphasized that industrial planning has often been unsuccessful, and should be "terminated".

4.5- RESOURCE-BASED INDUSTRIALIZATION (RBI)

Two industrial strategies that are based on utilization of natural resources have received emphasis in the developing countries: (i) further processing of raw materials for export and (ii) utilization of domestic resources mainly for domestic consumption.

Resource-based industrialization (RBI) is the further processing of a country's natural resources, such as the processing of fuel minerals (crude oil) into refined petroleum and other oil products, the processing of minerals into metals, and timber into wood products. The definition of RBI includes energy-intensive industries that require substantial amounts of resource-based inputs in the production process, such as aluminium smelting, oil refining, gas liquefaction, and petrochemicals. This section attempts to shed light on the potential contribution of RBI to efficient growth, employment creation, and economic independence.

Studies of RBI go back to the early 19th Century. The study by Jevons (1906) stated that the rapid rise in the economic growth of Great Britain during the preceding 100 years had been based in large part on the use of coal. He deduced that growth in industrial

output and advantageous foreign trade could not be maintained at past rates as coal resources were being depleted. The initial quantity of coal in the nation was fixed. However, there was the possibility of the development of substitute fuels, such as petroleum, and of technical progress in discovery and extraction. Discoveries of new reserves were a further possibility.

In order of 1971 trade volume, natural resources accounted for 13 of the leading 20 commodities in world trade: crude petroleum, petroleum products, copper, wood, iron (ore and concentrates), coffee, aluminium, coal, rubber, cocoa, natural gas, tin, and lead; and for 85% of the value of these 20 commodities (72% excluding petroleum) [UN (1975)].

The dominant costs in all resource-based industries are capital charges and the costs of raw material inputs. Processing tends to have high capital-labour ratios. Therefore, countries with cheap capital such as the industrial countries and, more recently, the oil-exporting countries appear to have a comparative advantage. Because resource-based industries are not labour-intensive, their contribution to direct or indirect employment creation is likely to be small [Roemer (1979)].

The oil shocks presented the oil-exporting countries with massive reserves of capital surplus with the option of using the huge oil windfall to increase overseas investment sharply and draw on the rents to boost domestic consumption [Stauffer (1985)]. Conceptually the choices open to a government in utilizing mining rents are to spend on consumption (private, through subsidies, transfer or reductions in other taxes, or public) or to build up assets domestically, i.e. human or physical capital, or to acquire financial assets at home or abroad.

Mineral booms tend to foster patterns of consumption and investment which are difficult to curb during subsequent downswings [Wheeler (1984)]. For example, the injection of oil revenues into the UAE's domestic economy took the form of investment in infrastructure (schools, hospitals and clinics, domestic and international transportation and communication networks) and public spending in providing free social services (free education, free health care, subsidized or free turn-key housing, free or 50-per-cent-subsidized agricultural inputs to farmers, subsidized utilities [water and electricity], and generous pensions).⁷ This pattern of government

⁷ Ministry of Planning, (1987), *Economic and Social Changes in the UAE, 1975-1985*.

spending was difficult to restrain after subsequent downswings in the post-1980s oil prices.

Auty (1990) in his literature survey of RBI stated that RBI lacks the flexibility for successful export-led growth. RBI on its own, Auty concluded, is not an effective vehicle for accelerating economic growth, or for promoting healthy structural change and geographical decentralization. RBI, therefore, must be a part of a broader development strategy which promotes the non-resource tradeable sectors. This confirmed the earlier finding of Roemer (1979) that RBI is not better suited to achieve national development goals than other potential strategies.

Industrialization began in the UAE in the form of small import substitution units producing bottled soft drinks, household utensils, furniture, and some building materials. Export-oriented industries, such as aluminium smelting, chemical fertilizer plants, and other petrochemical industries, were later established as a result of the UAE's comparative cost advantage in oil resources. After reviewing industrial development in the UAE, however, this thesis investigates the possibility of alternative development policies which are examined in Part IV.

4.6- RBI, BARRIERS TO ENTRY, AND TRADE

The main barriers that face countries embarking on RBI are technology, investment, and markets. The literature concludes:

- 1- that technological transfer is not an insuperable barrier even for a small country especially in the case of joint-ventures with an experienced multinational. The dominance of multinational firms, especially in the metal industries, presents a formidable barrier to developing countries' entry into processing for export. Multinationals may enjoy lower costs owing to economies of marketing, management, and diversification [Roemer (1979)]. Therefore, multinational corporation partners provide access to technology and international markets for new state enterprises.
- 2- oil windfalls, especially in the boom periods of 1973-74 and 1979, permitted even the smallest countries to execute large RBI projects.
- 3- the market entry barrier is the most difficult to overcome even for countries with a sizeable domestic demand. Market access is the dominant requirement for successful RBI where the principal market is international, not domestic.

In other words, barriers to entry are mainly international in scope. RBI and trade policies are, therefore, inextricably linked.

In the case of countries with small populations, where resource-based exports are the main vehicle for economic development, choosing an appropriate trade policy is a vital decision for successful RBI.

The vent-for-surplus theory suggests that export markets make possible greater output by permitting greater utilization of some previously under-used resource [Myint (1958)].

The staple theory addresses the issue of the potential stimulus to the economy in terms of further growth and development arising out of the rapid expansion in exports of some commodity exports that require a substantial input of natural resources but relatively little domestic processing [Watkins (1963)]. The resource-based product is called a staple, and the term is used to name the model.

4.7- RBI AND "DUTCH DISEASE"

During the 1970s, many developing countries enjoyed export booms, yet the long-run impact on development was disappointing. Formal analysis of *Dutch disease* can be helpful in understanding why booming primary export industries frequently have adverse consequences on other sectors of the economy,

particularly other tradeables.⁸ A primary export boom triggers Dutch disease effects, which may weaken the non-mineral tradeable sector (agriculture and manufacturing) and so work against diversification efforts. It is the influx of foreign exchange that causes this syndrome, Dutch disease. Roemer (1985) adds that this syndrome can also result from large inflows of foreign capital in any form.

However, this thesis argues that Dutch disease is not a widespread epidemic that indiscriminately afflicts all export-led economies. For instance, the UAE, a rich oil-exporting country with a small population, did not suffer from Dutch disease. Rather, value added in agriculture, livestock, and fisheries have been increasing yearly owing to huge government subsidies. Nonetheless, it is important to recognize that the agricultural sector's contribution to the UAE's GDP does not exceed two per cent. Secondly, the agricultural sector is not regarded as an important vehicle for economic development in the UAE. Finally, the service sector experienced a conspicuous boom (see Chapter Six).

⁸ Dutch disease is analyzed from a theoretical standpoint by Cordon and Neary (1982). The application of this theory to LDCs is explored by Roemer (1985).

4.8- INDUSTRIAL ACTIVITIES BEFORE THE OIL ECONOMY

Before exporting oil in the late sixties, industries in the UAE depended mainly on the building of wooden ships and simple traditional handicrafts [Al-Oteibah (1977)]. Most of the handicrafts were related to marine industries such as the weaving of sails, and the manufacture of pearl-diving and fishing equipment. Other traditional handicrafts were swords, daggers, silver ornaments, ceramics, earthenware, and pottery. Most of these simple handicrafts were one-person enterprises, sometimes assisted by members of the family.

The period before the discovery of oil reflected the limited natural resources available and a simple nomad economy. The economy of the UAE depended mainly on the extracting of and trade in pearls, fishing, subsistence agriculture, nomadic animal husbandry, seafaring, and trade.

4.9- RATIONALE FOR UAE INDUSTRIALIZATION

In the process of economic development, industrialization has been considered as crucial to transition. Industrialization is linked to the idea of stimulating forward and backward linkages with the rest of the economy. In addition, industrialization

creates new employment opportunities. The trend towards urbanization with industrial development is evident in Chenery and Syrquin's (1975) cross-country comparisons (see Chapter Three).

In common with other developing countries, the UAE, whose economy has been significantly dependent on the export of one primary product, namely oil, pursued the industrialization strategy to diversify the sources of its national income and reduce its dependence on oil. UAE official statements, and particularly the UAE National Social and Economic Development Plan 1981-1985, emphasized that the rationale for industrialization in the UAE was: first, to "correct" the structure of an economy in which the oil sector accounts for more than two thirds of the GDP; and secondly, to diversify the sources of national income. Industrial incentives in the UAE have tended to encourage industries which have been based on the UAE's natural resources. Because of the very limited agricultural potential of the UAE, unsuitable land, water scarcity, and harsh climate, industrialization has been a reasonable development strategy for UAE policy-makers.

4.10- OBSTACLES TO INDUSTRIAL DEVELOPMENT

This subsection considers the main factors which have acted as a constraint on UAE industrial development, namely, limited raw materials and the small size of the domestic market.

4.10.1- LIMITED NON-MINERAL RESOURCES

In the UAE natural resources, other than oil and gas, are very limited. For example, agricultural resources are almost absent in the UAE because of unsuitable land, limited water resources, and the arid climate. The option of agro-based industries is not available.

However, the experience of some other countries which lack natural resources indicates that this does not necessarily impede a country's pursuing industrialization. Japan, for example, has one of the most successful industrialized economies though it lacks many raw materials. Raw materials can be imported. For instance, the UAE has a large aluminium smelter in Dubai. This relies entirely on imported bauxite. This particular industry is an energy-intensive industry and energy is a resource in which the UAE has a comparative advantage. The importance of low energy costs justifies the siting of aluminium smelters in countries with low-cost energy.

4.10.2- SMALL SIZE OF THE DOMESTIC MARKET

The population of the UAE is very small compared to the country's area and to its huge mineral resources. The UAE's domestic market is extremely small and constitutes a major constraint on industrialization based on import substitution.

Murphy, Shleifer, and Vishny (1989) maintained that one of the many causes of lack of growth of developing countries is the small size of the domestic market. The small size of the domestic market is an important and frequently discussed constraint on industrialization. Chenery, Robinson, and Syrquin (1986) examined the change in domestic industrial output over the period from the early 1950s to the early 1970s, for rapidly growing economies. Their findings pointed to a dominant share of domestic demand in the growth of industrial output. In countries with populations over 20 million, expansion of domestic demand accounts for 72-74 per cent of the increase in industrial output (Chenery, *op. cit.*).

Although the rapid economic development of the UAE has attracted substantial inward migration of expatriate workers, the UAE population increased to only 2.01 million in 1992. This modest population figure yields a small domestic market. Coupled with vast oil and gas reserves, this has led the UAE's

policy-makers to the realization that import substitution can have only limited scope in an economy like that of the UAE. Instead, there has been a tendency to promote export-oriented industrialization. Consequently, most of the UAE's industrial exports have been vulnerable to international competition.

The UAE frequently affirms its commitment to free trade and repeatedly resists appeals from industrialists to introduce protectional policies. Nevertheless, the absence of industrial protection in the UAE has forced the UAE industrial firms to maintain products of high quality standards in order to compete with well-established imported products.

4.11- THE BASIS OF AND INCENTIVES FOR INDUSTRIALIZATION

4.11.1- MINERAL RESOURCES

Oil reserves in the UAE, 98,100 million barrels, are estimated to last for more than 134 years at an extraction rate of 2 million barrels a day. Oil is exported in its crude form, constituting more than 70% of the UAE's exports. Only a small portion is refined in the UAE for domestic use.

Despite being a major producer of crude oil, the UAE was a net major importer of petroleum products

before 1984 when the UAE's only oil refinery had a limited capacity of 15,000 barrels per day at Umm Al-Nar, in Abu Dhabi. However, as a result of the UAE's industrialization strategy, the situation changed after the establishment of a major oil refinery in Al-Ruwais with a capacity of 120,000 barrels a day and the upgrading of Umm Al-Nar oil refinery to 60,000 barrels a day. Consequently, domestic production of petroleum products, which increased from 0.5 million tons in 1980 to 10.4 million tons in 1989, has exceeded domestic demand, with the residual being exported. Exports of petroleum products increased from 4.6 million tons in 1985 to 6.7 million tons in 1990.

In addition, gas in the UAE, whose proven reserve is 5,794 billion cubic feet (in 1992), is used as the main raw material for petrochemical industries as well as a low-cost source of energy, particularly for energy-intensive industries. Most of the extracted gas currently produced in the UAE is associated gas, an unavoidable by-product of crude oil. If gas is not commercially utilized, it needs to be flared, which wastes a valuable energy source.

In short, the abundance of oil and gas reserves has been the main resource and incentive for the UAE's industrialization.

Other mineral resources, found in relatively small quantities, are limestone, marl, mica, gypsum, and chromium. Limestone, sands, marl, and gypsum are used to manufacture cement. Limestone is also used as a building material for hardcore and for constructing harbour jetties. Sands and coarse aggregates are used in the manufacturing of cement blocks. During the construction boom in the early 1970s, there was considerable demand for this type of product and for cement manufacturing and building materials.

4.11.2- FINANCIAL CAPITAL

Whereas for most developing countries financial capital is still the greatest constraint on their development, huge oil revenues have provided the UAE with sufficient financial capital to initiate its industrial development.

The abundance of oil revenues has encouraged the UAE Government to promote capital-intensive industries, particularly hydrocarbon-based industries, such as refineries, gas liquefaction plants, and aluminium smelting. However, lighter import-substituting manufacturing has been left to the private sector and is financed by commercial banks.

In 1982, the UAE Government incorporated the Emirates Industrial Bank (EIB) with a capital of 500 million Dh and a subscribed capital of 200 million Dh. The UAE Government owns 51% of the Bank while the remaining equity is shared by 13 commercial banks and insurance companies. Three objectives have been set for the EIB:

- 1) to promote industrialization with the long-term objective of diversifying national income and creating a strong industrial sector;
- 2) to research and identify viable industrial projects;
- 3) to finance the growth of existing industries by providing working capital and long-term "soft" loans (after the project's feasibility study passes the Bank's viability standard).

By the end of 1993, the EIB had approved 124 loans, with a total value of 634.37 million Dh.⁹ Interest rates charged by the EIB were as low as 4%, plus 0.5% as an administrative fee. Pay-back period for loans from the EIB are 1-2 years for loans for working capital, 3-4 years for loans for the growth of existing industrial establishments, and 8 years for loans to new industrial establishments.

⁹ EIB (1993), *Annual Report 1993*.

Hydrocarbon-based industries, usually large capital-intensive industries such as refineries and petrochemical industries, have been undertaken by government-owned companies such as the Abu Dhabi National Oil Company (ADNOC). Other public non-petroleum but capital-intensive industries have been developed under the auspices of the General Industry Corporation (GIC) in the Emirate of Abu Dhabi. However, most small import substitution industries such as carbonated beverages, consumer products, building materials, and furniture are left to the private sector.

4.11.3- INFRASTRUCTURE

For economic development, particularly for successful industrialization, a well-established infrastructure is desirable. The deployment of oil revenues has given a once-for-all boost to the social and economic infrastructure, which has enabled the UAE to complete its infrastructure well ahead of demand. Infrastructure has been given priority to the extent that many social and economic infrastructural projects have been supervised personally by the Rulers of the Emirates.

Considering the massive amounts of physical capital already invested in well-developed physical

infrastructure facilities, it seems wise to take full advantage of this infrastructure to capitalize on this potential comparative advantage to promote export-oriented production of goods and services.

4.11.4- LABOUR AND EMPLOYMENT POLICY

In spite of the fact that the UAE suffers from an acute labour shortage, the UAE's policy of importing skilled and unskilled foreign labour has been one of the bases for industrialization in the UAE. Labour shortages would have been a serious constraint on industrialization if the UAE had been a closed economy with restricted employment. The UAE has overcome labour shortage and lack of relevant experience by importing foreign labour to fill the gap. Unlimited supply of foreign labour has provided the UAE with its requirements for labour.

4.11.5- AVAILABILITY OF CHEAP ENERGY

The UAE possesses a huge reserve of gas, some of which is associated with oil. Natural gas is found in three forms: 1) mixed with crude oil; 2) associated with a superior layer of crude oil, and 3) non-associated, i.e. in separate form. The last-mentioned has been transformed from a waste by-product of

petroleum production to a commodity prized for its desirable characteristics.

Gas, as a by-product of oil, used to be wasted by flaring. In 1980 the UAE Government gave special attention to the development of natural gas as another major source of income. Emphasis was laid on gas liquefaction projects to stop wastage of gas and make its utilization possible.

The production of associated gas in the UAE is dependent on the volume of upstream oil production. Only the Emirate of Sharjah is engaged in exploiting reserves of non-associated gas, whereas in Abu Dhabi, non-associated gas serves merely as a backup for the gas plants during times of lower crude production and deficient associated gas.

Table 4.1 reveals the importance of utilizing associated and non-associated gas as a significant resource for the UAE's industrialization. It shows that utilized gas increased from 9% of produced gas in 1975 to 49% of produced gas in 1980, and to 96.5% of produced gas in 1990.

Table 4.1

Percentage of Flared and Utilized Natural Gas*,
Abu Dhabi 1975-1990

Gas	1975	1980	1985	1990
Flared	91%	51%	5%	3.5%
Utilized	9%	49%	95%	96.5%

Sources:

1- Abu Dhabi National Oil Company, *Annual Report 1985*.

2- MoP (1992), *Annual Statistical Abstract*.

* = associated and non-associated gas.

By 1990, approximately 96.5% of the gas in the Emirate of Abu Dhabi, the largest producer of UAE gas, was exploited by liquefaction for export or by utilization as an input for related downstream industries. After accomplishing this objective, efforts were focused on developing the natural gas reservoirs to ensure a stable supply of gas for various uses in the industrial sector.

Gas in the UAE has become an inexpensive source of energy, particularly for energy-intensive industries such as aluminium smelting, where energy cost comprises more than 50% of total cost [Roemer (1979)]. In addition, gas is the main raw material for many petrochemical industries.

Moreover, the further processing of gas for downstream (petrochemical) industries is very lucrative; for example, propane gas sells for around \$125 a ton, yet when propane is converted into polypropylene, it fetches \$850-900 a ton.

Huge gas reserves, therefore, have played a significant role in the industrialization development in the UAE as a low-cost source of energy in energy-intensive industries (aluminium smelting, oil refineries, and other plants). Furthermore, gas is an essential input for gas liquefaction products, such as

liquefied natural gas (LNG), propane, butane, pentane plus; and other petrochemical products: liquefied petroleum gas (LPG), naphtha, gasoline (premium and regular), jet fuel/kerosene, bunker C, gas oil, and fuel oil (residue). Gas is also being utilized to run the UAE's electricity and desalination plants.

4.11.6- INDUSTRIAL ZONES AND INCENTIVE LEGISLATION

The strategy of concentrating industries in industrial zones, in which industrial incentives are applied, has played a significant role in promoting industrialization in the UAE.

Industrial zones in the UAE are well connected with modern transportation networks, international airports, and harbours and are amply supplied with utilities such as electricity, gas, and water. In addition, the industrial zones are equipped with cargo facilities and a modern communications network.

The various industrial incentives which are provided in these industrial zones can be listed as follows:

- 1) provision of factory land at a nominal rent of 0.07 Dh per square foot (in the Emirate of Abu Dhabi), 0.25 Dh per square foot (in the Emirate of Dubai),

and as low as 0.04 Dh per square foot in Al-Ain city.

- 2) provision of subsidized electricity at 0.075 Dh per kilowatt/hour.
- 3) the provision of gas at 7.25 Dh per 1,000 cubic feet
- 4) 100% foreign ownership without the requirement of UAE citizen sponsorship (applied in free zone areas only). However, for all establishments housed outside the free zone areas, a minimum of 51% local partnership is required.
- 5) exemption from corporate and personal income taxes in the first fifteen years of the industrial project's life.
- 6) duty-free import of raw materials, machinery, spare parts, packaging materials, and other main inputs.
- 7) duty-free export of industrial products.
- 8) 100% repatriation of capital and profit, and no currency restrictions.

4.11.7- POLITICAL AND SOCIAL STABILITY

Since the formation of the UAE in 1971, the UAE has enjoyed a stable political regime. Political structures appear to suit the tribal society of the UAE, and the distribution of huge oil revenues in the form of social and economic infrastructure, high salaries, a high standard of social services, such as

health and education, have raised the level of living for the UAE's citizens and reduced the tensions of internal political and social unrest.

It is worth noting that the UAE Government has maintained a relatively good record on human rights since the formation of the UAE in 1971 (see, Chapter Five). This in turn has promoted political and social stability.

The UAE is an active member of many regional and international associations, such as the Arab League, the United Nations, the Non-Aligned Movement, the Arab Gulf Co-operation Council, and the Organization of the Islamic Conference. Relations with many countries of the world, particularly the Western democratic countries, have been traditionally warm.

Political and social stability has gone hand-in-hand with liberal trade policies and has paved the way for investment (domestic and international) in the industrial sector. Auty (1990) emphasizes the existence of a positive relationship between industrialization and the stability of a country's political regime. He concludes that long-established political regimes in oil-exporting economies, such as those in Saudi Arabia and Bahrain, have proved more capable of pursuing a long-term national development

strategy than have the weak and unstable regimes in countries such as Nigeria.

4.12- INDUSTRIAL DEVELOPMENT INDICATORS

4.12.1- INDUSTRIAL SECTOR VALUE ADDED

A clear indicator of changing economic structure in the course of economic development is that the share of industry increases as gross output per capita rises [Chenery (1975), Chenery, Robinson, and Syrquin (1986)].

Table 4.2 depicts the pattern of the value added from the industrial sector compared to the value added from the oil sector for the period 1975-1990. It reveals that the share of industrial output in GDP increased from less than 1% in 1975 to about 8.1% in 1990, while the share of the oil sector value added decreased from 67.5% in 1975 to 40.2% in 1990.

In spite of the small share of the industrial sector in the economy, the UAE has at least created a base for industrial production. Reducing the country's dependence on oil, however, is still far from reality.

Table 4.2

**Industrial Sector and Oil Sector Value Added, UAE,
1975-1990**

(Million Dirhams at constant prices)

Indicator	1975	1977	1979	1981	1983	1985	1990
Industrial sector value added	472	1923	2542	7990	9116	9443	9170
Percent. of GDP	0.9	2.7	2.9	6.9	9.0	9.2	8.1
Oil sector value added	35820	41658	52504	65242	44930	45270	50162
Percent. of GDP	67.5	57.9	59.6	56.4	44.5	44.0	44.2
GDP	53054	71956	88059	115688	100867	102804	113432

Sources:

- 1- MoP (1987), *Economic and Social Indicators in the UAE, 1975-1985.*
- 2- MoP (1993a), *Economic and Social Indicators in the UAE, 1985-1990.*

4.12.2 - NUMBER OF INDUSTRIAL ESTABLISHMENTS

The numbers of industrial firms may give a clearer picture of industrial development in the UAE, and the success of its industrial incentives so far.

According to the Ministry of Finance and Industry in the UAE, a large industrial establishment is defined as an industrial firm that manufactures a product and employs at least ten workers, and whose capital exceeds 250,000 Dh.

The 1992 industrial survey in the UAE indicates that there are 739 large industrial establishments in the UAE employing 10 workers or more and whose capital is more than 250,000 Dh. In addition, the 1988 industrial survey of the UAE indicates that there are more than 7,519 small industrial establishments which employ less than ten workers and whose capital is less than 250,000 Dh.

Table 4.3 breaks down the large industrial establishments (which employ ten workers or more) according to the Unified Arabic Classification Directory of Economic Activity, in which the classification of an industrial establishment is based on the activity exercised by the establishment or the factory whose main objective is the conversion of raw

materials in essence, composition, shape, or appearance to semi-fabricated or fully-fabricated products, including product mixing, assembling, disassembling, filling, or packing.

For the UAE, this number of 8,258 industrial establishments (739 large industrial establishments and 7,519 small industrial establishments) is a remarkable achievement if it is compared to the number of industrial plants in the 1950s. Then there was only one small manual workshop [MoFI (1988)]. Subsequently, after exporting oil and launching industrialization in the early 1960s, the figure for large industrial establishments (employing more than 10 persons) mounted to 59 establishments in 1970, 143 in 1975, 422 in 1980, 582 in 1985, and 739 in 1992.

Table 4.3

**UAE Large Industrial Establishments
according to Industrial Activity, 1992**

Type of Industrial Activity	Number
1- Foodstuff, beverages, tobacco	77
2- Textiles, spinning, clothes, leather	91
3- Wooden products, furniture	51
4- Paper products & printing	41
5- Chemicals, petrol, plastic products	158
6- Mining, non-metallic products	103
7- Basic steel	8
8- Machines, engines, metal production	170
9- Other conversional industries	40
Total	739

Source:
MoFI, (1992), *Industrial Directory, 1992*.

From the UAE Industrial Survey of 1988 and 1992 [MoFI (1988, 1992)], the pattern of industrial establishments can be summarized as follows:

- the first industrial establishment in the UAE, in the Emirate of Dubai, was a small workshop for steel boxes and containers, established in 1950.
- the period from 1951 to 1958 did not witness the establishment of any industrial firm.
- the increase in the industrial establishments began in 1959, and coincided with the discovery of oil in the Emirate of Abu Dhabi.
- during the period 1950-1992, the year 1977 was the golden year in the UAE's industrial development, for in it 84 industrial establishments were recorded, the highest number of industrial establishments in a single year during the above-mentioned period.
- the number of industrial establishments grew at an increasing rate during the period 1959-1977. However, the number of industrial establishments grew at a decreasing rate during the period 1978-1992.

4.12.3- UAE INDUSTRIAL PRODUCTS

Locally manufactured products feature in the domestic market and also compete in world markets. Industrial products in the UAE have changed from simple handicraft products (before the 1960s) to

various industrial products. Exportable industrial commodities produced in the UAE cover 184 different products manufactured by 739 industrial firms.¹⁰ They are classified in four divisions: consumer products, products of building materials, commercial products, and industrial products.

¹⁰ Dubai Chamber of Commerce and Industry, UAE, (1988), *Made in Dubai 1988*, Dubai, UAE.

UAE Industrial Products

Consumer products

Milk
 Yoghurt drink
 White cheese
 Yoghurt
 Cream of milk
 Ice cream
 Vegetable oil
 Oil & Ghee
 Wheat flour
 Semolina
 Wheat grain
 Biscuits
 Macaroni & spaghetti
 Wafers
 Sugar cubes
 Tea
 Roasted & salted nuts
 Snack foods
 Confectionery
 Bottled mineral water
 Soft drinks
 Fruit juices
 Tomato paste
 Prepared dates
 Household utensils
 Steel wool
 Plastic forks, knives, spoons

Sandals
 Furniture
 Sponge mattresses
 Telex & cal paper rolls
 Tissues & towels
 Toilet rolls
 Diapers
 Sanitary napkins
 Cards & envelopes
 Dining paper tissues
 Soap
 Detergents
 Disinfectants
 Perfumes & cosmetics
 Domestic gas
 Tires retreading
 Shoes
 Garments-underwear
 Garments-ready made
 Disposable plastic cups
 Plastic products
 Bags & wallets
 Steel beds
 Towels
 Aluminium foil
 Plastic utensils
 Coat hangers

Building materials

Wooden doors & windows
 Wooden tables, shelves, & counters
 Kitchen cabinets
 Pre-fabricated houses
 Paints
 Concrete curing compounds
 Insulation materials
 Explosives for civil use
 Plastic pipes & fittings
 Fibreglass pipes
 Fibreglass tanks
 Fibreglass profiles
 Glass & mirrors
 Cement
 Gypsum
 Blocks & bricks
 Concrete & terrazzo tiles
 Curbstones
 Mosaic tiles

Steel pipes
 Metal curtains
 Pre-steel construction
 Hangers
 Silos & storage tanks
 Steel const. frames
 Steel mesh
 Light posts
 Tanks
 Steel doors & windows
 Aluminium doors
 Aluminium windows
 Aluminium gates
 Aluminium profiles
 False ceilings
 Aluminium handrails
 Blacksmith workshops
 G.I. barbed wire
 Wire-mesh fencing

Pre-cast houses
 Cement & concrete products
 Ready-mix concrete
 Aggregates & sand
 Marble & granite
 Industrial marble
 Asbestos cement pipes
 Steel bars
 Cables
 Steel construction frames
 Rigs & oil well fabrication equipment

Commercial products

Grain packing
 Fodder
 Fabrics dying & painting
 Cartons
 Egg trays
 Paper bags & packing materials.
 Commercial printing
 Files
 Computer sheets
 Fertilizers

Industrial products

Industrial gas & dry ice
 Chemicals
 Gas
 Rubber products
 Precision dies
 Aluminium (billets & ingots)
 Aluminium sections
 Foundry ingots
 Barrels
 Gas cylinders
 Sewing machines & accessories
 Water well pumps
 Switchboards
 Truck bodies
 Cold stores & refrigerated trucks

Scaffolding
 Antennas
 Air-condition fittings
 Air-condition filters
 Air-condition assemblies
 Water heaters
 Neon lamp bases
 Wires
 Water meters
 Ropes

Acids
 Oil well chemicals
 Glue
 Industrial detergents
 Industrial sponges
 Plastic bags
 Plastic bottles
 Polythene films
 Signboards

Distilled water
 Desalinated petroleum
 Grease & lubricants
 Plastic packs & cans
 Press tools
 Cans
 Aluminium sheets
 Tanks
 Nails
 Pressure vessels
 Boats
 Turbines
 Distribution boards
 Trailers
 Transport tanks

Sources:

- 1- MoFI, (1992), *Industrial Directory, 1992.*
- 2- Dubai Chamber of Commerce and Industry, (1988),
Made in Dubai 1988

4.12.4- SHARE OF EMPLOYMENT IN THE INDUSTRIAL SECTOR

The employment pattern is closely related to an economy's structure. The share of employment in a certain industry indicates the size and importance of this sector. Since creating new employment opportunities is an expected stimulus from industrialization, in this subsection we examine the pattern of employment in the UAE's industrial sector.

Although the share of employment of the industrial sector in the UAE accounts for a small proportion (9% in 1992) of the total labour force (see Table 4.4), the share of the industrial sector in employment increased from 5.8% in 1975 to 9% in 1992, corresponding to its increase in output for the same period, a pattern consistent with what Chenery (1975), and Chenery and Syrquin (1986) have termed a "*normal*" employment pattern, where the primary sector's share of the labour force declines systematically as GNP per capita rises, while the employment shares of both the industrial and service sectors increase.

Table 4.4

Share of Employment in the UAE's Industrial Sector,
1975-1992

Year	1975	1980	1985	1992*
Employment in industrial sector	17127	34875	50674	69320
% of total labour force	5.8%	6.2%	7.4%	9.0%
Total labour force	293788	559960	683825	769309

Sources:

- 1- MoP, (1988), *Annual Statistical Abstract 1982-1987*.
- 2- MoP, (1993b), *Annual Economic Report 1993*.

* estimates MoP (1993b), *Annual Economic Report 1993*.

4.13- INDUSTRIALIZATION'S IMPACT ON REGIONAL GROWTH

One aspect of structural changes in a national economy is the diffusion of the growth of an industry, or a group of industries. In Perroux (1950) analysis of *growth poles*, industrialization was expected to "propel" the associated regional economy, through expansion of the export base and the proliferation of linkages. Stauffer (1975) argued that once such industries are established, forward linkages will subsequently develop.

The UAE's industrial statistics [MoFI (1988, 1992)] indicate that there are 8,258 industrial establishments, of which 739 are large industrial establishments and 7,519 are small industrial establishments. They employ more than 69,320 workers.

Auty (1990) concludes that the massive capital investment, high risk, sophisticated technology, and slow creation of viable employment of RBI render it an inappropriate tool for regional development, even for capital-surplus countries like Saudi Arabia. The petroleum industries generally remain enclaves, remote from other centres of production and ill-adapted to link with them economically.

The local stimulus from isolated, highly capital-intensive plants, such as the natural gas liquefaction plant (ADGAS) in Das island (100 miles north-west of Abu Dhabi city) and Al-Ruwais Industrial Zone (235 kilometres west of Abu Dhabi city), is muted. The gas liquefaction plant was located in the remote, abandoned island of Das, to capture economic rent from exporting natural gas associated with crude oil, which was formerly flared. On the other hand, the location of the remote Al-Ruwais Industrial Zone was based on its proximity to the onshore oil fields to shelter downstream projects in the oil industry, such as an oil refinery, a natural gas treatment plant, an electrical power station, a water desalination station, and fertilizer (ammonia and urea) industries. In addition, an oil terminal is located nearby at Jebel Al-Dhana.

The most successful industrial growth pole in the UAE is Jebel Ali Free Zone, 35 kilometres south-west from Dubai. With a total investment and infrastructure cost of US\$ 2.5 billion, Jebel Ali Free Zone is also connected to Jebel Ali Port, the largest man-made harbour in the world, covering a total area of 100 square kilometres, including 67 berths (docks) able to serve all kinds of ships. In addition, the Free Zone encompasses a total area of 84,000 square yards for storage facilities (including cold and cool

storage) and 750,000 square metres of paved open areas.

Since its creation in February 1985, Jebel Ali Free Zone has been the fastest growing industrial zone in the UAE. In 1986, one year after the inauguration of the Free Zone area, there were 16 establishments (industrial firms or trading companies) and 89 more establishments were added during 1987-1988. In 1989, 77 more companies joined the Jebel Ali Free Zone. This growth continued, to reach a total of 300 establishments in 1990. In 1991, the number of the enterprises and industrial firms was 332, of which 132 were manufacturing plants, while the remainder were trade and service companies. By the end of 1994, the number of establishments had increased to 685, of which over a third were industrial firms.¹¹ There are 60 joint ventures with UAE partners in Jebel Ali Free Zone. The rest of the firms are from 30 foreign countries, employing 23,000 workers and with a total investment of over US\$600 million (2.2 billion Dh).

Total private investments in Jebel Ali Free Zone reached US\$ 1.9 billion in 1993. UAE firms in Jebel Ali Free Zone account for about 1 billion Dh. of

¹¹ For more details on the origins, commodities, and activities of the 685 companies in Jebel Ali, see Jebel Ali Free Zone Authority (1994), *Who is in the Jebel Ali Free Zone*, September 1994.

investment in 1993, the United States accounts for US\$ 184.2 million, and British firms account for 130 million Dh.¹²

Currently, Jebel Ali Free Zone houses many international companies, such as AIWA, AST, BP, Black & Decker, Brother, Caltex, Citizen, Cleveland Bridge, GoldStar, Land Rover, Phillips, Reebok, Sharp, Shell, and Sony.

Since Jebel Ali Free Zone was established, its overall impact on the UAE's economy, particularly on Dubai's economy, has not been studied in detail. Although the Jebel Ali Free Zone has been able to attract a number of foreign companies, it is still too early to judge the economic soundness and prospects of the free zone strategy. Much depends on how long these incentives can be sustained and whether the investments made in the Zone will yield sufficient returns to pay off the costs of the incentives granted. However, according to Ghanem (1993), it is estimated that the existing companies in Jebel Ali Free Zone spend about US\$120 million per annum on food, accommodation, insurance, and other services.

The success of Jebel Ali Free Zone may be attributed to several factors, namely, to:

¹²Dubai Ports Authority, (1994), *Handbook*.

- a) its geographic location, i.e. its proximity to large markets of the Middle East, the Far East, and Africa;
- b) Dubai's well-established base of commerce and trade, banking, financial, and insurance services;
- c) the openness of the UAE's economy with relatively liberal foreign trade and exchange rate policies;
- d) a well-developed physical infrastructure;
- e) financial industrial incentives such as the corporate tax exemption for 15 years, personal income tax exemption, permission for full foreign ownership, full repatriation of capital and profits, and no currency restrictions;
- f) simplicity in administrative matters;
- g) the provision of heavily subsidized utilities and land services.

4.14- CONCLUSION

Before exporting oil in the late sixties, industries in the UAE depended mainly on the building of wooden ships and on simple traditional handicrafts. The period before the discovery of oil reflected limited available natural resources and a simple nomad economy.

In common with other developing countries, the UAE, whose economy has been significantly dependent on the export of one primary product, namely oil, pursued the industrialization strategy to diversify the sources of its national income and reduce its dependence on oil.

The main factors which have acted as constraints on the UAE's industrial development have been limited raw materials and the size of the domestic market. On the other hand, an abundance of natural mineral resources, the ready availability of financial capital, a well-established infrastructure, a flexible labour and employment policy, the availability of cheap energy, industrial zones and various incentives in legislation, plus political and social stability have been the main incentives for the UAE's industrialization.

In spite of the small share of the industrial sector in the economy, the UAE has at least created base for industrial production.

To some extent industrialization in the UAE has broadened the base of the economy; increased industrial productivity; diversified exports to more than 184 exportable industrial products; and increased the value of industrial exports. Nevertheless,

industrialization in the UAE has not reduced significantly the economy's reliance on oil.

CHAPTER FIVE:
HUMAN DEVELOPMENT

CONTENTS

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5.1- INTRODUCTION

The objective of this thesis is to suggest an alternative development strategy for the UAE in the twenty-first century. Since development is a *goal* as well as a process, it is necessary to define what the thesis means by "*development*" as an objective. This Chapter reviews the evolution of the concept of development and explores the differences between economic growth and economic development.

The chapter addresses in greater detail the present interest in the philosophy of the "*human development*" approach, viz its definition, conceptual framework, quantitative measurement, and policy implications. The chapter deals in particular with the human development index (HDI) and reviews its rationale, composition, and mathematical construction, including its use for inter-country comparisons of human development levels. The human freedom index (HFI) is also addressed. The UAE's human development indicators are analyzed at the national and international levels. It appears that the UAE has achieved relatively high levels of human development and has a relatively good record on human rights.

The chosen development strategy must build on this record and, insofar as possible, improve upon it

in any selected development strategy. A new development strategy for the UAE must be able to deliver what development specialists term "*human development*". The strategy outlined in Part IV of the thesis attempts to take particular account of the need for human development, especially in relation to education and training.

5.2- DEVELOPMENT ECONOMICS

Development economics is one of the newer branches of the broader disciplines of economics and political economy. It emerged as we know it after the Second World War, though it has been claimed that development economics was discussed as early as 1676 by Sir William Petty when he wrote, "*The French grow too fast.*"¹ Petty was one of the founders of modern economics and was particularly a pioneer of quantitative economics. This was emphasized by Sen (1988) who considered Sir William Petty to have been one of the founders of development economics, alongside David Hume, James Steuart, and particularly Adam Smith whose famous treatise, *The Wealth of*

¹ The quotation can be found in W. Petty (1676), *Political Arithmetick*, republished in C.H. Hull (ed.), *The Economic Writings of Sir William Petty*, Cambridge: Cambridge University Press, 1899.

Nations, published in 1776, was also an inquiry into the basic issues of development economics.²

In the early contributions to economics, dating from the eighteenth century, development economics can hardly be separated from economics as a discipline, because much of classical economics was concerned with problems of economic development.³ The improvement of living conditions was an essential object of the economics literature at that time. In addition, by the eighteenth century, there were several contributions on the constraints imposed on economic growth such as the absence of an agricultural surplus, problems with trade and foreign exchange, and a dearth of savings. Moreover, there were a number of other development concerns discussed in the early literature such as inflation, unemployment, entrepreneurship, human capital, and the incidence of taxes. In this sense, development economics is a well-established field of applied economics which has existed, in substance if not in name, since at least the time of Adam Smith.

² See Hume (1748), Steuart (1767), and Smith (1767).

³ For an analysis of how much of the modern development theory of today was already available in the writings of the eighteenth century, see W.A.Lewis (1988) "The Roots of Development Theory" in H.Chenery, and T.N.Srinivasan (eds.), *Handbook of Development Economics*, vol. 1, Amsterdam: North Holland.

Lewis (1984) concluded that in matters relating to the allocation of resources in the short run, development economics strides most of the way with the economics of developed countries. He added that much theoretical work in development economics has been carried out by development economists, and their models consequently have been used for analysis of developed economies.

Although it is arguable that a good deal of standard economics has tended to move away from broad socio-economic issues such as poverty, wellbeing, the enhancing of the quality of life, and other basic human needs, many tools of standard economics have use in development economics, in tackling problems of economic development.

In practice, although it is difficult to generalize about the more than 144 countries that constitute the LDCs, it is possible to identify a major set of economic problems faced by most LDCs. They can be summarized as follows:

- (a)- low levels of income per capita;
- (b)- slow growth rates of national income;
- (c)- high levels of unemployment;
- (d)- low levels of productivity, given existing techniques of production;

- (e)- significant dependence on agricultural production and primary exports;
- (f)- poverty, incompetent health care, and malnutrition;
- (g)- high rates of population growth;
- (h)- inequality of income distribution;
- (i)- low levels of literacy and insufficient educational facilities.⁴

5.3- ECONOMIC GROWTH VERSUS ECONOMIC DEVELOPMENT

Whereas the terms *economic growth* and *economic development* are sometimes used interchangeably, there is a fundamental distinction between them. *Economic growth* is defined as the rise in GNP per capita, in which GNP per capita is measured as the GNP divided by the population. Thus, economic growth is concerned only with GNP per head.

The early writings in development economics, when the discipline emerged as a field on its own right in the mid 1940s, concentrated on ways of achieving economic growth, and particularly on ways of increasing the GNP, together with its sectoral

⁴ For detailed analysis of common development problems in LDCs, see Todaro (1989), pp.27-61.

components and total employment.⁵ Accordingly, development was viewed by economists of the mid 1940s, 1950s, and early 1960s as economic growth. Physical capital dominated the mainstream economic thinking on growth. Economists stressed the role of increased savings and capital accumulation in economic growth. It was believed that the key factor in economic growth was the accumulation of capital, such accumulation being a necessary but not a sufficient condition for economic growth [Clark (1984)].

Economic growth was the dominant topic of the post-World War II years. The conventional approach to economic development emphasized the rate of growth of output or GNP as the primary goal of economic development. International comparisons of rates of GNP per capita were the concerns of economists and politicians as they saw economic growth as the solution to LDCs' economic problems. Competing theories and models of the process of economic growth were turned into policies to produce economic growth.⁶

⁵ See, for example, Rosenstein-Rodan (1943), Mandelbaum (1945), Dobb (1951), Datta (1952), Singer (1952), Nurkse (1953), Lewis (1955), Baran (1957), and Hirschman (1958).

⁶ See, for example, Harrod (1948), Domar (1957), and Rostow (1960).

Economic growth theory, however, did not adequately account for the ecological, international, and domestic consequences of growth. The ideology of economic growth, therefore, came under attack from several directions in the early 1970s when it became clear that widespread poverty had not disappeared and that economic growth had widened the global gap between the industrialized countries and the developing ones.

As far as economic growth is concerned, focusing on GNP per capita leaves out the question of the distribution of that GNP among the population. For instance, it is possible for a country to achieve high per capita GNP, but have unequal distribution of that GNP among the population. This was emphasized in the following introductory statement of Hollis Chenery in *Redistribution with Growth*, (1974):⁷

"It is now clear that more than a decade of rapid growth in undeveloped countries has been of little or no benefit to perhaps a third of their population. Although the average per capita income of the Third World has increased by 50 per cent since 1960, this growth has been very unequally distributed among countries, regions within countries, and socio-economic groups. Paradoxically while growth policies have succeeded beyond the expectations of the First Development Decade, the very idea of aggregate growth as a social objective has increasingly been called into question."

⁷ Chenery et al. (1974), p.xiii.

GNP measures the total domestic and foreign output claimed by people of a country (see Chapter Six). Thus, GNP is a measure of "wellbeing" that the economy experiences, but it may not represent the standard of living of people as individuals. Economic development cannot be measured solely in terms of the growth of GNP, or income per capita. Rather, one must consider how that income is distributed among the population.

High GNP per capita can be accompanied by low quality of life for many people. Human beings are not just the means, but are also the beneficiaries of economic development. Development goes beyond the information provided by GNP, taking into account social and human welfare criteria.

5.4- BASIC NEEDS

During the 1976 World Employment Conference in Geneva the "*basic needs approach*" came to the fore.⁸ The rationale of the "*basic needs approach*" is that the direct provision of goods and services (such as health, education, adequate nutrition, water supply, sanitation, housing, and clothing) is likely to relieve absolute poverty. "*Basic needs strategy*" is

⁸ See, for example, ILO (1976), *Employment, Growth and Basic Needs*.

based on greater expenditure on social services, which also count as investment in human capital. Thus, a wider distribution of income can be a social objective. Economic development is thus viewed as a condition for improvement in the "*quality of life*". Underdevelopment in this sense is best viewed as the lack of certain basic needs, rather than as the lack of income.

Goulet (1971) distinguished three basic components or core values in the wider meaning of development: life-sustenance, self-esteem, and freedom. *Life-sustenance* is concerned with the provision of basic needs, i.e. food, public health, minimal education, and shelter. *Self-esteem* is concerned with the feeling of worth, self-respect, and independence. *Freedom* refers to freedom from want, ignorance, and squalor to enable people to determine their own destiny. Freedom involves the expansion of choices. Thus, according to Goulet's (1971) concept of development, one can conclude that development occurs when there has been an improvement in basic needs, when economic growth has contributed to a greater sense of self-esteem, and when there are increases in the range of human choice.

Ingham (1993) explores the interactions between the early concerns (issues) of development economics

and the more recent concerns of *development* in the context of economic history, industrialization (structural change), modernization (encompassing social, political, and cultural changes), political change and civil liberties, decentralization and participation, redistribution and basic needs, human development, sustainable development, and development ethics.

This approach emphasizes that development economics, as a social science, is concerned not only with the efficient allocation of scarce productive resources and the steady growth of aggregate output over time, but also with human welfare. Accordingly, in addition to traditional economic variables such as income, investment, and saving, the analysis of development issues necessitates equally relevant non-economic (social) factors such as educational facilities and health care.

The implication of human welfare considerations for development policy, therefore, is that the public sector may need to assume a much broader and more determining role in overall economic development policies than it does in traditional economic analysis.

5.5- HUMAN DEVELOPMENT

5.5.1- CONCEPTUAL BASIS OF HUMAN DEVELOPMENT

The measurement of development levels has tended to focus on the growth of GNP per capita. However, development economists have increasingly become aware that growth of output or income by themselves are not adequate indicators of development. Rather, the reduction of poverty and the satisfaction of basic human needs are goals that should be considered for *development*.

The UNDP's (1990) *Human Development Report* defined human development as the process of increasing people's options. It stressed that the basic objective of human development is to enlarge the range of people's choices. (Choices include access to income, employment opportunities, education, health, a clean and safe physical environment, and political freedom which will make development more participatory and democratic.) Thus, it could be argued that the concept of "*human development*" is a unifying concern for both developed and developing countries. Human development is indeed a major current topic for discussion and the delineation of research policy guidelines. The *Human Development Report* argued for a new approach to the definition, measurement, and achievement of development, and its policy

implications.⁹ The human development approach relates to earlier work on basic needs.¹⁰

The human development approach focuses on the "state of existence" of people, not on the what they possess. The essence of this view is "what people can do and be" [Sen (1987)]. For instance, in assessing the wellbeing of people, the human development approach leads to the following questions:

- a) do people suffer from illiteracy?
- b) can people escape from preventable morbidity?
- c) do people avoid mortality during infancy and childhood?
- d) are people well nourished?
- e) do people enjoy political freedom?

Although it is common to evaluate a person's wellbeing by his (or her) command over commodities (e.g. goods and services), Sen (1987) argues that human wellbeing has to be associated with "being", that is, about being able to live long, being healthy, being well nourished, being literate, and so on.

⁹ For an interesting critical look at the UNDP's Report, see Hopkins (1991).

¹⁰ See, for example, ILO (1976); Streeten et al. (1981); Streeten (1984)]. On the "quality of life" see Morris (1979).

The issue at stake here is about the different approaches, and their respective treatments of "*ends and means*". For example, the mainstream, income-centred approach to development assesses investment in human capital (education, health, and nutrition) entirely in terms of the income or output that investment generates, considering it to be viable if the rate of return exceeds the capital cost. In contrast, advocates of the basic needs approach would argue that the enhancement of people's ability to read and write, or their being healthy and well nourished is valuable in itself, even if the economic return to investment in education and health care is insignificant [Anand and Ravallion (1993)].

5.5.2- ECONOMIC GROWTH AND HUMAN DEVELOPMENT

Griffin and Knight (1990) have renewed emphasis on human development both to foster economic growth and as an end in itself. They argue that policies of human development enhance the abilities of people to increase their incomes and improve their standard of living, through improved knowledge, health, education, life expectancy, and control over their destiny.

It is argued that the relationship between human development and economic growth is reciprocal. For

instance, through productive employment, healthy and educated people can contribute to economic growth, and economic growth in turn contributes to human wellbeing. The UNDP (1991) maintains that human development requires economic growth; otherwise, no sustained improvement in human wellbeing is possible.

Mishra (1994) has analyzed the effect of human resource development on economic growth. His econometric analysis of cross-country data on 35 countries of Asia and Sub-Saharan Africa leads to the conclusion that higher levels of achievement in human resource development need not result in a lower rate of growth, even over a comparatively short period. Human resource development can have a positive effect on the rate of economic growth. Gemmell (1994) focuses on the role of education as an important part of human capital in the process of economic growth (see Chapter Eight).

The UNDP (1990) identifies three types of country experiences: sustained human development, disrupted human development, and missed opportunities for human development. In terms of the relationship between economic growth and human development, Rao (1991) derives four main conclusions from the UNDP's analysis of the country experiences:

- 1) the most effective means of sustained human development appears to be when economic growth is accompanied by an equitable distribution of income (Korea).
- 2) through well-planned government expenditure on social services (education, health), countries can make significant improvements in human development even in the absence of healthy growth or sound income distribution (Botswana, Malaysia, Sri Lanka).
- 3) economic growth is decisive for sustaining progress in human development in the long run, otherwise human development may be disrupted.
- 4) economic growth may not lead to progress in human development where there are low levels of social expenditure and an inequitable distribution of income.

5.6- HUMAN DEVELOPMENT INDICATORS

The main human development indicators in the UAE can be analyzed at two levels: a) nationally over time and b) internationally (or cross-sectionally), comparing performance with both developing and industrial countries. The first level, nationally over time, enables us to explore the rate, structure, and character of human development in the UAE. The latter, internationally, enables us to examine the

degree of human development in the UAE compared to both developing and developed countries.

5.6.1- HEALTH

Many developing countries struggle against malnutrition, disease and poor health. Expenditures on health have been regarded as investments in human capital [Mushkin (1962)]. Anand and Ravallion (1993) conclude that the quantitative effect of public expenditure in the area of health, appears to be sizeable.

The relationship between health and economic development is reciprocal. Economic development policies tend to improve the health status of the population. Better health contributes to economic development. Better health is an important goal in its own right and is a basic human need. Health increases human potential and improves the quality of human resources. Health programmes, therefore, aim to cut morbidity and mortality, and to provide adequate nutrition, health care, and sanitation.

Several factors are used to measure malnutrition; namely, daily calorie supply, access to clean drinking water, and access to sanitation. Malnutrition, however, is one component (if not a major source) of

diseases (respiratory problems, gastrointestinal difficulties, and measles), ill health, and mortality.

For the period 1985-1991, it is estimated that 100% of the UAE's overall population have access to health services (the percentage of the population that can reach appropriate local health services on foot or by the local means of transport in no more than one hour), 100% of the population have access to safe water, and 94% of the population have access to sanitation.¹¹

The provision of health services, which are relatively comprehensive and well organized, is free of charge in the UAE. The UAE's 42 modern hospitals, equipped with "state-of-the-art" medical equipment, and using experienced specialists and surgeons trained in the best universities around the world, provide complete treatment. The expansion in health services has been particularly notable. In 1990, public expenditure on health as a percentage of the GNP amounted to 1% of GNP.

The UAE Government's health policies aim at providing a range of facilities and at implementing programmes to advance the level of service and health

¹¹ UNDP (1994), *Human Development Report 1994*, Table 2, p.132.

education throughout the UAE. There are also preventative medical programmes such as "mother and child health care", vaccination and inoculations for children, monitoring and notification of infectious diseases, and health educational programmes.

In addition, the UAE Ministry of Health (MoH) provides special medical centres for school children and health units in every school throughout the UAE. These health units are provided with qualified nurses as well as first-aid equipment. Hospitals, doctors, and nurses are located throughout the UAE, mainly in accordance with the distribution of the population. Health facilities are in general evenly distributed. However, there are certain deficiencies in the quality of services, especially in the rural areas, such as the lack of emergency ambulance services for these areas, and a shortage of dentists.

There is also a large number of private health facilities. The private health sector makes a significant contribution to the provision of health facilities in all parts of the UAE. Its main contribution consists in the supply of materials, drugs, and equipment to the MoH and private retail outlets. In addition, there is a large number of private clinics, medical complexes, hospitals, and pharmacies. The main noticeable growth in private

sector health services has been in the number of general clinics. As is shown in Table 5.1, the number of private clinics has not only exceeded the number of public clinics, but has been increasing, from 50 in 1975 to 174 in 1980, to 456 in 1985, and to 675 in 1990.

The number of hospitals (public and private) increased from 19 in 1975 to 42 in 1990. This increase has been associated with increases in hospital beds. In 1975, for example, there were 1,745 hospital beds; by 1990 hospital bed numbers increased to more than 6,397. In 1991 the overall ratio of hospital beds to population was approximately 1:275.

Numbers of doctors (general physicians) increased from 751 in 1975 to 2,991 in 1990. Dentists increased from 65 in 1975 to 383 in 1990. Nurses increased from 1,555 in 1975 to 7,130 in 1990. According to the *Human Development Report 1994*, there is one doctor per 1,020 persons, 2.6 nurses per doctor, and a nurse per 390 persons (1984-1990).

Table 5.1

A Profile of Health Services in the UAE (1975-1990).

Indicators	1975	1980	1985	1990
Hospitals	19	27	40	42
Beds (hospital)	1745	3872	5817	6397
General physicians	751	1484	2361	2991
Dentists	65	141	259	383
Nurses	1555	4346	6327	7130
Pharmacists (public)	60	117	190	237
Public clinics	38	69	107	118
Private clinics	50	174	456	675
Population/bed	320	269	237	288
Population/doctor	743	702	584	1020
Population/nurse	359	240	226	390

Sources:

- 1- MoP (1987), *Economic and Social Indicators in the UAE, 1975-1985*.
- 2- MoP (1993a), *Economic and Social Indicators in the UAE, 1985-1990*.
- 3- UNDP (1994), *Human Development Report 1994*.

Advanced health care has done much to lower mortality levels in the UAE. The crude death rate, i.e. deaths per thousand of the population, decreased from 7.3 per 1,000 in 1975 to 4 per 1,000 in 1992. The average crude death rate for low-income countries (excluding China and India) was 13 per 1,000 in 1988, whereas in middle-income countries, the rate was 8 per 1,000, which is lower than that in high-income countries, whose crude death rate was 9 per 1,000.¹²

The *infant mortality rate* (i.e. the number of children who die before their first birthday out of every 1,000 live births) has fallen in the UAE from 145 per 1,000 in 1960 to 65 per 1,000 in 1975, to 54 per 1,000 in 1980, and to 23 per 1,000 in 1992. Hicks and Streeten (1979) cite infant mortality as a good indicator of the availability of sanitation and clean water facilities because of the susceptibility of infants to water-borne diseases.

In comparing the infant mortality rate in the UAE with infant mortality rates in selected countries for 1988, it appeared that the UAE's infant mortality rate was closer to the average infant mortality rate in the industrial countries (15 per 1,000 live births), and far below the average mortality rate in less-developed countries (96 per 1,000 live births). According to

¹² Gillis et al. (1992), p.242.

the 1988 World Population Data Sheet, the highest infant mortality rate was registered for Afghanistan (183 per 1,000 live births), and the lowest infant mortality rate was recorded for Japan (5 per 1,000 live births).

On the other hand, *life expectancy at birth*, the average number of years members of a given population are expected to live, has risen in the UAE from 53 years in 1960 to 65 years in 1975, and to 70.8 years in 1992. In a cross-section analysis, Preston (1975) showed that there was a parabolic relationship between national income per head and life expectancy at birth. He found that the increase in income accounted for only 10 to 25 per cent of the rise in life expectancy, whereas other factors, such as increasing literacy and the spread of health technology, accounted for 75 to 90 per cent of the increase in life expectancy.

However, public expenditure on health services is an additional economic cost to the UAE that is brought about by the consequences of the indigenous labour shortage (see Chapter Three). The current UAE health policy in providing a (hospital) bed for every 300 inhabitants cost the government the funds required to build 31 hospitals (excluding 9 private hospitals) with 5,398 beds (excluding 419 private hospital beds)

during 1975-1985 (MoP 1987).¹³ If the UAE had not suffered from acute indigenous labour shortages, and thus from their consequences in receiving foreign labourer and their dependants, the actual need of beds for every 300 inhabitants, according to the current UAE health policy, would have been 1,298 beds in 1985.¹⁴ Therefore, the extra economic cost incurred by the labour shortage is manifested in the cost of building additional hospitals, equipped with 4,100 beds, during the period 1975-1985.

In the Department of Planning of the Abu Dhabi Government, it is customary for economists and engineers in charge of feasibility studies and tenders to estimate the cost of a new hospital to be 1 million Dh for each bed. For example, the estimated cost of a hospital to be built with 50 beds = $50 \times 1,000,000$ = 50,000,000 Dh. This does not mean that a bed actually costs 1 million Dh, but it does mean that the bed is allocated a share in the total cost of a new hospital - including its construction, equipment, kitchen, laundry, and other facilities.

¹³ The total number of hospitals (public and private) was 40, and the total number of hospital beds (public and private) was 5,817 in 1985. See Table 5.1.

¹⁴ The MoH's standards for future provision is set to be one hospital bed for every 250 people.

Thus, as far as health services are concerned, hosting foreign labourers as well as their dependants, cost the government 4,100 million Dh during the period 1975-1985. In addition to the above, may be added the recurrent expenditure on salaries of physicians, nurses, pharmacists, medical technicians, and administrators, and the cost of dental care, medicines, vaccines, preventive medical services, and other related health expenditures.

Moreover, for humanitarian reasons, some expatriates are sent abroad (e.g. to Germany, the UK, or the USA) for treatment at the UAE Government's expense, if medication is not available locally, for example for open-heart surgery and organ transplants [MoH (1992)].

Nevertheless, foreign employees (along with their valuable experience) working in the medical field (e.g. as consultants, doctors, dentists, pharmacists, nurses, or administrative personnel) are certainly credited for the high health standards in the UAE.

Health services in the UAE have received considerable attention. For example, the MoH has issued standards for future provision based on the primary health care system. These health service standards consist of the following:

- (a) one health centre per 20,000 members of the population in urban areas,
- (b) one health centre per 2,000 residents in rural areas,
- (c) one doctor, one nurse, and one community nurse per 3,000 members of the population in urban centres,
- (d) one hospital bed for every 250 people.

In summary, the UAE has high health standards compared with those of other developing countries and even with some developed countries (see Table 5.2). From the start medical care has been free. Measures of malnutrition, mortality, and morbidity show impressive improvement in the last two decades. Epidemics have been eliminated and diseases have declined as causes of death. Both crude and infant death rates have fallen, and life expectancy has risen to 70.8 years. Credit for continued improvement since the formation of the UAE in 1971 belongs primarily to the UAE Federal Government, which has consistently accorded a high priority to improving the health of its population.

Table 5.2

International Human Development Comparisons, 1992

Indicator	UAE	All Developing Countries (average)	All Industrial Countries (average)
GNP per capita (US\$) 1991	22,180	880	14,920
Life Expectancy (years)	70.8	63.0	74.5
Maternal mortality rate (per 100,000 live births) 1988	130	290	24
Infant mortality rate (per 1,000 live births)	23	69	13
Adult Literacy (%)	65	69	..
Population with access to health services (%)	100	81	..
Daily calorie supply (as % of requirements)	151	109	..

Source:

UNDP, *Human Development Report*, 1992, 1993, and 1994.

.. not provided.

5.6.2- EDUCATION

"*Education*" may be defined as all forms of human learning. In the broader concept, education encompasses the notion of "*learning*". In a narrow sense, however, *formal education* is the process that occurs in formal institutions such as schools, universities, technical colleges, and other institutions of higher education. *Informal education* is the learning that takes place outside the formal educational system.

In his influential article, Schultz (1961) stressed the role of education in development. He maintained that education could be considered as a process of accumulating capital, which could increase a worker's productivity and income. He referred to this investment in education as an investment in "*human capital*", defined as a productive investment embodied in human resources. Improved skills and health result from expenditures on education, training programmes, and medical care. As indicated by Chatterji (1994), the skill level of the work force in any economy is a factor which has an important bearing on economic performance.

Harbison (1973) and Schultz (1961) maintained that it is the human capital of a country that ultimately determines the pace of its economic

development. Harbison (1973) argued that physical capital and material resources are "*passive*" factors of production, whereas human beings are the "*active*" agents who accumulate physical capital, exploit natural resources, establish social, economic, and political institutions, and carry forward national development. This emphasizes the positive relationship between education and economic growth in which educational expansion has contributed to aggregate economic growth (see Chapter Eight).

The hypothesis underlying *human capital theory* is that people spend money on education, health, and other human services for the purpose of raising their productivity and incomes. The added output and income in the future become a return on the investment made.

Carnoy (1967) concluded that education and income are highly correlated at both individual and social levels. Intuitively people recognize this fact and consequently bid to grasp the largest possible amount of education. The more schooling and certificates people can accumulate, the better will be their chances of obtaining secure and better-paid jobs. This desire for well-paid jobs has created a demand for education as a means of economic improvement.

On the *supply* side, a country's political institutions determine i) the quantity of schools and classrooms at the primary, secondary, and university levels, ii) who is admitted to these schools, and iii) the kind of education and instructions (values, attitudes, ideas, and aspirations) students acquire.

Current concern, however, is with how to improve the quality of education (i.e. the quality of teaching, facilities, and curricula) and how to provide basic education to the vast majority of the population. Behrman and Birdsall (1983) indicate that it is the quality of education and not its quantity alone (years of schooling) that best explains differential earnings and productivity.

Education is considered a key element in developing the necessary skill levels for growth and modernization. The main institutional mechanism for developing human knowledge and skills is the formal education system. To assist in achieving this goal, the UAE Government offers free education to all UAE citizens and children of expatriates working in the public sector.

The existing education system was established after the Federation in the early 1970s. Since its formation in December 1971, the UAE Federal Government

has given much attention to expansions in education. Public expenditure on education (in 1990) was 1.9% of GNP and 14.6% of total public expenditure.

(Primary school) education is compulsory and free for all UAE citizens. The adult literacy rate in the UAE, however, is relatively low (55% in 1990) owing to the fact that educational institutions were established only two decades ago, shortly after the formation of the UAE.

The education system in the UAE consists of private and public sector schools, military schools, higher education (the university), and vocational training establishments. The education system in the UAE consists of four-tier levels covering 12 years, as follows: kindergarten (for children 3 to 5 years old), primary (6 to 11 years), intermediate (12 to 14 years), and secondary (15 to 17 years). This is followed by further education of four years at university level (the Emirates University) covering several fields of specialization. UAE citizens who wish to pursue specific fields, unavailable in the Emirates University, are sent abroad on a generous scholarship scheme. Further research studies such as MSc and PhD programmes are strongly encouraged.

Through a procedure of registration, the Ministry of Education (MoE) has overall control of private schools. Private sector schools follow the MoE system. There are two types of private school: Arabic and foreign. Private schools accommodate all children of non-Arabic-speaking private sector employees.

The MoE's standard on classroom occupancy ratios for all education levels is 30 students per classroom. The MoE's policy is to provide teacher/student ratios of 1:20 at kindergarten and primary levels, and 1:15 at intermediate and secondary levels.

5.7- THE HUMAN DEVELOPMENT INDEX (HDI)

The UNDP has carried out the measurement of human development at the aggregate level in the form of a human development index. This section deals in particular with the UNDP's human development index (HDI) which has attracted much attention from development economists. In addition, this section explains the HDI's rationale, its construction, and its applications. Finally, this section examines the shortcomings of the HDI as a measure of inter-country development levels.

Since income is not the only measure of development, the UNDP's (1990) *Report* introduced a new measure of development, the HDI. This index is composed of three indicators - life expectancy, educational attainment and income - which, taken together, are intended to give a composite measure of human development. All three components have equal weight. For other social and economic indicators (e.g. infant mortality, levels of nutrition, and employment), the *Report* argues that progress in infant mortality and in nutrition would be reflected in life expectancy, whereas employment rates would be reflected in real income. The UNDP's composite HDI, therefore, is an attempt to readjust the assessment of development levels away from income to more broadly based measures.

The HDI ranks 160 developing and industrial countries on a scale ranging from 0.000 to 1.000. The UNDP's (1990) *Report* claims that the disparity between countries is less for HDI than it is for income per capita. The UNDP supports its claim with a chart which shows two separate distributions of countries. One curve shows their ranking according to the HDI while the second shows their ranking according to GNP per capita. The two curves reveal that the disparity among countries is much greater in income than in human development.

The UNDP's HDI is constructed in three steps. The first step is to calculate three indicators of human deprivation for the three variables: life expectancy (X_1), educational attainment (X_2), and adjusted real GDP per capita (X_3):

$$I_{ij} = \left(\frac{(\max X_i - X_{ij})}{(\max X_i - \min X_i)} \right)$$

where I_{ij} is the i th indicator of human deprivation in country j ($i = 1, 2, 3$ and $j = 1, \dots, N$); $\max X_i$ is a subjectively chosen desired value of the i th variable; X_{ij} is the observed value of the i th variable for country j ; and $\min X_i$ is the observed minimum value among N countries. If a country achieves the desired level of the i th variable, there is no relative deprivation (that is $I_{ij} = 0$), and therefore, a desired level of human development with respect to that variable is achieved.

The second step is to define an average deprivation indicator, (I_j), by taking a simple average of the three indicators:

$$I_j = \frac{1}{3} \sum_{i=1}^3 I_{ij}$$

The third step is to measure the human development index (HDI) as one minus the average deprivation indicator (I_j):

$$HDI_j = 1 - I_j$$

If a country achieves the desired values of each of the X_i s, then the I_j averages to zero and the value of the HDI takes its maximum value one. It also follows that the greater the gap between the three maximum variables ($\max X_i$ s) and the corresponding observed variables (X_i s) of country j , the lower is the value of that country's HDI and the lower its assessed level of human development.

5.7.1- COMPUTATION OF THE UAE'S HDI

The following section is my own calculation of the UAE's HDI for 1992, arrived at by applying the UNDP's method described above:

Step 1, defining the UAE's measure of deprivation for each of three basic variables: life expectancy (X_1), educational attainment (X_2), and adjusted real per capita GDP (X_3).

Step 1-1, defining maximum and minimum values:¹⁵

Maximum country life expectancy at birth = 78.6 (as in Japan)

Minimum country life expectancy at birth = 42.0 (as in Sierra Leone)

Maximum country educational attainment = 3.00 (as in the USA)

Minimum country educational attainment = 0.00 (set by UNDP)

Maximum country adjusted real GDP per capita = 5,079 (as in the UAE)

Minimum country adjusted real GDP per capita = 380 (as in Zaire).

Step 1-2, values of the UAE's human development variables:

The UAE's life expectancy at birth = 70.5

The UAE's educational attainment = 1.32

The UAE's adjusted real GDP per capita = 5,079.

Step 2, defining an average deprivation indicator:

2-1. The UAE's deprivations:

2.1.1- The UAE's life expectancy deprivation

$$= (78.6 - 70.5) / (78.6 - 42) = 0.221$$

2.1.2- The UAE's educational attainment deprivation

$$= (3.00 - 1.32) / (3.00 - 0.00) = 0.560$$

2.1.3- The UAE's income deprivation

$$= (5,079 - 5,079) / (5,079 - 380) = 0.000$$

2-2. The UAE's average deprivation indicator

$$= (0.221 + 0.560 + 0) / 3 = 0.260.$$

Step 3: The UAE's human development index (HDI)

$$= 1 - 0.260 = 0.740.$$

¹⁵ Maximum and minimum values, and the UAE's human development variables are cited in UNDP (1992), Table 1, pp.127-129.

The UAE's HDI is 0.740. The highest level of HDI, of almost unity (0.982), was reached in Canada. The lowest HDI (0.052) was in Guinea. There were 65 countries with low HDI (ranging from Guinea 0.052, to El Salvador 0.498), 48 with countries medium human development (ranging from Algeria 0.533, to Mauritius 0.793), and 47 countries with high human development (ranging from Qatar 0.802, to Canada 0.982).

5.7.2- ASSESSING THE SIGNIFICANCE OF THE HDI

The UAE has high human development levels. But according to the UNDP's (1991, 1992, 1993, 1994) *Human Development Report*, the UAE's human development index ranking still lags behind its GNP ranking, despite the rapid economic development during the past two decades. For example, in terms of real GDP per capita, the UNDP (1992) ranked the UAE as the first of the 160 developing and industrial countries (PPP\$ 23,798).¹⁶ On the other hand, in terms of HDI, the UNDP's (1992) *Report* ranked the UAE as the 57th of the same 160 developing and developed countries.¹⁷

¹⁶ PPP: purchasing power parities, measures of real GDP on an internationally comparable scale and expressed in international dollars.

¹⁷ The UAE's GNP rank = 1, HDI = 0.740, country's rank = 57th [UNDP (1992), Table 1, p. 127].

This medium human development ranking is because of the UAE's low educational indicators, used in calculating the UNDP's human development index. The reasons for the UAE's moderate educational achievements lie in the infancy of the educational institutions in UAE, formed shortly after the federation in the early 1970s. This short period of 20 years was insufficient to achieve high levels of educational attainment (in terms of adult literacy and mean years of schooling) for the entire population. Thus, there is a difference in the "time horizon" among countries, which the HDI fails to capture.

The UNDP's (1990) Report concluded that respectable levels of human development are possible even at modest levels of income. Sri Lanka, with its modest income indicator (real GDP per capita in 1989 was PPP\$2,253), has relatively high levels of human development (e.g. in 1990, adult literacy was 88.4% and life expectancy was 70.9 years). It is a good example of what a poor country can achieve in human development, independently of income growth. Hopkins (1991), however, argues that a country such as Sri Lanka that does well on the HDI is not necessarily a model of successful development. For instance, Sri Lanka has not enjoyed economic prosperity like the fastest-growing South Asian countries. Moreover, Sri Lanka has high achievements in education, but poor

achievements in developing technical skills through industrial training.

Bhalla and Glewwe (1986) argue that Sri Lanka's high ranking on many social indicators derives from its colonial experience. In contrast, the UAE was not colonized, and the absence of formal economic and political institutions before its formation in 1971 deprived her of foreign development aid (see Chapter Two).

Despite the fact that the UAE's public expenditure on education (1.9% of GNP) is twice as much as that on health (1% of GNP), the UAE has achieved higher health indicators than those of education. This can be attributed to Anand and Ravallion's (1993) finding that health capabilities are more responsive to public action than are other capabilities, such as those related to education.

5.8- THE HUMAN FREEDOM INDEX (HFI)

"Political freedom" is one of the choices in the UNDP's definition of human development. It goes further by stating that: "human development is incomplete without human freedom. Throughout history, people have been willing to sacrifice their lives to

gain national and personal liberty" [UNDP (1991), p.18].

5.8.1- COMPUTATION OF THE UAE'S HFI

The *World Human Rights Guide*, by Humana (1986), uses 40 indicators to measure freedom. Since Humana's index includes freedom of movement, the rights of assembly and free speech, the rights to ethnic and gender equality, the rule of law, and other democratic freedoms (see below), Humana's index is more than a human rights index. The UNDP (1991) refers to it as a *human freedom index*.

Humana's (1986) measures of freedom can be listed as follows:¹⁸

The right to

- travel in own country
- travel abroad
- peacefully associate and assemble
- teach ideas and receive information
- monitor human rights violations
- ethnic language.

The freedom from

- forced or child labour
- compulsory work permits
- extra-judicial killings or "disappearances"
- torture or coercion
- capital punishment
- corporal punishment
- unlawful detention
- compulsory party or organization membership
- compulsory religion or state ideology in schools
- arts control
- political censorship of press
- censorship of mail or telephone-tapping.

¹⁸ Cited in UNDP (1991), Box.1.2, p.20.

The freedom for

- peaceful political opposition
- multi-party elections by secret and universal ballot
- political and legal equality for women
- social and economic equality for ethnic minorities
- independent newspapers
- independent book publishing
- independent radio and television networks
- independent courts
- independent trade unions.

The legal right to

- a nationality
- being considered innocent until proved guilty
- free legal aid when necessary and counsel of own choice
- open trial
- prompt trial
- freedom from police searches of home without a warrant
- freedom from arbitrary seizure of personal property.

The personal right to

- inter-racial, inter-religious, or civil marriage
- equity of sexes during marriage and for divorce proceedings
- homosexuality between consenting adults
- practice any religion
- determine the number of one's children.

Drawing on Humana's criteria for judging freedom, the UNDP (1991) ranked 88 selected developing and developed countries in a three-freedom ranking according to their respective observed measures of freedoms guaranteed to their people:¹⁹

- a) high freedom ranking for countries with 31-40 freedoms guaranteed;
- b) medium freedom ranking with 11-30 freedoms guaranteed;
- c) low freedom ranking with 0-10 freedoms guaranteed.

None of the 88 countries covered by the Humana index observes all 40 freedoms. Sweden and Denmark are ranked the first, each with 38 points of the 40 measured freedoms, the USA with 33 points, the UK with 32 points, in the high freedom ranking (31-40). Iraq is at the bottom of the list with 0 points, and Romania and Libya just above it with 1 point each, in the low freedom ranking (0-10).²⁰

The UAE was not included in the UNDP's freedom ranking of the selected 88 countries. Drawing on Humana's index, however, we have assessed the UAE's human freedom index ranking, in assigning a 1 to each

¹⁹ The index was constructed for 1985. It covered only 88 countries because of the deficiency of data for other countries.

²⁰ For the ranking of the 88 countries see UNDP (1991), Table 1.5, p.20.

freedom protected and a 0 to each freedom violated. Our results rank UAE the 29th country of the 88 selected countries, with 23 measured freedoms guaranteed to its people, i.e. in a medium freedom ranking (11-30).

5.8.2- ASSESSING THE SIGNIFICANCE OF THE HFI

The UAE has recorded a relatively good record in human rights. Many indicators of the violation of human rights are absent in the UAE. This good record in human rights, and the minimal intervention of the UAE Government in many economic policies, seems to be consistent with Rao and Karnik's (1994) claim that increasing government intervention tends to worsen the human rights situation.²¹ However, according to the Humana political freedom index, the UAE, together with other Arab Gulf States, would be implicitly criticized for their political system which lacks multi-party free elections and for the implementation of capital punishment. Nevertheless, the UAE regards itself as a democratic country since it has a parliament according to its ancestral tribal democracy. Members of the UAE Parliament are appointed according to their

²¹ Recall our discussion in Chapter Four of the absence of the UAE Government's intervention in many economic policies.

standings in the tribes, their services to the nation, and their knowledge and wisdom.

As far as capital punishment is concerned, the UAE views capital punishment not only as an implementation of Islam's Laws, but as fair and effective punishment which dramatically reduces the crime of murder and has made of the UAE a country virtually free of homicide. Thus, capital punishment is looked upon as a means of *protection* of human life, not as a *violation* of human rights.

Other points given in favour of human rights in Humana's freedom index, such as the personal right to homosexuality among consenting adults, are disputed in almost all societies, throughout the world. The problem is, therefore, one of defining human rights and what indicators should be included in favour of freedom and human rights. Thus, none of the previous attempts to measure human rights has so far gained universal acceptance. In their conclusions, Rao and Karnik (1994) state:

"In closing, we acknowledge that the treatment of the human rights index as a cardinal measure is at best, subjective, and, at worst, doubtful. Thus, any results based upon them need to be interpreted with extreme caution." [Rao and Karnik (1994), p.162].

Certainly, human rights are easier to talk about than to measure.

5.9- CONCLUSION

The review of the literature on development economics reveals that the perception of development has shifted from economic growth to reducing income inequality, to the alleviation of poverty, and to meeting the basic needs of the poor. This implies socio-economic development with new emphasis on human development. Both the basic needs strategy and the human development approach can be critically examined in terms of definition, measurement, and policy implications.

Our results question whether the HDI is as robust an indicator of development as is claimed by the UNDP's *Report*. For example, the failure of the HDI to recognize the difference in "*time horizon*" among countries may make it an unsuitable index for inter-country comparisons of human development levels. However, the UNDP's HDI is welcome for its attention to human development issues and its attempt to measure development levels, using procedures which move away from the narrow economic-centred indicator, the GNP.

Measuring levels of development of countries with the HDI gives different ordering to the one based on GNP per capita.

An additional choice included in the UNDP's definition of human development, that of human freedom, may be especially relevant to the UAE. But I have concluded that human freedom and human rights are difficult to measure. Nevertheless, drawing on Humana (1986), I have assessed the UAE as having a medium human freedom ranking with 23 observed freedoms guaranteed to its people.

The successful implementation of a human development policy in the UAE, working hand-in-hand with industrialization, urbanization, and modernization, is the appropriate long-term goal of development. Progress to date has been favourable in both human development and human freedom. But these are goals which must still be borne in mind in attempts to devise new development strategies for the twenty-first century.

CHAPTER SIX:
PATTERNS OF STRUCTURAL CHANGE

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- 6.6- CONCLUSION

6.1- INTRODUCTION

Economic development can be perceived as change in the structure of the economy. Structural change refers to processes such as agricultural transformation, industrialization, demographic transition, urbanization, transformation of domestic demand and production, foreign trade, finance, and employment. The interrelated processes of structural change that accompany economic development are jointly referred to as the structural transformation [Syrquin (1988)].

In considering structural changes in the UAE's economy, this chapter seeks to discern the pattern of the UAE's economic growth and to determine its present level of development. In taking this structural view of the economy, the chapter examines the distinct sectors of economic activity and how these sectors respond to changes in demand to which the development process subjects them. This partition of the economy into sectors permits greater understanding of the problems of development and a more satisfactory appraisal of future development strategies.

The main structural changes which this chapter highlights for the UAE, and which need to be taken into account in devising future development strategies are:

- 1- the instability engendered in the economy because of its heavy reliance on oil,
- 2- the increasing contribution of the output of service sector activities to the economy,
- 3- the high and increasing level of employment in service sector activities.

In Chapter Six, the high contribution of service sector activities (in terms of both output and employment) provides one of the building blocks for the suggested strategy of knowledge-based services.

6.2- PATTERNS OF DEVELOPMENT

Development economists often argue that countries pass through "*stages*" during the course of development and that by identifying these stages one may consider a country to have reached a certain *stage of development*. While this chapter does not intend to review the intellectual history of these theories in any detail, it calls attention to the insights they can offer to development economics.

There are two different approaches in attempt to determine the basic sources and patterns of growth - one theoretical and the other empirical. The first approach, the formal one, describes how a country's economic structure can be expected to change given

various assumptions. This theoretical approach stretches back to Adam Smith and David Ricardo, and in more recent times includes the growth models of Harrod (1939), Domar (1946, 1947), Lewis (1954), Solow (1957), Rostow (1960), and Fei and Ranis (1964).

In its most simple form, a formal model is a statement of relationships among economic variables. The purpose of a model is to illustrate causal relationships among critical variables in the real world, when stripped of irrelevant complexity. Variables, clearly defined, are separated into two categories: independent (causes) and dependent (effects). The basic structure of the economic model may be set out in prose, in geometric form, or in mathematics. Models that claim scientific validity must contain variables that can be empirically measured. One standard of judgement on the quality of models requires them to predict well [Friedman (1953)].

Economic theories are divided into normative and positive theories. A normative theory is concerned with prescription and recommendations. In it the formal system can be used to discuss what "ought to be" or how the economic problems facing a society should be solved.

On the other hand, a positive economic theory is a body of systematized knowledge concerning "*what is*", including how the economic problems facing a society are actually solved.

In addition to positive and normative theory, there is an empirical or data-based approach that attempts to discern patterns of development through an analysis of data on the GNP and the structure of the economy. It can apply cross-sectionally or to a single country through time. The simplest *stage theory of development* is the *sector* thesis of Fisher (1939) and Clark (1940), who used the distinction between primary, secondary, and tertiary production as a basis of a theory of development. The search has been for common patterns for a large subgroup of countries. This empirical approach, however, was best represented by Simon Kuznets and later by Hollis Chenery and his associates [see, for example, Kuznets (1965, 1966, 1973), Chenery and Taylor (1968), Chenery and Syrquin (1975), Chenery, Robinson, and Syrquin (1986), and Morris and Adelman (1988)]. Their cross-country studies of the structures of national income and output provide a framework for the pattern approach as used in policy approaches to economic development. Structuralist theories, therefore, have more recent origin than schools of economic thought,

are less doctrinaire, can be more pragmatic, and tend to rely on empirical tests.

As the title implies, structuralist theories centre on the term "structure", i.e. the macroeconomic composition of the economy together with its productive sectors and the composition of demand and foreign trade, as well as the composition of labour force and investment that are the principal inputs to production. Chenery summarized the structuralist approach as follows:

"The structuralist approach attempts to identify specific rigidities, lags, and other characteristics of the structure of developing economies that affect economic adjustment and the choice of development policy." [Chenery (1975), p.310].

The structuralist approach can be used to explore the main factors that prevent development from taking place and the kinds of structural change that occur once growth proceeds. The structural school does not assume fully optimal resource allocation. Structuralists believe that structural changes are most likely to occur under conditions of disequilibrium, particularly in factor markets. Disequilibrium is manifested by excess supplies in some markets and excess demands in others. Accordingly, a shift of capital and labour from less productive to more productive sectors can accelerate growth. The potential gains from disequilibrium

situations are likely to be more important for developing countries than for developed ones, because developing countries display more pronounced symptoms of disequilibrium in factor markets and can achieve higher rates of structural change [Chenery (1986)]. The duality in labour market [Lewis (1954)] and the failure to reallocate resources efficiently to increase exports or to replace imports, for instance, are two examples of disequilibrium. Structural change, therefore, is perceived as a source of growth.

In contrast, the neoclassical school views the way economic growth occurs as the result of long-term effects of capital formation, labour force expansion, and technological change, which are assumed to take place under conditions of competitive equilibrium. Since capital and labour produce equal marginal returns in all uses, shifts in demand and movement of resources from one sector to another are considered insignificant as a source of growth.

Unlike the neoclassical approach, which provides policy guidelines based on predictions deduced from a set of assumptions, the pattern approach traces changes in events by identifying their place in a pattern, from the processes of change in the whole system. Changes, such as structural transformation, which take place in the process of economic

development have been identified from historical studies (mainly with data from developed countries), from international cross-section analysis, and from a combination of country and time series data.

Although economic development proceeds along paths that vary from country to country, there are some features of the development process that are common to most countries. The pattern approach focuses on the search for uniform paradigms of development and the main sources of change and growth. Therefore, much of the interest in the pattern approach derives from its possible implications for development policy [Syrquin (1988)]. However, most economists agree that there is no single or unique path which all economies have to pass through. Uniform patterns reveal association, but cannot determine causality. Morris and Adelman (1988) caution against lessons drawn from comparative growth experience.

Ingham (1992) asserts that though the pattern approach may not be the ideal research methodology in economics. Nevertheless, it has merits in development economics, in which the emphasis needs to be on understanding and explanation rather than on prediction.

In summary, pattern modelling, in following the methodology of inductive reasoning, contrasts with the deductive logic of formal economic models. The inductive approach starts with collected data, empirical observations, and facts. After collecting these facts, "laws" can be derived which can provide a basis for discussing policy alternatives.

6.3 - ECONOMIC MEASURES OF DEVELOPMENT

The pattern approach involves relating trends in GNP per capita to the various components of GNP. GNP, its components, and their growth are the main apparatus of the pattern approach for inter-country comparisons, when searching for similarities in the development patterns across countries.

6.3.1 - ESTIMATING GNP

Gross national product (GNP) is the total value of the finished goods and services produced by a society during a given year and excludes the value of intermediate consumption. The value of *intermediate consumption* includes raw materials, non-durable goods, and services used for production, including maintenance and repair for capital assets, research and development, and any other indirect payments.

Gross domestic product (GDP) is similar to GNP, except that GDP counts all income produced within the borders of a country, including income earned by resident foreigners, but excludes income earned by citizens of the country who are resident abroad.

The difference between GNP and GDP, therefore, is net foreign transactions. GNP measures the total domestic and foreign value added claimed by residents. It comprises gross domestic product GDP at purchaser values (market prices) plus net factor income from abroad.¹ *Net factor income from abroad* is the income residents receive from abroad for factor services (labour and capital) less similar payments made to non-residents who have contributed to the domestic economy. It includes the net compensation of employees (with less than one year of residence in the host country) and the net property and entrepreneurial income components of the investment income and interest on short- and long-term capital.²

6.3.2- ESTIMATING GDP

There are three approaches to measuring GDP: the production approach, the income approach (cost approach), and the expenditure approach [UN (1969)].

¹ World Bank (1992), p.xiv.

² *Ibid*

The production approach is commonly used by many official institutes to estimate the GDP of the UAE.

GDP is either measured at factor cost or at market price. GDP at factor cost is the value of GDP at producers' prices, added to which are subsidies, minus indirect taxes. On the other hand, GDP at market price is the value added at producers' prices for local producers, which include indirect tax minus government subsidies (see Table 6.1).

The share of a sector in GDP (or GNP) is measured by the value added contributed by that sector. *Value added* is the addition to the value of the product at a particular stage of production. For example, the value added of the agricultural sector is the value of the agricultural products minus the value of intermediate consumption used in their production. Value added, therefore, is equal to payments to the factors of production in the sector which includes compensations (payments paid by employers to cover social and health security, pensions, and life insurance) and wages paid to labour, profits, interest, depreciation of fixed capital, and rent.

Table 6.1

The UAE's National Accounts Indicators, 1973-1988.

(Millions of current UAE Dirhams)

Indicator	1973	1974	1975	1980	1985	1988
Current GNP per capita (US\$)	..	..	13,280	30,130	22,220	16,420
GNP	10,201	30,902	39,591	115,023	104,700	90,254
Net factor income from abroad	-1,199	-198	277	5,190	5,506	4,772
GDP at market prices	11,400	31,100	39,314	109,833	99,194	85,482
Indirect taxes, net	..	..	-321	-1,637	-2,760	-2,059
GDP at factor cost	..	..	39,635	111,470	101,954	87,541

Source: World Bank (1992), *World Tables 1992*.

6.4- GROWTH ACCOUNTING

At this stage it is useful to introduce the concept of growth accounting, and total factor productivity (TFP), though a full discussion is deferred to Chapter Eight.

Following Solow's (1957) methodology, Chenery (1986) measured three sources of growth - growth of capital, labour, and total factor productivity - for 39 economies. He found that developed economies are characterized by small growth of labour inputs, moderate growth of capital and output, and a relatively large contribution of total factor productivity (TFP) to aggregate growth. TFP refers to the efficiency with which inputs are combined and utilized. In contrast, developing economies have high growth of labour input, a higher total factor growth, and a relatively small contribution of TFP to aggregate growth. The outliers in this study, with growth rates averaging over 10%, were Japan, Israel, Spain, Hong Kong, Taiwan, and South Korea with roughly half of the growth associated with increased TFP and half with greater factor inputs.

Chenery (1986) and Nishimizu and Page's (1986) empirical findings seem to indicate that TFP growth, and factor input growth, play different roles in

mature, industrial countries from those in developing economies.

As far as foreign trade is concerned, it is useful to note at this stage that Page (1990) and Nishimizu and Page (1986), have argued that policy interventions (import protection) can result in changes in TFP and reduce its contribution to total output growth. Harrison (1994) attributes the unresolved debate about the link between trade reform and TFP, such as the lack of conclusive evidence on the linkages between trade reform and TFP, to the way in which TFP is measured.

In Chapter Eight, as a prelude to consideration of development alternatives for the UAE, we explore the empirical question posed by the new literature on endogenous growth, that is, whether TFP is exogenously determined or whether it endogenous, and whether its determinants can be identified (see Chapter Eight).

6.5- STRUCTURAL CHANGE IN THE UAE'S ECONOMY

Modern economic growth is associated with large systematic changes in the structure of production, factor use, product use, foreign trade, location of economic activities, and other economic and

demographic variables [see, for example, Kuznets (1965, 1966), Chenery (1960, 1979), and Chenery and Syrquin (1975)]. This section reviews the main structural changes in the UAE's output, labour force, and foreign trade.³

6.5.1- STRUCTURAL CHANGE IN OUTPUT

Changes in the sectoral composition of production are the most pronounced feature of structural transformation. Structural change involves major shifts between sectors that make up GDP and the output side of the production function. The most common use of structure in development and economic history refers to the relative importance of sectors in the economy in terms of production and factor use [Syrquin (1988)]. Syrquin adds:

"An obvious reason for studying structural change is that it is the center of modern economic growth. It is, therefore, an essential ingredient for describing the process and for the construction of any comprehensive theory of development. More important is the hypothesis that growth and structural change are strongly interrelated." [Syrquin (1988), p.208].

This section is concerned with the relationships between the UAE's sectors as growth took place. A change in the relative importance of sectors is defined as a structural change. GDP in the UAE is

³ Unless otherwise noted, output will be taken as equivalent to GDP.

estimated in conformity with the United Nations' System of National Accounts (SNA) and comprises the following sectors: mining industries (crude oil, other mining industries); manufacturing industries; agriculture, livestock, and fisheries; water and electricity; building and construction; trade (retail and wholesale), restaurants, and hotels; transport, storage, and communications; finance, insurance, and real estate; government services; domestic services; other services.

One clear pattern of changing economic structure in the course of economic development is that the share of industry increases as gross output per capita rises. After World War II, rapid industrialization was viewed by development economists as a prerequisite for modernization and structural change in developing countries. The difference in the output and the contribution to GDP of the industrial sector in developing countries, as opposed to its place in developed countries, was seen as the main manifestation of economic backwardness and dependence.

As far as the UAE is concerned, the manufacturing value added increased considerably from 472 million Dh in 1975 to 9,443 million Dh in 1985, and to 9,700 million Dh in 1991 (in constant prices). Its contribution to GDP increased significantly from 0.9%

in 1975 to 3.8% in 1980, and to 9.2% in 1985, but dropped to 7.7% in 1991.

Agricultural output increased sixfold from 1975 to 1991 at an average annual growth rate of 15.5%. This consistent increase in agricultural output is attributable to the sustained efforts of the UAE's Government to promote agricultural development through generous agricultural incentives and subsidies. Agricultural incentives include the provision of free agricultural plots, free mechanical levelling and preparation of agricultural plots, free or 50% of the cost of production inputs, free water wells, free technical services, and loans granted free of interest rates. Changes in the contribution to GDP of agriculture were of no great significance. In 1991, the agricultural sector comprised about 2% of GDP.

The most conspicuous sectoral shift and contribution to GDP was evident in the service sector: commerce (wholesale and retail trade), restaurants, hotels, transport, storage, communications, finance, insurance, real estates, and government services (see Table 6.3 and Figure 6.1). The contribution of the service sector to GDP increased from 22.3% in 1975 to 38.4% in 1991. It is now the second most important sector in GDP.

Table 6.2
Sectoral Origin of the UAE's GDP, 1975-1991.*

(Millions Dh, in constant prices)

Sector	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Agriculture	367	480	563	649	732	827	1020	1079	1236	1400	1525
Crude oil	35820	39456	41658	37622	52504	70532	65242	53181	44930	46955	45270
Mining	118	155	204	202	220	235	262	306	325	372	336
Manufacturing	472	702	1923	2274	2542	4191	7990	9251	9116	9655	9443
Electricity & Water	287	392	547	792	1122	1297	1509	1710	1742	2025	2225
Construction	4770	4746	7381	9749	9753	9834	9615	9692	10250	11650	9022
Commerce, hotels & restaurants	4940	6631	9054	8046	8316	9094	10384	10295	9574	9251	9025
Transport, storage & communication	1608	2295	2915	3188	3552	3731	3909	3880	3647	3890	3950
Finance & insurance	825	1459	1948	1591	1868	2123	4100	4490	5200	4848	5268
Real estate	1326	1667	2044	2482	2956	4006	4384	4476	5707	5657	5022
Other services	516	587	666	703	736	814	1126	1234	1472	1475	1580
Less imputed bank service charges	-600	-963	-1227	-1407	-1514	-1403	-2180	-2050	-2130	-1996	-1064
Producers of government services	2551	3761	4189	4496	5125	5989	8104	8830	9491	9865	10792
Domestic services of household	54	69	91	119	147	200	223	233	307	359	410
GDP at factor cost	53,054	61,437	71,956	70,506	88,059	111,470	115,688	106,607	100,867	105,406	102,804

* continued on next page.

Table 6.2 (Continued)
Sectoral Origin of UAE's GDP, 1975-1991.

(Millions Dh, in constant prices)

Sector	1986	1987	1988	1989	1990	1991
Agriculture	1673	1626	1693	1915	2072	2563
Crude oil	26330	31970	28495	36166	50162	54260
Mining	313	244	259	278	300	332
Manufacturing	7470	8054	7950	8275	9170	9700
Electricity & water	2110	2023	2095	2177	2388	2700
Construction	9221	8462	8581	9252	9226	10365
Commerce, hotels & restaurants	9528	9202	9552	9904	10220	11943
Transport, storage & communication	4493	4608	4838	5416	5767	6711
Finance & insurance	5500	5146	4062	5051	5442	5488
Real estate	5030	4918	5506	5940	6025	7440
Other services	1674	1789	1866	2046	2245	2689
Less imputed bank service charges	-1040	-1261	-1243	-1853	-1850	-2182
Producers of government services	10137	10240	11095	11497	11788	13634
Domestic services of household	410	400	421	450	477	551
GDP at factor cost	82,849	87,421	85,170	96,514	113,432	126,194

Sources:

- 1- MoP (1987), *Economic and Social Indicators in the UAE, 1975-1985*.
- 2- MoP (1993a) *Economic and Social Indicators in the UAE, 1985-1990*.
- 3- MoP (1993b), *Annual Economic Report 1993*.

The real GDP fell in 1978, 1982, 1983, 1985, 1986, and 1988. There were two reasons for this. The first reason was a fall in oil prices at the international level. The second reason was a reduction of oil production at the domestic level (UAE). The UAE, an active member of the Organization of Petroleum Exporting Countries (OPEC), had to cut back oil production to comply with its obligation to OPEC's resolutions, in an attempt to raise oil prices.

The fall in the UAE's oil production in the early eighties was due to an increase of oil production by non-OPEC countries; to the energy saving policy adopted by the industrialized countries after the oil crisis of 1973; to the development of alternative resources of energy; and to the stockpiling of oil by some developed countries, such as the so called "strategic stock" in the USA.

Real value added of the oil sector declined dramatically and decreased the UAE's GDP. This emphasizes the vulnerability and the reliance of the UAE economy on one sector, oil, and on the international oil prices (see Table 6.3 for the relative importance of the UAE's economic sectors in GDP).

However, when the UAE increased its oil production to meet the world shortage in oil, after the Iraqi invasion of Kuwait, the UAE's real GDP increased to 113,432 million Dh in 1990 (at 17.5% real GDP growth rate), and to 126,194 million Dh in 1991 (at 11.3% real GDP growth rate).

In summary, oil remains of crucial importance to the UAE economy although its contribution to GDP dropped from 67.5% in 1975 to 43% in 1991. The dominance of the oil sector in the UAE economy has engendered unstable growth rates. In 1986, real GDP fell by 19.4% as a result of the oil price collapse. In 1989, however, the UAE economy realized 13.3% real GDP owing to firm oil prices and to the growth of the service sector.

Table 6.3

Relative Importance of the UAE's Main Economic Sectors,

1975-1991.

(Percentage)

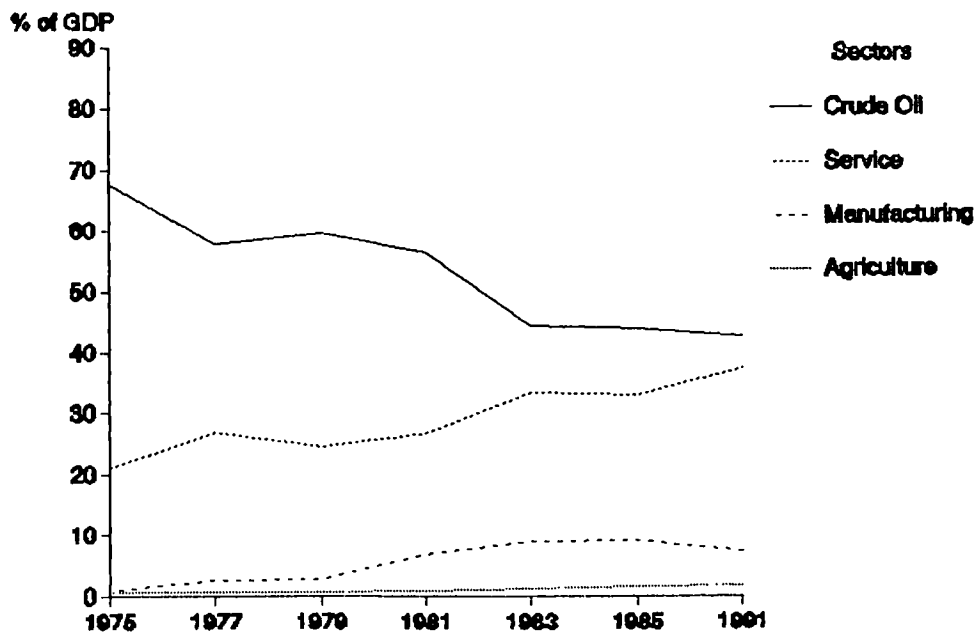
Sector	1975	1977	1979	1981	1983	1985	1987	1989	1991
Agriculture	0.7	0.8	0.8	0.9	1.2	1.5	1.9	2.0	2.0
Crude oil	67.7	57.9	59.6	56.4	44.5	44.0	36.6	37.5	43.0
Manufacturing	0.9	2.7	2.9	6.9	9.0	9.2	9.2	8.6	7.7
Electricity and water	0.5	0.8	1.3	1.3	1.7	2.2	2.3	2.3	2.1
Construction	9.0	10.3	11.1	8.3	10.2	8.8	9.7	9.6	8.2
Commerce, restaurants, and hotels	9.3	12.5	9.4	9.0	9.5	8.8	10.5	10.3	9.5
Transport, storage, and communications	3.0	4.1	4.0	3.4	3.6	3.8	5.3	5.6	5.3
Finance & insurance	1.6	2.7	2.1	3.5	5.2	5.1	5.9	5.2	4.3
Real estate	2.5	1.8	3.4	3.8	5.7	4.9	5.6	6.2	5.9
Government services	4.8	5.8	5.8	7.0	9.4	10.5	11.7	11.9	10.8

Sources:

- 1- MoP (1987), *Economic and Social Indicators in the UAE, 1975-1985*.
- 2- MoP (1993a), *Economic and Social Indicators in the UAE, 1985-1990*.
- 3- MoP (1993b), *Annual Economic Report 1993*.

Figure 6.1

Sectoral Changes in the UAE's Economy, 1975-1991.



6.5.2- STRUCTURAL CHANGE OF LABOUR FORCE

When examining structural patterns in economic development, economists focus either on commodities or on factors of production. This section addresses the changes in the composition of the labour force.

The employment pattern is closely related to structural change in an economy. Hypothetically, if all sectors in an economy had the same production functions, factor prices, and entry conditions, the changes in the pattern of employment could be expected to follow one pattern of structural change in output. However, in reality, the employment pattern in the UAE (or anywhere) does not exactly follow the country's structural change in output.

The building and construction sector employed 8.75% of the labour force in 1990, reflecting the importance of the construction industry and physical infrastructure. However, the employment share of the building and construction sector fell from 31.85% in 1975 to 27.68% in 1980, 16.52% in 1985, and to 8.75% in 1990, after the virtual completion of the physical infrastructure.

The service sector - which includes trade, restaurants, hotels, transport, storage, communications, finance, insurance, real estate,

business services, transport, storage, communications, and community, social, and personal services - ranks first in size of employment, accounting for 67.1% of the labour force. This reflects the powerful dominance of the service sector in the UAE. The share of employment in the service sector increased from 51.91% in 1975, to 56.97% in 1980, to 63.8% in 1985, and to 67.1% in 1990, corresponding to the sector's increase in real output. The service sector value added comprised the second largest value added (after the oil sector) in the UAE's GDP in 1991.

That the service sector is employing a larger share of the labour force (67.1%) than was warranted by its contribution to GDP (38.4%) might indicate consistency with Fuchs's (1969) conclusion that this phenomenon reflects the difficulty of substituting capital for labour in the service sector, and the low rates of technological progress in the service sector as compared with commodity production. Since much of the labour in the service sector in the UAE is low-wage labour from developing countries, there is little incentive to employ labour-saving capital intensive technologies.

The agricultural sector employed 11.4% of the UAE's labour force in 1990, having third ranking as a sector in the distribution of the labour force. Its

employment share increased from 4.55% in 1975 to 7.58% in 1985, and to 11.4% in 1990, corresponding to its steady increase of output for the period 1975-1991.

The oil sector employs only 1.7% of the UAE's labour force, reflecting its capital-intensive nature.

Table 6.4

Labour Force Sectors' Relative Importance in the UAE's Economy

1975, 1980, 1985, 1990

(percentage)

Sector	1975	1980	1985	1990
Mining & oil	2.34	2.12	2.05	1.72
Manufacture	5.83	6.23	7.41	8.69
Agriculture	4.55	4.57	7.58	11.42
Construction	31.85	27.68	16.52	8.75
Electricity & water	2.13	1.96	2.09	1.83
Trade, restaurants, hotels	12.77	13.27	14.18	12.64
Finance, insurance, real estate, and business services	2.04	2.67	3.39	4.1
Transport, storage, and communications	8.01	7.51	7.48	6.27
Community, social, and personal services	29.09	33.52	38.73	44.13
Others (undefined activities)	0.02	0.10	0.01	-
Not stated	0.18	0.04	0.09	-
Unemployed	1.21	0.44	0.4	0.5
Total*	100	100	100	100

Sources:

1- MoP, (1988), *Annual Statistical Abstract*.2- MoP, (1992), *Annual Statistical Abstract*.

* Because of rounding, the components do not necessarily aggregate to 100.

6.5.3- STRUCTURAL CHANGE IN FOREIGN TRADE

Some of the most important structural changes are associated with international trade. In a closed economy the structure of production closely conforms to the structure of demand, reflecting income elasticities. In an open economy, however, the structure of production is associated with the level and composition of international trade. The commodity composition of trade and type of specialization are determined by the availability of natural resources, by traditional factor inputs, and by economic policies such as the strategy of interventions characterizing import-substitution programmes. Chenery and Syrquin's (1975) results confirm the role of specialization, in either primary exports or manufacturing exports, to be greater for smaller countries than for larger countries. Trade patterns, therefore, are affected by a combination of a country's comparative advantage, economic policies, and size.

Chenery (1979) and Chenery and Syrquin (1975) have identified a number of primary exporting countries which have achieved both sustained development and substantial changes in economic structure while maintaining high shares of primary exports. Primary exports depend on unique characteristics of local, immobile resources: minerals, oil and natural gas, climate, soil type, and

geographic location. In turn, these characteristics lead to the presence of economic rents arising from primary production from agriculture, forestry, fishing, mining or extraction (oil and natural gas). The search for such economic rents lead the surplus to be "vented" [Myint (1958)] and to the production of "staples" for export [Watkins (1963)].

The relevant importance of the UAE's oil exports has decreased from 92.8% of total exports in 1975 to 74% of total exports in 1985, and to as low as 63.1% of total exports in 1988. Yet with the increase of oil production during the Gulf War, the relative importance of oil exports increased substantially to 68.3% of total exports in 1990. Since 1980, the UAE has experienced higher exports of natural gas, petroleum products, and manufactures.

In summary, in spite of the fact that crude oil exports have fallen as a proportion of the UAE's total exports, the UAE's overwhelming specialization in primary exports (crude oil) still persists.

Table 6.5 shows how the UAE has enjoyed a substantial trade surplus. Exports peaked at 84,512 million Dh in 1980 following the oil price rises of 1979-1980, while imports peaked at 35,594 million Dh in 1981. For the period 1975-1981, imports increased

both as inputs to the industrialization process itself and in response to high income elasticities of demand for imported consumer goods. However, imports declined from 1982, reaching a low of 24,878 million Dh in 1986. Yet in subsequent years imports rose again, reaching 42,510 million Dh in 1990. In turn, the trade surplus reflected sharply fluctuating exports earnings during that period. The trade surplus peaked in 1980 at 50,396 million Dh and dropped to 13,243 million Dh in 1988. The trade surplus increased in subsequent years following the oil price increases that accompanied the Gulf War.

Table 6.5

The UAE's Balance of Trade, 1976-1990.

(Millions of current UAE Dirhams)

Item	1976	1978	1980	1982	1984	1986	1988	1990
Exports (fob)	36012	39444	84512	69980	58440	36281	45033	79678
* Crude oil	33054	33619	71949	54533	42595	24611	28430	54455
* Gas	-	650	2430	5862	5275	3080	3158	4403
* Oil products	-	-	-	1459	3507	2241	2793	4400
* Other exports	8	115	539	1213	1873	1569	2944	3670
* Re-exports	2950	5060	9594	6913	5190	4780	7708	12750
Imports (cif)	13601	21473	34116	34795	25530	24878	30790	42510
Balance of trade	22411	17971	50396	35185	32910	11403	14243	37168

Sources:

- 1) MoP (1987), *Economic and Social Indicators in the UAE, 1975-1985.*
- 2) MoP (1993a), *Economic and Social Indicators in the UAE, 1985-1990.*

6.6- CONCLUSION

One way of defining economic development is as a change in the structure of the economy. Structural change refers to processes such as agricultural transformation, industrialization, transformation of domestic demand and production, foreign trade, and employment.

The economy of the UAE is largely based on oil and gas, but the reliance on oil and hydrocarbons exports made for instability in economic growth in the 1970s and 1980s.

The UAE economy, however, began a recovery in mid 1980 with growth in the non-oil sector, led by the service sector. Agricultural output increased sixfold between 1975 and 1991, but its contribution to GDP was very small. The industrial sector witnessed a substantial increase in output, but again its contribution to GDP was modest and still lagged behind both the oil and service sectors. It is the service sector, therefore, which can provide valuable clues to the way forward in the UAE during the next century.

PART III:

DEVISING AN ALTERNATIVE

DEVELOPMENT STRATEGY

CHAPTER SEVEN:
TRADE IN SERVICES

CONTENTS

- 7.1- INTRODUCTION**
- 7.2- THE RISE OF SERVICES: THEORETICAL PERSPECTIVES**
- 7.3- THE SERVICE (*POST-INDUSTRIAL*) ECONOMY**
- 7.4- DEFINING SERVICES**
- 7.5- SCOPE AND NATURE OF SERVICES**
 - 7.5.1- GENERAL CHARACTERISTICS OF SERVICES**
 - 7.5.2- EXTERNALITIES OF SERVICES**
 - 7.5.3- COMPLEMENTARITY**
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- 7.6- THE TRADEABILITY OF SERVICES**
- 7.7- INTERNATIONALLY-TRADED SERVICES**
- 7.8- DETERMINANTS OF COMPARATIVE ADVANTAGE IN TRADE IN SERVICES**
- 7.9- BARRIERS TO TRADE IN SERVICES**
- 7.10-LIBERALIZING TRADE IN SERVICES**
- 7.11-GATT AND TRADE IN SERVICES**
- 7.12-CONCLUSION AND POLICY IMPLICATIONS**

7.1- INTRODUCTION

The present chapter provides a review of the literature on the rise of services as economic activities. It addresses the notion of the "service (post-industrial) economy" and its implications for developing countries. The aim is to set the theoretical framework for an alternative development strategy for the UAE, which involves international trade in services. The chapter, therefore, examines the theoretical framework for international service transactions. It addresses the important role which international trade in services can play in the development process.

The chapter analyzes the determinants of comparative advantage in trade in services and examines how these factors may affect the emergence of developing countries (such as the UAE) as exporters of services. The analysis of the pattern of trade in services, by means of the tools provided by trade theories, places service sector activities in a policy context.

The chapter discusses the distinct characteristics of services. It addresses the link between tradeability in services, barriers to trade in services, and the issues involved in the

liberalization of trade in services under the GATT (WTO) umbrella.

7.2- THE RISE OF SERVICES: THEORETICAL PERSPECTIVES

The role of services in development has a long history in the literature. There are several theories in which the rise of the service sector is seen as a stage in the long-term transformation of economies. The conceptualization of services began with a growing perception of the place of shifts in the underlying economic structure.

Interest in the service sector stems particularly from the work of Allan Fisher, who called services the "*tertiary sector*". The other key exponent of the idea of the service sector was Colin Clark in the late 1930s [see, for example, Fisher (1939) and Clark (1940)]. Their supposition was that the development process was taking place in three stages. In the early stages of development, the primary sector is the most important sector. Then, the secondary sector takes the lead. Finally, services (the tertiary sector) come to represent the largest sector and the main driving force in the economy (see Chapter Six for the role of the service sector in the process of economic growth and structural change).

The growth of service activities is one of the most distinctive features of the current global economic restructuring. The relative prosperity of services is now a well-established feature of many industrial countries. The geographical domain of service-based industries extends far beyond national boundaries to embrace the international stage [Daniels (1993)]. The service sector presently accounts for a large part of world economic activity. For example, the United Nations Commission on Trade and Development (UNCTAD) asserts that:

"In terms of its contribution to gross domestic product, the service sector is the largest in the world economy... services comprised 64 per cent of world GDP, 67 per cent of the GDP of developed market-economies and 51 per cent of the GDP of developing countries in 1979." [UNCTAD (1985), p.13].

Recently, however, the Fisher-Clark hypothesis has been questioned on the basis that the service sector appears to be equally important at early stages of development, i.e. in developing countries as well as in developed ones [see, for example, Sapir (1986); Riddle (1986, 1987); Škreb (1992); Daniels (1993), and Broadman (1994)]. Recent findings concerning the relationship between services and economic development emphasize that services are an important and even crucial element in the early stages of economic

development [Hindley (1991)]. Services such as banking, communications, and transportation are the basis of a country's economic activity - indeed, of its infrastructure [Sapir (1986)]. Riddle (1986) maintains that service industries are the glue that holds economic activity together, the industries that facilitate economic transactions, and constitute, therefore, a principal force of economic growth.

Riddle (1987) emphasizes the crucial role of the service sector in economic growth. She finds that the share of services in GDP is positively correlated with the average annual growth of GNP per capita. In addition, she finds a positive relationship between the rate of growth of the service sector and the rate of growth of GNP per capita. The conclusion of her study is that the growth and dynamism of the service sector is a crucial vehicle for economic growth. She emphasizes:

"...the service sector is much more important in developing countries than has often been realized. Services industries facilitate every aspect of social, political, and economic life. Without transportation, communications, utilities, or construction services, little economic activity is possible." [Riddle (1987), p.83].

Škreb (1992) stresses the importance of addressing the relationship between services and development, and how to maximize the contribution of services to the development process. He provides broad guidelines for a service sector policy for development and calls for further analysis and research.

Daniels (1993) asserts that countries which want to compete in world markets need to foster or to acquire these services as cheaply, quickly, and efficiently as possible. He adds that service industries have received closer attention from academics, planners, policy-makers, and politicians.

Broadman (1994) concludes that services-based industries are an important ingredient in sustaining and enhancing economic growth for both developed and developing countries. He adds that a dynamic and competitive service sector is important to a modern, productive economy. Many services are important inputs in the production of other sectors of the economy (e.g. agriculture and industry) and play central roles in increasing the productivity of those industries.

7.3- THE SERVICE (POST-INDUSTRIAL) ECONOMY

Much has been written about the fact that the industrialized economies (particularly that of the United States) are undergoing a process of "deindustrialization", becoming, in the process, a service economies.¹ The rapid growth of the service sector coupled with the information revolution induced Daniel Bell to coin the term "*post-industrial society*" [see, Bell (1974)]. The issue is not that services replace goods but, rather, that the growth of services may complement manufacturing [see Cohen and Zysman (1987)]. Brilliantly, (if not convincingly) Zoltan Kenessey comments on the term "*the service (post-industrial) economy*":

"The term "post-industrial" involves the same difficulties as the designation of the industrial economies as "post-agricultural." After all, agriculture has not disappeared from the scene, and neither will industry in the process of development." [Kenessey (1987), p.385, n.71].

Lawrence (1983) finds that the United States has not been losing its competitive advantage in manufacturing as a whole since 1970. Instead, he argues that the United States has been developing a

¹ See, for instance, Bell (1974), Shelp (1981), and Hirschorn (1988).

comparative advantage in high-technology and resource-intensive products.

Sapir (1985) maintains that the growth in services is a reflection of a new type of industrialization characterised by a greater interdependence between manufacturing and service activities.

Landefeld (1987) argues that services are a complement to rather than a substitute for merchandise trade as the USA's major trading sector. He adds, "*services are intricately tied with goods-producing industries domestically and internationally, and the one will never replace the other.*" [Landefeld (1987), p.25].

Riddle (1987) claims that the initial growth of manufacturing (during the Industrial Revolution) was dependent upon changes in the service sector. She provides an example, stating that the development of the factories themselves was only possible because of the growth of the capital market.

Ferguson and Ferguson (1994) argue that the extent of deindustrialization cannot be precisely measured. They claim that industrial economies are not deindustrializing in equal measures. For

instance, the UK is experiencing a conspicuous decline in its industrial sector, but Japan is doing so only insofar as its share of employment in industry can be considered as suffering "deindustrialization". In contrast, deindustrialization in the United States is reflected in the US trade performance.²

7.4- DEFINING SERVICES

In analysing international transactions in services, it is important to understand some aspects of services in the context of the domestic economy. In the setting of the domestic economy, the concept of services generally covers all economic activities whose output is neither a primary nor manufactured product.

Economic development can be defined as an increase in the command over goods and services, of members of a society. Economic growth can be defined as the increase in per capita GNP. In turn, GNP is defined as the value of all goods and services produced in the economy in a given time period. To connect the provision of services with economic growth and development, however, it is necessary to define

² For more on the causes of de-industrialization, see Barnett (1986).

the notion of "services" as well as define the concept of development.

Services are activities producing an intangible output. A preliminary method of conveying an idea of what services are, is by producing a list. A simple list of services could include banking, insurance, business and financial services, wholesaling and retail trading, franchising, marketing, advertising, accounting, consultancy, communications, education, health care, transportation, tourism, recreation, entertainment, legal services, real estate, engineering, construction, architecture, and design.

Therefore, the word "services" covers so wide a range of activities that it is difficult to offer a single encompassing definition. Nevertheless, Hill (1977) has provided one of the most useful definitions of services. He defines a "service" as

"...a change in the condition of a person, or of a good belonging to some economic unit, which is brought about as a result of the activity of some other economic unit, with the prior agreement of the former person or economic unit."

[Hill (1977), p.318].

One definition of the service sector (or service-producing sector) excludes government services at all levels. A narrower definition of the service sector

includes only private personal and business services [Kutscher and Mark (1983)].

Kenessey (1987) distinguishes between *tertiary* and *quaternary* services. Tertiary activities are the utilities (transportation, electric, gas, and sanitary services) and the wholesale and retail trades. Quaternary activities are finance, insurance, real estate services, and public administration.

Daniels (1993) defines services (applicable to final consumption) on the basis of the utility that provide:

- 1- some yield immediate or short-term utility such as fast-food restaurants, the cinema, the petrol station, the laundry;
- 2- others offer medium-term or semi-durable utility such as automobile repair, or dental treatment;
- 3- others are more durable, and offer longer-term utility, for example, mortgage financing, or life insurance.

Daniels has a similar definition for services, which is applicable to intermediate consumption:

- 1- short-term utility is provided by office cleaning services, express document delivery, foreign currency dealing;

- 2- medium-term utility is provided by a market report prepared by a property consultant, or a market profile for an individual country prepared by an economic consultant;
- 3- longer-term utility is provided by advice on the installation of a computer network, the design and construction of a commercial building, or the management of a resource such as water supply.³

7.5- SCOPE AND NATURE OF SERVICES

For centuries, economists minimized the importance of services and their trade. One of the reasons why services were considered unimportant in economic growth was the belief that the service sector is not productive. The nineteenth-century classical economists (Adam Smith, David Ricardo, Karl Marx, John Stuart Mill) regarded services as a waste of resources. For example, Adam Smith considered services to be unproductive. Karl Marx, focusing on material production and distinguishing productive and unproductive activities on the ground of their direct involvement in the creation of physically tangible output, was more dismissive of the importance of services to the extent that the former Soviet Union and the socialist countries of Eastern Europe

³ Daniels (1993), pp.3-4.

historically excluded all services from their national accounts.

7.5.1- GENERAL CHARACTERISTICS OF SERVICES

An alternative way of approaching the distinct characteristics of services is to examine the difference between goods and services. Hill (1977) emphasizes the distinction between goods and services. He argues that goods and services have distinct characteristics and that "*...goods and services belong in different logical categories.*" [Hill (1977), p.336]. To Hill (1977), the key characteristics that differentiate services from goods are: (i) services cannot be stored, (ii) consumption of services must take place simultaneously with their production, and (iii) services cannot be transferred from one economic unit to another. For example, whereas commodities and manufactured goods are tangible and storable, services are often described (in the literature) as activities that produce intangible, invisible, heterogeneous, evanescent, non-separable, and (or) non-storable output.⁴

⁴ For a fuller discussion of the nature of services, see Hill (1977).

Nevertheless, in spite of the fact that some of the above characteristics are true for some services such as personal services and medical care, there are other services which do not fit the above definitions. Kravis, Heston, and Summers (1983) point out that it is possible to encounter an economic activity that is commonly agreed to be a service but does not fit into any of the above definitions of services.

Drake and Nicolaïdis (1992) reject the historical assumptions regarding the nature and characteristics of services. They summarize the revised views of services (particularly business services) as:

- a productive new locus of wealth creation;
- independent outputs in lucrative markets instead of derivative inputs to goods production;
- measurable in value;
- continuous, rather than ephemeral and temporary;
- separable and storable in networks and physical media (e.g. computer discs and electronic circuitry);
- traded between different entities;
- moving across borders through identifiable delivery paths (via networks or via the movement of suppliers);
- a coherent class of activities subject and meriting liberalization under a common set of general trade principles.

7.5.2- EXTERNALITIES OF SERVICES

Infrastructural services (banking, insurance, transportation, telecommunications) are capital-intensive and long-lasting (see Table 7.1). Infrastructural services, like social services (health and educational services) exhibit the characteristics of a public good (or public service). They are indivisible, generating both external economies and diseconomies. Therefore, benefits of infrastructural services are difficult to measure. Because of the above characteristics of infrastructural and social services, Škreb (1992) argues that the provision of infrastructural services should not be left entirely to pure market solutions, since an equilibrium cannot be obtained or the equilibrium obtained is sub-optimal.

Table 7.1

Service Industries Ranked in Descending Order of
Capital Intensity, 1973.

Rank	Capital Stock per worker hour
First decile (most capital intensive)	Pipeline transportation Railroad transportation Radio and TV broadcasting Electric utilities Gas utilities Water and sanitary service Real estate Advertising
Second decile	Water transportation Air transportation Miscellaneous consumer services Automobile repair Amusements
Third decile	Truck transportation Transportation services Miscellaneous Professional services Medical, education, and non-profit
Fourth decile	Financial institutions Miscellaneous business services
Fifth decile	Local transportation and buses
Sixth decile	---
Seventh decile (least capital intensive)	Wholesale trade Retail trade

Source:
Kutscher and Mark (1983), p.22, exhibit 1.

7.5.3- COMPLEMENTARITY

Sapir (1982: p.79) asserts that not only goods and services share common determinants in comparative advantage, but their performances also tend to be complementary, with the causality running in both directions. For example, an export of computers will be accompanied by an export of supporting services such as computer software.

Many services, such as insurance, banking, transportation, and communications are both intermediate (or producer) services and final (or consumer) services. Intermediate services (or producer services) are those services demanded by the producers of goods and other services. Producer services are linked to the production functions (inputs into the production process) including professional services, finance, and insurance. From the supply side, therefore, intermediate (producer) services are of a complementary nature to the entire production and growth process and are crucial for modern industrial development. A recent report by GATT (1989) states that services such as banking, transport, insurance, and telecommunications reach to the heart of national economies and provide basic inputs to manufacturing. Broadman (1994) maintains that producer services not only are essential inputs for agricultural and industrial industries, but they

are the main factors that increase those industries' productivity and international competitiveness.

Furthermore, intermediate or producer services are not only essential to the interdependent functioning of domestic and world markets but to the success of trade and development policies in non-service sectors [see UNCTAD (1982), Riddle (1987) and Škreb (1992)].

7.5.4- HETEROGENEITY

The term "services" encompasses a heterogeneous set of economic activities that often have little in common. The heterogeneous nature of services is the clear difference which exists between banking services, legal services, engineering services, and transport services. For instance, legal services are quite different from engineering and design services; the motion picture industry and shipping are unrelated business concerns.

7.5.5- INCOME ELASTICITY

Services are generally believed to have a high income elasticity. Demand (or consumption) factors are also used to explain the expansion of service-based industries. Services are affected by changes in

tastes as well as changes in prices. Based on data for 34 developing and developed countries, Summers (1985) finds that service shares, as measured in domestic prices, rise with a country's income. He concludes that total services are income elastic. As disposable income rises, the demand for certain services (such as tourism, durable consumer goods, private education, and private health care) also increases.

7.6- THE TRADEABILITY OF SERVICES

Some services, by nature, are non-tradeable. Services are "*embodied*" in goods or in the provider, so that production and consumption of services have to occur simultaneously through the physical proximity of seller and buyer [Grubel (1987)]. Thus, in many cases, services require the supplier of the service and the receivers to be in physical proximity [Sampson and Snape (1985)]. For example, services that require direct contact between the producer and the consumer are medical and dental care, surgery, direct education, tourism, hotels, transport services, repairs, and other personal and household services.

While some services are non-tradeable, other services such as insurance and transportation have been sold across international borders for a long

time. An example of a service that is in principle tradeable is cargo insurance. A cargo, moving from country A to country B, can be insured in either country A or B (or in any third country).⁵

By the mid to late 1980s, these services (insurance, banking, tourism, communications, and other information-related services such as data-processing) and other tradeable services were thought to account for over 25% of combined world trade in products and services.⁶

In general, traded services are those supplying business and government organizations, rather than private individuals. These are the intermediate (producer) services, which Daniels (1993) has grouped into:

- 1- information processing services such as banking, insurance, advertising, marketing, accounting, and property management;
- 2- goods-related services such as infrastructure maintenance and installation, distribution, repair and maintenance of communications equipment, and transport management;
- 3- personnel support services such as catering, welfare, personal travel, and accommodation.

⁵ The example is taken from Hindley (1991).

⁶ Peterson (1989), p.56.

Moreover, there has been a dramatic change in the tradeability of services. Advances in technologies have increased the number and types of internationally-traded services. Technological progress in the communications and information sector has eliminated the need for the provider and the user to be within physical proximity. For example, traditional services such as health care and education (once considered non-tradeable) can now be embodied in audio-visual products (video-cassettes) or traded via computer networks.

Today, services such as consulting, advertising, data-processing, computing services, broadcast entertainment, and financial services are transported from one country to another in disembodied forms. Such services have been termed "disembodied" or "separated" services [Bhagwati (1984a), Sampson and Snape (1985)]. As Moshirian (1994) indicates, Sampson and Snape (1985) called this category "separated services", which is analogous to what Bhagwati (1984a) has called "disembodied services".

Drake and Nicolaïdis (1992) comment:

"When analysts first thought of services flows as trade, they visualised movements of individuals or organizations that brought sellers and buyers into physical and temporal proximity. But now it appeared that there was another major means of supply: "electronic highways" allowing sellers and buyers to remain apart while exchanging information-based services, which could henceforth be separated from their sources, stored in computers, and "shipped" across borders.

In short, advanced computer networks collapsed space and time." [Drake and Nicolaïdis (1992), p.48].

Infrastructural services such as telecommunications, shipping, insurance, and banking operate on an international basis as a result of advances in telecommunications and information technologies. For instance, many banking and financial transactions can be executed over distances through telephone lines or satellite facilities. Other services such as engineering or management consultancy can be carried out at a distance by post, telephone, telegraph, facsimile (fax), telex, computer network, or by electronic means. Bhagwati (1984a) associated the concept "*disembodiment effect*" with this phenomenon, referring to circumstances in which services become available over distances without the physical presence of the provider of these services where used.

It is apparent that a whole range of services may be traded internationally purely as services or may be incorporated into traded goods. Tradeable services or "long-distance" services in the terminology of Bhagwati (1984a) do exist. These services can be provided by a supplier in one country to a receiver in another country without relocation by either of them, e.g. conducting banking business by computer terminal [Hindley (1990)].

In summary, services industries provide a fertile base for innovation. Advances in the technology and research and development sectors are creating new tradeable service-based industries and making many types of existing services activities increasingly tradeable across national boundaries.

Nonetheless, the above general definitions and characteristics of services in the domestic economy context are useful to abstract a narrower definition of internationally traded services.

7.7- INTERNATIONALLY-TRADED SERVICES

In recent years, the role of services in international transactions has become the focus of a great deal of attention. International traded services have a particularly important role to play in the development process for two reasons. First, intermediate or producer services most often serve as inputs into other economic activities. As such, internationally traded services often provide an essential link between economic agents that enables the interdependent functioning of markets. Secondly, many services, such as construction and engineering, or professional and technical services, embody technology. Therefore, international transactions in

those services represent a form of technology transfer [Sapir (1986)].

Service-based industries participate in the international economy via either trade or foreign investment. Within the framework of international economy, one must distinguish between international service transactions (i.e. service exports and service imports, and hence trade activities) and international services activities (including foreign sales and purchases by affiliates, implying international investment). In the services trade, therefore, not only the product but also the consumer (e.g. a tourist) and the production factors (i.e. affiliates) are movable.

The United States Department of Commerce identified eight industries in which investment is the dominant part for international transactions (banking, accounting, advertising, equipment leasing, automobile and truck leasing, equipment leasing, legal services and employment agencies), eight industries in which both trade and investment flows are important (franchising, computer services, communications, construction and engineering, insurance, health services, education, and motion pictures), and two

industries in which trade flows dominate (air and maritime transport).⁷

In summary, among the services that give rise to international trade, some are traded and some are not. The non-traded services are usually sold within the domestic economy to foreign individuals or firms residing abroad. These non-traded services include tourism and port services.

On the other hand, internationally-traded services are defined as comprising the following categories:

- 1- Transport (of goods, services, persons by air, sea, road, etc.)
- 2- Communications (transport of information)
- 3- Financial services (insurance, banking)
- 4- Professional and technical services (consulting, engineering, accounting, advertising, data processing, management, legal services, etc.)

Snape (1990) defines international trade in services as the supply by residents of one country to demanders resident in another country of services that are not incorporated in goods (other than in the paper, film, disks, and the like used to record and transfer the service). He distinguishes the receiver

⁷ Cited in Hindley and Smith (1984), p.374.

of a service from the demander (the payer). The receiver could be an object (e.g. an aircraft to be repaired) or a person other than the demander (e.g. a child to be educated). An international transaction takes place when the transaction is between a supplier and a demander who are residents of different countries, irrespective of the location of the receiver of the service.

Bhagwati (1987) argues that the permanent presence of nationals of one country in the importing country, wholly producing their services on the spot and sending remittance to their home country, should also be considered as representing trade in services.

The means in which services enter into international markets vary considerably. For example, some services such as air and maritime transportation, franchising, and licensing are exported. Other services such as tourism and hotel accommodation must be produced and consumed locally. Other services such as advertising, investment, banking, accounting, data processing, engineering, and retail trading are delivered to foreign markets mainly by foreign direct investments.

Transactions in services generally occur in one of the following ways:

- 1- some services are provided and consumed locally by the residents of a country and do not enter into the international market-place.⁸ These services are not traded in international markets, such as real estate, public services, and personal services (hair-cut, laundries, and cleaning services). Therefore, when addressing services in the context of international trade, it is necessary to distinguish those domestic services from those that are internationally traded.
- 2- some services are provided within national borders, but are consumed by non-residents. Nevertheless, they constitute international service transactions. Examples of such services are tourism, airports and seaports services, and the transport of foreign passengers by national airlines on domestic routes.
- 3- some services are provided by resident firms across their national boundaries to non-resident firms or individuals abroad. Examples are advertising, accounting, investment banking, passenger transport, air and ocean freight, insurance, communications, data processing, consulting and engineering services.

⁸ The terms "resident" and "non-resident" correspond with the "location" concept, which considers establishment as resident of a country in which it is located and operates, irrespective of the "ownership" concept.

- 4- some services are provided through contractual agreements such as partnership agreements, licence, or franchise relationships, which may involve the use of a company's brand loyalty and trademark.
- 5- some services are directly exported or sold through foreign affiliates of a parent company, such as hotel services, commercial banks, information, consulting, software, construction, film rental, transportation, and communications.

7.8- DETERMINANTS OF COMPARATIVE ADVANTAGE IN TRADE IN SERVICES

Whereas the role of services in the process of economic growth and structural change has received much attention in economic literature (see Chapter Six), economic theory has largely ignored services and little theoretical and empirical research has been done to examine the factors which determine the competitiveness of international service transactions. The heterogeneous nature of services and the deficiency of detailed statistical data about service activities on a world-wide basis constitute a formidable obstacle to providing a sensible quantitative economic theory of international service

transactions.⁹ An additional explanation of this neglect is the difficulty associated with defining services and distinguishing them from goods. For instance, the peculiarity which make services different from goods are frequently held to cast doubts on the applicability of trade theories, developed for trade in goods, to trade in services.

However, this section reviews the latest empirical work on the determinants of comparative advantage in trade in services. As David Ricardo's classic trade formulation, the theory of comparative advantage, suggests, trade patterns are determined by differences in comparative costs among countries. The laws of comparative advantage, embodied in the Heckscher-Ohlin-Samuelson model, which explains comparative advantage in terms of relative abundance of factor inputs, have long been used to explain the patterns of trade in tangible goods. Heckscher, Ohlin, and Samuelson hypothesized that variations in comparative costs among countries derive from variations in factor endowments.

⁹ Data on international transactions in services are compiled on a country basis for balance-of-payments purposes. At the international level, the International Monetary Fund (IMF) is the primary source of balance-of-payments information. See UNCTAD (1985) for a comprehensive analysis of the statistical problems relating to services.

Although the Heckscher-Ohlin-Samuelson model is used most widely by trade theorists to explain trade flows, trade economists, interested in testing theories of trade patterns, have found it necessary not only to extend the Heckscher-Ohlin-Samuelson theory to consider additional factors of production (such as skilled labour), but also to develop new trade theories which take into account variables such as economies of scale, product differentiation, technological differences, and market imperfection.¹⁰

Following Leamer's (1974) arguments that trade theories have to be tested against the trade variations among economies of particular commodity, Sapir and Lutz (1981) tested various traditional trade theories for only four services categories: (i) freight, (ii) passenger services, (iii) insurance, and (iv) other services. They concluded that conventional trade theory not only applies to goods but also to services. Their results indicate that despite protectionism in area of trade in services, there are a number of economic factors which determine comparative advantage in trade in services. The availability of physical and human capital are the main factors that affect comparative advantage in trade in services. For instance, physical capital

¹⁰ For a survey of the empirical testing of trade theories, see Deardorff (1985a).

abundance is related to the performance of transportation services (passenger and freight services). The relatively abundant supply of human capital and research and development (R&D) is related to the performance of insurance services. Trade in other services is largely related to technological know-how, which is itself linked to human-capital availability. Location and scale economies may also be an important factor for certain service industries.

In addition, Sapir and Lutz's (1981) findings support Balassa's (1979) "stages approach" to comparative advantage for manufactured goods. Balassa (1979) showed that differences between countries in the pattern of manufactured exports could be explained by differences in the abundance of physical and human capital. Balassa concluded that this finding supports a "stages approach" to comparative advantage, that is, one in which the accumulation of physical and human capital leads to changes in the structure of exports. Sapir and Lutz (1981) and Sapir (1982) confirmed that the concept of Balassa's "stages approach" seems to extend to services. This would suggest that developing countries could gain comparative advantage in certain types of services as they accumulate physical and human capital.

Bhagwati (1984b) addressed the question of why services would be cheaper in poor (underdeveloped) than in developed countries. He argued that developing countries have lower factor prices and therefore provide cheaper services since they are labour intensive. He explained why some services may be more expensive in the poor countries, pointing out that these services are capital-intensive rather than labour-intensive.

In addition to physical and human capital, UNCTAD (1985) stressed the importance for services of "innovation", as it is in manufactured products. Innovation in services can take several forms such as new modes of transport, new accounting methods for measuring foreign exchange exposure, a refinement in motion picture technology, or improved satellite transmission in communications [UNCTAD (1985), p.8]. Furthermore, location and specific natural advantages are eventually the main determinants of competitiveness in international services such as tourism [UNCTAD (1985)]. Many developing countries (Egypt, Jamaica, Kenya, Tunisia) with such natural advantages have been successful in the field of tourism. Some of these countries are dependent on the travel and tourism trade for a substantial amount of their foreign exchange earnings, as well as their domestic output (GDP) and employment.

Riddle (1986) recognizes cultural advantages as a form of comparative advantage. According to Riddle's cultural advantage, a country may exercise a particular cultural trait and derive cultural advantage at the expense of competitors, for example, the adoption of the "*etiquette schools*" by Japan Airlines to train their customer service personnel. Another example is the utilization of "*Arabian hospitality*" by *Emirates* (the UAE's international airline) to offer a generous package of in-flight services.

Riddle (1987) further proposes three potential comparative advantages:

- 1- infrastructure that exceeds minimum standards and has excess capacity (e.g. telecommunications and transportation that facilitate trade and attract further domestic and foreign investment);
- 2- language ability (e.g. Jamaica's and Barbados's promotion of their skilled, literate, English-speaking populations);
- 3- telematics training (because telematics technology enables support staff to be located anywhere in the world).

Furthermore, based on the principles of comparative advantage, Gibbs and Hayashi (1989) list the following factors that can contribute to the

competitiveness of trade in services: domestic market size; financial availability; accumulated skills, knowledge, and reputation; effective use of telecommunications, information technologies, and network systems; established relationships between producers and customers; presence in major markets; provision of a package of services; and prudent government incentives.

Daniels (1993) argues that a combination of deregulation and investment in infrastructure are necessary if information and communication-intensive services (banking, insurance, transport) are to achieve any comparative advantage outside the domestic economy.

The above results suggest that the traditional theory of comparative advantage encompasses trade in both goods and services [see Sapir and Lutz (1981), Hindley and Smith (1984), Bhagwati (1987)]. As Hindley and Smith (1984) strongly argued

"...none of the potential difficulties in applying the normative theory of comparative cost to trade and investment in service industries appears to yield any a priori reason to suppose that the theory does not apply." [Hindley and Smith (1984), p.386].

Lall (1986), however, disagrees with the assumption that trade theories formed to explain the pattern of trade in physical products can be used without significant amendment to explain that in services. He argues that

"The production of physical commodities is determined by factors and technologies quite different from those which affect the production and sale of services." [Lall (1986), p.122].

For Katouzian (1979), general factor endowments were less important determinants of trade than history or tradition, which translate into specific learning experience.

Nusbaumer (1987) calls for caution against overestimating the application of comparative advantage to trade in services. Some services require specialized knowledge, and they are exchanged on the basis of absolute rather than comparative advantage.

Ryan (1988) argues that the applicability of models of trade in goods to trade in services is an issue that cannot be settled in definitive matters. Rather, he concurs with Deardorff (1985b) that it is

necessary to build a model that captures the special characteristics of services.¹¹

Djajić and Kierzkowski (1989) indicate that the volume and direction of international trade is determined not only by the relative factor endowments of countries, but also by whether or not services are tradeable.

7.9- BARRIERS TO TRADE IN SERVICES

International trade in services face a wide range of trade restrictions. Most services are "intangible" in nature and hence do not lend themselves to conventional border measures such as quotas or tariffs. Thus, when services are internationally traded, their "invisible" properties mean that it is difficult for governments to protect local producers by means of tariffs on imports. Therefore, regulations and restrictive measures act as a substitute for protection by tariff or quota.

In general, regulations are directed towards the product, towards the producer, or towards the market. However, in the case of services, regulations are

¹¹ Deardorff (1985b) has investigated the issue of whether trade in services can be explained by the principle of comparative advantage.

mainly directed towards the producers since the product is intangible [Koekkoek (1988)].

The main restrictive non-tariff measures can be summarized as follows:

- 1- import licensing (in insurance and maritime transportation);
- 2- quantitative restrictions (in advertising, motion pictures, air transportation);
- 3- government procurement policies (in insurance, construction, transportation);
- 4- work restrictions on non-national personnel required to perform certain services;
- 5- general restrictions, such as foreign exchange controls, that limit the possibility of purchasing foreign services;
- 6- restrictions on rights of establishment and ownership of foreign investment. (Establishment problems are cited as a major barrier to entry in insurance, advertising, accountancy, and professional services in general. However, banking and financial services are heavily affected by restrictions on establishments);
- 7- measures in the form of corporation tax or other selective taxation (for direct foreign investment);
- 8- limits on the repatriation of profits which deter direct foreign investment.

Kravis (1983) classified services industries by motivations of foreign restrictions as follows:

- 1- restrictions related to cultural identity: advertising, business, professional services, education, employment services, motion pictures;
- 2- restrictions related to financial stability: banking, insurance;
- 3- restrictions related to national sovereignty or security: banking, information, transportation, accounting;
- 4- restrictions related to protection of public from monopoly power, fraud or other undesired practices not easily discerned by consumers: health, information, insurance, transportation;
- 5- restrictions not clearly related to regulation and mainly protective in purpose: construction, franchising, leasing, lodging, tourism.

Based on the classification of Sampson and Snape (1985), Snape (1990) distinguishes three types of barriers to the movement of services. Depending on the manner in which the services are traded, international trade in services can be discriminated against by:

- 1- barriers to the movement of the suppliers of services, e.g. restrictions on the inflow of labour, restrictions on the inflow of foreign investment, restrictions on foreign

professionals' practising domestically, taxation of landing or port facilities for foreign carriers.

- 2- barriers to the movement of the receivers of the service, e.g. restrictions on residents' travelling abroad for education, tourism, etc.
- 3- barriers to the trade itself, e.g. restrictions on the placement of computing, accounting, architectural, and other contracts abroad; restrictions on the receipt of electronic transmissions from abroad; restrictions on placement of banking or insurance abroad; foreign exchange restrictions.

Government restrictions (trade barriers) on international service operations may affect a wide range of key economic variables such as production and consumption of services, the volume of trade in services, distribution of income, social welfare, domestic prices, and allocation of resources. Issues related to the transfer of technology, employment, competition, restrictive business practices, and transfer pricing have similar relevance in both service and manufacturing sectors [UNCTAD (1985)]. Government policies bear a great influence on patterns of structural change in the domestic and international service sectors and consequently on the decisions made by direct foreign investment.

On the other hand, preferential trading agreements among countries, such as customs unions, common markets, and free-trade zones, affect transnational service activities. This may lead to trade creation or trade diversion in the service sector that may improve or worsen social welfare and resource allocation [UNCTAD (1985)].

7.10- LIBERALIZING TRADE IN SERVICES

It has been well recognized that the outcome of international trade in goods is that a number of benefits accrue to the countries involved. It is also believed that such benefits arise from international trade in services [Ewing (1985)]. The case for liberalizing trade in services is no different from that for trade in merchandise [Dornbusch (1992)]. The gains from trade in services are similar to those from trade in goods [Snape (1990)]. Trade enables a country to concentrate production on the products in which it has a comparative advantage, it provides access to new products and better technologies, and it facilitates the achievement of economies of scale in production.

In general, advanced economies have a comparative advantage in technology and capital-intensive services, whereas developing countries have a

comparative advantage in labour-intensive services. Therefore, many developing countries have been cautious about the prospect of liberalizing services trade [Corbet (1991)]. The clear gap between the degrees of development and sophistication of service-based industries in the developed countries as compared with the developed ones has raised doubts regarding the outcome of liberalizing international services for developing countries.

Contrary to Third World scepticism, Messerlin and Sauvant (1990) maintain that developing countries do have comparative advantage in particular sub-sectors of banking, insurance, air transport, telecommunications, tourism, shipping, construction, and professional services, including health care and software development, because of their abundant resources of labour with the needed skills.

MacBean (1992) maintains that citizens of the developing countries would be better off if service industries were open to international competition. He adds that the LDCs' user industries and consumers would benefit from access to more competitive banking, insurance, transport, and consultancy services. He supports his argument with an example indicating that some developing countries already export services successfully in air transport (e.g. Singapore Airlines

and Cathay Pacific), sea transport, tourism, films (India), computer software and engineering consultancy, and construction (Korea).

Broadman (1994) concludes that openness in trade and investment in services are vital ingredients for raising living standards and stimulating economic growth for both developed and developing countries.

Initiatives to introduce freer trade in services were launched by the United States during the 1970s, but with little success [Feketekuty (1988)]. However, following persistent pressure from the United States, attempts to devise a multilateral framework for liberalizing trade in services have been prominent during the Uruguay Round of negotiations. In general, developed countries have favoured greater freedom of trade in services while the developing countries have been reluctant to move towards these "new issues" including trade in services.¹² The same applies to the protection of intellectual property rights and trade-related investment measures [Greenaway (1993)].

Trade in goods and services has become increasingly interdependent and interrelated. Many goods cannot be sold without the simultaneous offering

¹² The "new issues" include trade in services, intellectual property rights, and trade-related investment measures.

of engineering services. For example, the delivery of turbines for power stations is linked with the sale of services regarding the installation and maintenance of the turbines. Therefore, discrimination in the services sector can directly affect trade in goods [Krommenacker (1979)]. This has increased the efforts to liberalize trade in services and has supported the proposition that trade liberalization should go hand-in-hand with actions to liberalize trade in goods [Ewing (1985)].

The principles and key concepts that are being considered in liberalizing trade in services in a multilateral framework are transparency, reciprocity, national treatment, most favoured nation status (non-discrimination), market access, increasing participation of developing countries, and progressive liberalization.

Transparency refers to the availability of information about all laws, regulations, administrative guidelines, and international agreements relating to trade in services. The objective is to ensure that all participants are fully aware of their rights and obligations arising from trade.

The principle of *reciprocity*, devised to preclude free riders, dictates that a country which agrees to a tariff concession has to offer an equivalent concession.

National treatment refers to non-discrimination between domestic supply and foreign supply. It is taken to mean that service exports and/or exports of other categories are recorded in the market of any signatory, regarding treatment of loans, regulations, and administrative practices, just like domestic services or service providers in the same market. The concept of national treatment, therefore, is the principle of treating imported products on the same basis as their indigenously-produced equivalents in such matters as taxation, product legislation, and distribution.

The concept of *most favoured nation* (or unconditional non-discrimination) has been important for the liberalization of trade in goods for more than four decades. Most favoured nation refers to non-discrimination between trading partners. All contracting parties of the General Agreement on Tariffs and Trade (GATT) are expected to abide by a principle of non-discrimination in levying tariff, known as the unconditional most favoured nation principle. This means that tariff rates levied on a

given commodity by a country must be the same for all supplying countries, and tariff concessions exchanged between any two countries must be extended to all members of GATT.

7.11- GATT AND TRADE IN SERVICES

Since the mid 1980s, global economic interdependence has increased dramatically. Notably, this success arises from a multilateral framework in the form of the General Agreement on Tariffs and Trade (GATT), established in 1947 to further liberalize trade in goods. The GATT, which was drafted during and after World War II, is based on two fundamental principles: the benefits of free trade according to the theory of comparative advantage, and multilateralism [Sapir (1993)]. Although far from perfect, the GATT forum has served the world economy by providing a system of principles and rules for trade, and as a platform for multilateral trade negotiations in which the contracting parties (signatories) have improved the system by removing (or reducing) trade barriers. It also provides a setting for consultation between countries and a mechanism for resolving trade disputes.

The importance of trade in services came to the fore in 1973 when the term "*trade in services*" was

first introduced by the OECD's (1973) *Report*. The first attempt to introduce services into the GATT, however, came from the United States at the GATT ministerial meeting of November 1982. At the end of the 1982 GATT ministerial meeting, it was decided that those countries interested in liberalizing trade in services would provide studies devoted to examining international services transactions and identifying barriers to trade in services.

In September 1986, services came to be included in the Uruguay Round of negotiations, considering several proposals on the liberalization of trade in services. For the first time, a multilateral round provided a mandate for negotiations on services, raising the possibility of creating a multilateral framework. The Uruguay Round of negotiations, which began in 1986 and ended in April 1994, was the eighth negotiating round under the GATT since 1947. Representatives of more than 122 countries signed the final act of the Uruguay Round in Marrakesh, Morocco, launching the World Trade Organization (WTO), which is due to become on January 1st 1995.

The interest in the role of services in world transactions has been engendered by the efforts of the United States Government to reduce barriers to international trade in services. The attempt to

secure a multilateral trade agreement covering services is largely an American-sponsored initiative, based on the belief that the United States has a comparative advantage in many services. Therefore, its export position would benefit from market liberalization in the services sector. In the early 1980s, this belief led representatives of a number of American corporations with service sector interests to claim that barriers to trade in services prevented them from exploiting what was presumed to be a superior competitive position. Broadman (1994) asserts that the United States has much to gain from liberalization of services markets since she is the largest services provider.

During the 1980s, a multilateral debate stormed about whether international trade in services should be governed by the rules of the GATT [see, for example, Jackson (1988)]. This was strongly resisted by the developing countries, notably Brazil and India, who considered this would give *carte blanche* to predatory multinational service companies. However, a compromise was reached at Punta del Este (Uruguay), whereby trade in goods and trade in services were to be treated as separate agenda items, so that concessions in goods trade could not be traded for concessions on trade in services. In the Punta del Este declaration, two negotiation groups were

established: one on trade in goods, the Group on Negotiations on Goods (GNG), and the other on trade in services, the Group on Negotiations on Services (GNS). Both would report to the GATT Trade Negotiations Committee. The GNS was to be independent from the rest of the negotiations.

The progress achieved in the Uruguay Round of negotiations on services suggests that trade negotiators and national policy-makers have come to share a perception that trade in services is similar to trade in goods. Nevertheless, this does not deny the fact that trade in services has its own special nature and distinct characteristics, particularly in the techniques of delivering services to international markets.

The scope of the proposition to include services under GATT auspices was based on the following:

- 1- international transactions in services have trade-like properties in common with goods,
- 2- a large portion of trade cannot take place without services (e.g. transport and insurance),
- 3- traded services are subject to regulatory barriers,
- 4- liberalizing trade in services would better serve the world economy,

- 5- GATT's principles could be useful as the baseline for a new regime. These principles included non-discrimination among contracting parties, transparency and predictability of barriers, liberalization of trade, and equality of treatment of foreign and domestic products. GATT provided a directive to establish a multilateral framework of principles and rules for trade in services, and to facilitate expansion of such trade under conditions of transparency and progressive liberalization, which would be conducive to economic growth and the development of all trading parties [Nayyar (1988)].

On the other hand, the developing countries have argued that GATT is not the proper forum for negotiations on services. The developing countries' objections, although to varying degrees, to the inclusion of services in GATT negotiations can be summarized as follows:

- 1- the concern that the inclusion of services in GATT would lead to less emphasis in goods issues. (A number of developing countries felt that the developed countries ought to do more to liberalize trade in manufactured goods before turning their attention to services.)
- 2- sectors such as banking, insurance, transport, and telecommunications constitute the core of the

infrastructure that is essential for development. (Most developing countries wish to retain control over their banking and insurance sectors, which mobilize resources to finance the process of development. To most developing countries these areas of economic activity are of strategic value if national sovereignty and national security are of vital importance).

- 3- comparative advantage in services lies mostly with the developed countries, and there are no gains for the developing countries in liberalizing trade in services.
- 4- they were worried that the developed countries would want to introduce the subject of foreign direct investment in the GATT, a very sensitive political matter.
- 5- services are regarded as crucial to their development process and developing countries have wished to build their own service industry.
- 6- some developing countries argue that the subject of services should be considered by international bodies such as the United Nations Conference on Trade and Development (UNCTAD). The perception among many Third World countries is that GATT has been a forum where developed countries' interests tend to predominate [Peterson (1989)].

7.12- CONCLUSION AND POLICY IMPLICATIONS

The growth of service industries is one of the most distinctive features of the current global economic restructuring. The service sector is equally important in developing countries as in developed ones. Services are an important and even crucial element in economic development.

The rapid growth of the service sector coupled with the information revolution led to the term "*post-industrial society*". The view was that services are the key growth area of the future. However, the issue is not that services replace goods but, rather, that the growth of services complements manufacturing.

Infrastructural services are capital-intensive and long-lasting, and they exhibit the characteristics of a public good. They are indivisible, generating both external economies and diseconomies. Infrastructural services reach to the heart of national economies and provide basic inputs to manufacturing.

Producer services are not only essential for the interdependent functioning of domestic and world markets, but to the success of trade and development policies in non-service sectors.

The term "services" encompasses a heterogeneous set of economic activities that often have little in common. Services are generally believed to have a high income elasticity. Some services are non-tradeable. Services are embodied in goods or the provider, so production and consumption of services has to occur simultaneously through the physical proximity of seller and buyer.

However, there has been a dramatic change in the tradeability of services. Advances in technologies have increased the number and types of internationally-traded services. Technological progress in communications and the information sector has eliminated the need for the provider and the user to be within physical proximity. It is apparent that a whole range of services may be traded internationally purely as services or may be incorporated into traded goods.

The importance of information technology is to be emphasized, insofar as it facilitates and enhances the degree to which existing services can be traded internationally and new tradeable services can be created.

International traded services have a particularly important role in the development process for two

reasons. First, intermediate or producer services most often serve as inputs into other economic activities. Second, many services embody technology. Service-based industries participate in the international economy via either trade or foreign investment.

In this thesis, it is international trade in services which is suggested to form the foundation of an alternative development strategy for the UAE.

CHAPTER EIGHT:
KNOWLEDGE-BASED GROWTH

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8.1- INTRODUCTION

This thesis is proposing an alternative development strategy for the UAE based on trade in services. But the type of services which are targeted, is highly important. Knowledge-based services are argued to be the key elements in the development strategy. This is because they capitalize on knowledge-based growth. In this chapter it is explained why knowledge is an important ingredient of growth and discussion is made of research from the 1950s and even earlier, together with the results of empirical work on trade and knowledge-based growth.

The literature on endogenous growth identifies human capital, or embodied knowledge, as the driving force in the growth process. As Fisher (1933: p.380) indicated, *"It was mainly extensions of knowledge relating both to agricultural and to other types of production which led to the second stage, in which secondary or manufacturing production and the activities associated therewith began to predominate."*

Chapter Eight explores new approaches to the question of economic growth. The chapter provides a survey of the contemporary and expanding body of literature on "endogenous growth theories" or "new growth theories", which emphasize the importance of human capital as being the crucial determinant in the growth process.

In particular, the chapter reviews recent papers investigating the relationship between the international trade environment (including the trade policy) and long-run growth performance. The chapter reviews the major empirical tests of the issues that the theories of economic growth have tackled. Moreover, the chapter focuses on new trade theories (and strategic trade policy) and, in the context of knowledge-based growth, outlines the main policy implications which emerge from the new theory of international trade.

Finally, the chapter reviews the main policy implications arising from both the traditional and the new growth theories.

8.2- THE PRODUCTION FUNCTION

The theories explaining the relationship between these inputs and growth at the national level are based on the *production function*. At the microeconomic level or individual firm, the production function depicts how much the output of a firm will increase if the number of units of the factor inputs rises by a given amount. The production function, therefore, is used to relate given amounts of physical inputs to the amount of physical output that can be produced with those inputs. At the national level or

economy-wide level, the *aggregate production function* describes the relationship between the size of a country's labour force and its stock of capital to the level of that country's GNP.

8.3- TRADITIONAL GROWTH THEORIES

The natural starting point for understanding economic growth is an investigation of its sources. On the supply side, three sources of growth, so far, have been emphasized: capital accumulation, growth in the labour force, and technical progress.

8.3.1- HARROD-DOMAR GROWTH MODEL

One of the simplest and best-known production functions used in the analysis of economic development was developed by Roy Harrod and Evsey Domar [see, Harrod (1939) and Domar (1946, 1947)]. Although the Harrod-Domar model was developed essentially to explain the relationship between growth and unemployment in the developed countries, it has been used in the developing countries to examine the relationship between physical capital requirements and economic growth.

Capital accumulation, in particular, has been long emphasized as an essential input in the growth

process. For instance, capital accumulation was emphasized in the Harrod-Domar growth theory. The underlying assumption of the Harrod-Domar model is that the output of any economic unit or of the whole economy depends on the amount of physical capital invested in that unit.

Later work by Lewis (1954), Rostow (1960), and Fei and Ranis (1964) emphasized the importance of the savings ratio (and the investment ratio) in originating economic growth or achieving "*take-off*" into sustained growth. Most of the models called for an increased domestic saving through fiscal policy.

The simple Harrod-Domar model, however, obscures some of the basic differences in growth performance between countries. These differences are thought to be the result of the differences between countries in the efficiency with which physical capital, labour, and other inputs are managed. Therefore, the difficulty in growth accounting procedures applied to economies over time has been to account for continual growth in output exceeding what can be explained by the observed growth of capital and man-hours. One of the answers is that growth in some unobserved inputs accounts for the additional growth in output.

8.3.2- NEOCLASSICAL GROWTH MODEL

In view of the above, economists such as Solow (1957) and Denison (1962) attempted to define the sources of growth with a different form of the aggregate production function. This neoclassical production function allows economists to separate the various causes of economic growth rather than subsume all these causes in the Harrod-Domar capital-output ratio.

Solow's (1956) neoclassical growth model assumed constant returns in two factor inputs - capital and labour - with each factor exhibiting diminishing marginal productivity. The economy is perfectly competitive and is driven by an exogenous savings rate and by the exogenous labour force (and population) growth. Solow showed that these two exogenous variables (saving and population growth) determine the "steady-state" level of income per capita. Different countries reach different steady states because savings and population growth rates vary across countries. Mankiw, Romer, and Weil (1992) indicate that Solow's model gives a simple testable prediction about how these variables influence the steady-state level of income: the higher the rate of saving, the richer the country; the higher the rate of population growth, the poorer the country.

The main way in which per capita economic growth occurs in Solow's model is through increases in the amount of capital per worker. The prediction of the model is that high per capita output growth would be associated with high investment rates relative to the labour force and population growth rates. This would raise the capital-labour ratio.

Moreover, in neoclassical growth models such as Solow's (1956), a country's per capita growth rate tends to be inversely correlated with its initial level of income per capita. If capital-labour ratios are low, then marginal productivity of investment is high. Investment displays high marginal productivity and a given investment rate would accelerate faster growth of per capita output. It follows that poor countries, with low ratios of capital to labour, have high marginal products of capital and thus tend to grow at high rates. Consequently, Solow's model implies convergency in per capita income. The low-income countries tend to grow faster than rich countries. The main element behind this convergence result in neoclassical growth models is diminishing returns to reproducible capital.

Solow's model states that an economy has a unique and stable growth path determined exogenously by the growth of the labour force and of technical progress,

with the latter assumed to expand at a regular, if unobserved, rate. The mainstream growth models that underlay growth accounting literature also attempted to quantify the role of various proximate influences on growth [see, for example, Denison (1967)]. However, as Boltho and Holtham (1992) point out, the major difficulty in this traditional approach is its failure to provide any explanation for the causes of technical progress, the most important determinant of growth. In addition, its delineation of a "*steady-state*" growth rate bears no resemblance to the real world.

In summary, traditional growth models assumed diminishing returns to per capita capital in the production of per capita output. The rate of return on investment and the rate of growth of per capita income was a decreasing function of the level of capital per capita. Over time, wage rates and capital-labour ratios across different countries are expected to converge. Thus, initial conditions or current disturbances have no long-run effect on the level of output or consumption. In the absence of technical progress, income per capita achieves a constant value in steady-state equilibria with no income per capita growth.

Finally, traditional growth accounting exercises typically leave a considerable fraction of output growth unexplained by the growth of factors inputs.

8.4- NEW GROWTH THEORIES

The early Harrod-Domar and the neoclassical growth theories assumed that technical change was an exogenously determined factor in the growth process. However, this postulate has changed with an objective to render technical progress endogenous in growth models. The new literature attributes this technical progress to endogenous human capital formation. Such approaches have led to emergence of the new growth models.

Recent economic growth theories which incorporate "knowledge" endogenously as an input in production have been titled the "new growth theories". It is worth noting (since others have failed to realize) that Fisher (1933) was one of the early economists who related knowledge to economic growth, for example, when he wrote:¹

"And the process of solution, it will be suggested, is commonly retarded by a failure to realise that economic progress which rests upon

¹ We notice in passing that many current knowledge-based growth articles do not make reference to Fisher (1933). We feel strongly that the contribution of Allan Fisher to this particular literature should not be ignored.

growth of knowledge is likely to cause important changes in the relative importance of capital as a factor of production." [Fisher (1933), p.379].

8.4.1- LEARNING-BY-DOING

Another aspects of endogenous growth theory is "learning-by-doing", which affects labour productivity positively owing to knowledge spill-over effects between the different components of human capital [Arrow (1962)]. ✓

The role of the accumulation of knowledge in economic growth has been part of endogenous growth models since the contribution of Kenneth Arrow. Arrow (1962) introduced the concept "learning-by-doing". Growth results from a learning process which is itself the product of experience. In turn, experience is a function of cumulative gross investment. Arrow (1962) maintained that the spill-over effects of increased knowledge benefit the economy in general. The level of knowledge is a productive factor which depends on past levels of investment.

Moreover, in Arrow's (1962) model, knowledge is a by-product of all or part of the productive process and is freely available to all. The idea is that knowledge is an input in the production function. The concept of knowledge being a factor in the production function renders increasing returns because, assuming

a constant level of knowledge, it is necessary to double all tangible factor inputs and productive processes in order to double output. When capital input is increased and, as a result, knowledge is permitted to vary, this process generates increasing returns. In this view, increasing returns are essentially external to individual firms because knowledge becomes publicly known.

In summary, the essence of the early learning-by-doing models is that each firm learns from the investment activity of its own investment as well as from other firms' investments. The firm's productivity, therefore, is assumed to be an increasing function of the cumulative aggregate function for the industry. Within the economy each firm is assumed to operate with constant returns to scale. With a given level of knowledge, doubling of factor inputs will double output. However, increasing capital stock through investment by a firm raises the level of knowledge elsewhere. The economy as a whole, therefore, is operating subject to increasing returns and consistent with decreasing marginal productivity of the intangible capital good, knowledge.

Stokey (1988) has developed a dynamic general equilibrium model in which competitive equilibrium paths feature sustained growth and in which the

introduction of "new and better" goods are an integral part of that growth. Through economy-wide learning by doing, the accumulation of knowledge is the only force behind growth. However, her model does not include physical capital. Stokey's (1988) endogenous growth model is similar to Arrow's (1962) model in that the accumulation of knowledge is the result of experience in production rather than a separate activity. Stokey's (1988) endogenous growth model is also similar to the models of Arrow (1962), Romer (1986), and Lucas (1988) in that (i) there is endogenously generated and sustained growth in per capita output; (ii) growth is driven by the accumulation of knowledge; and (iii) there is externality in the accumulation of knowledge. The main differences, however, are the absence of physical capital and the specification of the "new goods" space and preference. Nancy Stokey maintains that specific features of the technology and preferences are important in her model because a) it is important that learning displays spill-overs among goods; and b) it is important that "forward" spill-overs be stronger than "backward" spill-overs. She argues that this assumption is needed to ensure that "new goods" are introduced.

8.4.2 - ROMER'S "NEW KNOWLEDGE" VERSION

In contrast to the earlier traditional growth models which had predicted diminishing returns, Romer (1986) presents a competitive equilibrium model of endogenous technological change in which long-run growth is driven by the accumulation of knowledge by forward-looking, profit-maximizing agents. Romer (1986) presents a different view of long-run prospects of growth. In Romer's (1986) model, whilst maintaining the characteristic of competitive equilibrium, per capita income can grow without limit and the rate of investment and the rate of return on capital may increase as well rather than decrease with increases in the capital stock. Romer (1986) maintains that the three key elements of his model (externalities, increasing returns in the production of output, and decreasing returns in the production of new knowledge) are consistent with the comparative equilibrium model of growth.

The main feature of Romer's (1986) model is its departure from the traditional assumption of diminishing returns and the model's assumption that knowledge displays increasing marginal productivity. That is, the production of goods from increased knowledge demonstrates increasing returns due to externalities. The creation of new knowledge by a firm is assumed to have a positive external effect

that raises the production possibilities of other firms because of the inadequacy of patent protection.

"New knowledge", the decisive determinant of long-run growth in Romer's model, is produced by investment in research technology which exhibits diminishing returns. Thus, given a stock of knowledge at a particular time, a doubling of investment in research technology will not double the amount of new knowledge produced. This assumption of diminishing returns to research technology imposes a maximum upper boundary to the amount of knowledge-creating investment activity (from the viewpoint of private investors). Thus, endogenous technical change is explained in terms of the acquisition of knowledge by rational profit maximizing economic agents.

8.4.3- RESEARCH AND DEVELOPMENT GROWTH MODELS

A different attempt to explain technological change endogenously is provided by Lucas (1988), Romer (1990), Freeman and Polasky (1992), Chatterji (1994), and Gemmell (1994). The essential feature of these models is their emphasis on the importance of human capital as the crucial determinant in the growth process. Investment in human capital can take many forms including formal education, informal education,

on-the-job training, learning-by-doing, and health improvements. Lucas (1988) emphasizes the distinction between the *internal* effects of human capital, where the return accrues to the individual undergoing training, and the *external* effects, which spill over into output changes.

With a similar emphasis on human capital, Romer (1990) distinguishes between the rival component of knowledge from the non-rival technological component. A non-rival input is one for which subsequent use of such inputs has a substantially lower cost of production than at first. Technology is a non-rival input and its use by one firm does not preclude its use by another. Treating knowledge as a non-rival good explains knowledge spill-overs which may sustain long-run growth in an economy with no exogenous technological progress and constant returns to scale in production since it is not necessary to replicate the non-rival inputs [Romer (1990), and Grossman and Helpman (1991a)].

The research sector provides ideas, or improved designs, for the production of producer durables available for final goods production. In Romer's (1990) model, knowledge enters into the production function in two ways:

- 1- a new design (idea) that allows the production of new intermediate input;
- 2- a new design also that increases the stock of knowledge and therefore increases the productivity of human capital employed in the research sector.

In terms of policy implications, Romer (1990) in his formal model, draws the following conclusions:

- 1- countries with greater stocks of human capital will have a faster rate of economic growth;
- 2- low levels of human capital help to explain the comparative lack of growth in certain developing economies;
- 3- there needs to be emphasis on the benefits realized from greater involvement in international trade;
- 4- research is rationalized in terms of profit maximizing behaviour and involves expenditures in the expectation of future return.

Despite considerable studies of the role of human capital accumulation in economic growth within the growth accounting tradition, there have been few attempts to integrate human capital theory formally into theories of economic growth until the impetus provided by the new endogenous growth literature from the late 1980s. The literature contains several

models of different conceptual rationales for the inclusion of human capital in economic growth models.

Three of these are as follows:

- 1) augmenting Solow's (1956) approach by including the accumulation of human capital as well as physical capital [Mankiw, Romer, and Weil (1992)].
- 2) Romer's (1990) endogenous growth model, in which growth results directly from physical capital investment which in turn is driven by investment in R & D, generates ideas for "*new knowledge*" (designs/goods).
- 3) standard sources of growth equations, based on a dynamic Cobb-Douglas aggregate production function, can be extended to include human capital variables [Tamura (1991)]. For example, the aggregate output (or output per capita) growth is a function of the rate of growth of human capital.

A general feature of these models is the presence of increasing returns in the factors that can be accumulated [Lucas (1988), Romer (1990), Rebelo (1991)]. These models identify a R & D sector which provides ideas and which emphasizes human capital as well as the existing knowledge to produce new knowledge. In turn, new knowledge increases

productivity and is available to other economic sectors at virtually zero marginal cost.

Kim and Mohtadi (1992) claim that little has been said about the features of human capital and the mechanism by which it contributes to production and thus economic growth. In their endogenous growth model, they suggest the notion of "*specialization*" (which they claim is somewhat neglected, p.404) as a crucial aspect of human capital accumulation and examine its impact on economic growth. Their definition of specialization is based on the distinction between intensive human capital (a stock of specialized knowledge and skills that improve worker productivity in a given production activity) and extensive human capital (a stock of general knowledge that renders the workers more adaptable to a variety of activities). In their model, they note that the mechanism of specialization is internal and stems from the workers' optimal choice in response to the worker-firm wage bargaining mechanism. This differs from other analyses, in which specialization arises externally in the process of production through learning-by-doing and increasing returns to scale. They conclude that even in the absence of external spill-over of specialization, still the competitive growth path is socially optimal in the long run. This depends on the educational technology that underlies

the cost of acquiring intensive and extensive human capital, and on the growth of the population.

Gemmell (1994), however, argues that models which attempt to incorporate human capital into the growth process, for example, those of Lucas (1988) and Romer (1990), have faced the problem that the conceptual variables designed to capture the essential characteristics of human capital accumulation do not lend themselves freely to empirical testing. Therefore, empirical studies of the causes of economic growth use rather crude human capital measures or ignore human capital altogether.

8.5- POLICY IMPLICATIONS OF GROWTH MODELS

A considerable interest has developed in the determinants of the divergent paths of development both across countries and at the national level. Economists have been long examining the connection between government policies and the rates of long-run economic growth. A growing body of research has developed that investigates differences in development paths in relation to differences in government policies.

8.5.1- THE GOVERNMENT'S ROLE

Traditional growth theories, such as that of Harrod-Domar, emphasized the importance of capital accumulation as the crucial determinant in the growth process. Lewis (1954), Rostow (1960), and Fei and Ranis (1964) pointed to the importance of raising the savings ratio as the crucial factor in the growth process and the "take-off" into sustained growth. Hence, these growth models ascribed a major role to government. For instance, budgetary surpluses could substitute for domestic savings, and so fiscal policy was identified as the main growth instrument.

However, in the neoclassical one-sector growth model, i.e. Solow's (1956) model, the determinant of the growth rate was considered to be the autonomously determined rate of population expansion. Therefore, fiscal policy was considered to be irrelevant in pursuing higher rates of growth. In general, in the neoclassical growth model, with exogenous population expansion and exogenous technical change, there was no role for government to play.

Kohn and Marion (1992) indicate that knowledge-based growth models are consistent with many empirical observations that are riddles for the standard neoclassical growth model:

- (a) the lack of correlation between income levels and rates of growth;
- (b) the diversity in per capita growth rates across countries;
- (c) the lack of significant variation in the returns to capital across countries with different capital-labour ratios;
- (d) the large changes in growth rates experienced by some countries;
- (e) the failure of real wages to be equalized across countries by capital mobility.

Therefore, knowledge-based growth models emerge as a promising complement to the standard neoclassical models and provide new policy implications on many topics [Kohn and Marion, (1992)]. Boltho and Holtham (1992) add that if specific growth factors can be shown to enhance productivity, a case can be made for subsidies or other government interventions to raise investment, R & D, or human capital.

There are other considerations generally excluded from growth models but which have great relevance for the developing countries. For example, Stern (1991) emphasizes the importance of management and organization, including skills and knowledge, infrastructure, and sectoral transfer as key elements in the growth process in the developing countries.

8.5.2- GOVERNMENT SUBSIDY

Freeman and Polasky (1992) present a general equilibrium model of endogenous growth in which growth is driven by the accumulation of knowledge, a product of study. In their model, knowledge represents the part of an agent's understanding of production that can be taught to others. In this way, the accumulation of knowledge which passes voluntarily from generation to generation may generate sustained growth in output. Therefore, knowledge in Freeman and Polasky's (1992) model is freely available as a consequence of equilibrium. Although knowledge can be owned and sold in a competitive equilibrium, Freeman and Polasky (1992) claim that knowledge's equilibrium price may not be Pareto-optimum because of the inherent properties of knowledge. Two properties of knowledge lead to their model implications: (i) a person's stock of knowledge is undiminished by the transmission of that knowledge to someone else; and (ii) a third party cannot fully observe or control the transmission of knowledge between any two parties, for example, the knowledge property which can be transmitted through media (e.g. telephones or the mail) through which privacy is assured. This assumption, therefore, suggests that once knowledge is sold, the owner of knowledge does not enjoy perfect property rights. Freeman and Polasky (1992) believe that these two properties of knowledge, which differ

from properties of other inputs (physical capital), explain why knowledge is more likely than other inputs to generate beneficial external effects. It follows that their model's main implication is that growth can be stimulated by subsidizing the key input (study and research).

Emphasizing the formal schooling component of human capital in investment as the engine of growth, Glomm and Ravikumar (1992) have constructed a model of endogenous economic growth with heterogenous agents. They construct two regimes of education: a) public schools, in which investment in the quality of schools is made through majority voting; and b) private schools, in which each household chooses its quality of education. Glomm and Ravikumar (1992) find that public education reduces income inequality more quickly than private education. Private education, however, yields higher per capita incomes (unless the initial income inequality is large). In addition, they find that societies will choose public education if a majority of agents have incomes below average.

In the context of an endogenous growth model, where skill level is an input in the production process, Chatterji (1994) surveys the situations under which subsidization of training or skill production is a desirable policy. He shows that a subsidization

policy is justifiable if skills are acquired easily in an environment where the existing level of skill is already high.

Goel and Ram (1994) assess the effects of R & D expenditures on economic growth in a large cross-country setting. They find that the effect of R & D outlays on growth is positive and numerically large, but the statistical significance of the estimates is low.

8.6- TRADE AND KNOWLEDGE-BASED GROWTH

The relationship between trade and economic performance has been a central topic of debate in the last decade. Most economists believe that openness to international trade contributes to a country's dynamic performance. The work of Bhagwati (1978), Krueger (1978, 1984), the World Bank (1987), and others has indicated that the economies of countries with outward-oriented trade policies tend to grow faster over extended periods of time than those of countries that are inward oriented. The gains from trade, which include specialization according to comparative advantage, access to new products and better technologies, and the realization of economies of scale, imply that an open economy will enjoy higher levels of income and consumption than otherwise

similar, closed economies. The World Bank, for instance, has fostered the supposition that trade liberalization raises growth and productivity in developing economies. The World Bank has strongly asserted that export performance and economic growth are directly related to the outward orientation or openness of a country's trade regime. In citing the experience of export-oriented economies of the Asian newly industrialized countries (Hong Kong, Singapore, South Korea, Taiwan), the Bank supported its argument. Trade liberalization, therefore, has been a major ingredient of the structural adjustment programmes supported by the World Bank.

However, Young (1991) argues that the theoretical arguments put forward by proponents of the positive effects associated with free trade did not distinguish between *growth* versus *level* effects. For instance, the World Bank's *World Development Report 1987* argues that the adoption of an outward-oriented policy will raise savings and investment rates, eliminate rent seeking, increase X-efficiency, and correct the exchange rate value, all of which are level effects.

In the setting of the traditional growth theory, however, the reasoning for this long-run relationship between foreign trade and economic growth is weak. For example, in Solow's (1957) standard neoclassical

growth model, economic growth is driven by exogenous technical change and public policies have no effects on the steady-state growth rates of output per head. It follows that differences in trade policies will have no effect on long-run growth rates.

Stemming from the traditional long-run growth theory, the new view of economic growth draws attention to determinants such as increasing returns to scale, investment in human capital, and trade policies.

New trade theories emphasize the role of market imperfections, economies of scale, and product differentiation. It is argued that these new trade theories are applicable in many industries, particularly in the technology-intensive industries. For new trade theories, imperfect competition, scale economies, and product differentiation offer a potentially important source of gains from trade. Strategic trade policy is a new argument for industrial targeting which locates the market failures that justify government intervention in the absence of perfect competition. When increasing returns are present, the market will no longer be characterized by perfect competition. Firms in any given industry tend to be fewer where actions of one firm affect the actions of other firms. In the case of international

trade, such actions taken by a particular firm in one country will influence the actions of firms in other countries. This leads to the conclusion that policies such as import tariffs or export subsidies can improve national welfare. Government intervention is called "*strategic trade policy*" because it changes the strategic behaviour of the two firms. This change in action leads to a boost in the market share of the national firm at the expense of the foreign firm. This concept of profit-shifting from foreign competitors in imperfect markets originated with a series of papers by Brander and Spencer (1981, 1983, 1984, 1985).

However, while the strategic trade policy argument has received much attention, it has also received considerable criticism. For instance, some economists argue that to make a pragmatic use of the strategic trade policy, it would require sufficient data and information on foreign firms [Greenaway (1991), Krugman and Obstfeld (1994)]. Secondly, the vigorous effects of foreign countries' retaliation are another critique of the strategic trade policy. A country could retaliate with its own subsidies to its local firms, or could impose protective measures against the foreign, subsidized product. Consequently, strategic trade policy may initiate a "trade war" [Sapir (1993), Husted and Melvin (1993),

Krugman and Obstfeld (1994), Brown and Hogendorn (1994)].

In addition, the old guard of the free trade principle, economists such as Baldwin (1992) and Bhagwati (1992), has strongly criticized the new argument of strategic trade policy.

Corden (1990) argues that whereas the conclusions of the new trade theories have been used to support protection, the original motivation for the new trade theories was not to advocate protection. Here, it is worth quoting the pioneers of strategic trade policy, James Brander and Barbara Spencer:

"Finally, it should be emphasized that our arguments should not be taken as support for using tariffs. The highly tariff-ridden world economy that would result from each country maximizing domestic welfare taking the policies of other countries as given would be a poor outcome. Our analysis is meant to contribute to an understanding of the motives that might underlie tariff policy, and provides support for the multilateral approach to trade liberalization." [Brander and Spencer (1984), p.204]

Krugman (1987) concludes that even though economists have found important arguments for imposing protective policies, free trade remains essentially the right policy for governments to pursue.

The emergence of the new growth theories associated with learning-by-doing externalities at the sectoral level or increasing returns to capital

(including human capital) has provided an impetus to the establishing of long-run endogenous relationships between trade policies, knowledge-based industries, and long-run growth. As Shaw (1992) indicates, those who discuss the implications arising from new growth theories stress the importance of international trade and trade policy. For example, Grossman and Helpman (1990) conclude that the developing countries would gain the most from the freeing of international trade because, by doing so, developing countries can draw upon the stock of world knowledge. Yet Grossman and Helpman (1990) also point out that protection could accelerate growth if it shifts resources towards manufacturing and away from research in countries with no comparative advantage in R & D.

The argument about comparative advantage in knowledge-based industries has been used to explain how trade policy can influence long-run growth by allowing countries to specialize in those industries with scale economies that emanate from learning-by-doing, human capital accumulation, and R & D activities. Recent papers in knowledge-based growth [for example, Romer (1990); Grossman and Helpman (1990, 1991b); and Aghion and Howitt (1992)] point to the advantages to be gained from greater involvement in international trade.

Grossman and Helpman (1991b) construct an endogenous growth model of trading countries with international knowledge spill-overs. They show that policies that reduce the extent of international trade weaken the supply of innovation; therefore, the economy grows too slowly. Furthermore, they explore the possibility that commodity traders serve as a conduit for information flows. That is, international trade in tangible goods facilitates the exchange of intangible ideas.

Shaw (1992) emphasizes that in the context of the product cycle model, international trade emerges as a contributor to faster economic growth in both developed and developing countries. For example, invention and new products occur in the industrial economies where R & D activity is well developed. Then, these products will be produced in less developed countries by either imitation or technology transfer and ultimately production of these goods will migrate to the low-wage economy. Therefore, trade in manufactured goods takes place between the newly innovative products produced only in the developed countries and the more traditional products now produced by developing countries.

The new knowledge-based growth literature provides some support for the notion that rent seeking

may have adverse growth rate effects in addition to the traditional static losses. By presenting an endogenous growth model with human capital accumulation as the engine of growth, Pecorino (1992) finds that the rent-seeking activity reduces the long-run growth by reducing the incentive to accumulate productive human capital.

Ghatak, Milner, and Utkulu's (1994) empirical work investigates the role of trade liberalization on economic growth in the context of the new growth theories. Their results indicate that trade policy affects growth in both the short and long run. In the long run, however, the effect is conditional upon or simultaneously determined alongside both physical and human accumulation effects on growth. They conclude from their results that a joint long-run effect of trade policy and human capital on growth is supportive of the new growth models.

8.7- CONCLUSION AND POLICY GUIDELINES

Understanding the process of economic growth has been central since the days of the classical economists (Adam Smith, Ricardo, Marx, and Malthus), while the question of what determines economic growth and the rate of growth has constituted one focus of development economics since World War II.

The challenge in the growth accounting of economies over time has been to account for continual growth in output exceeding what can be explained by the observed growth of factor inputs. One of the explanations is that growth in some unobserved inputs accounts for the additional growth in output.

One aspect of endogenous growth theories is learning-by-doing, which affects labour productivity positively owing to knowledge spill-over effects. In contrast to the earlier traditional growth models which had predicted diminishing returns, Romer (1986) presents a competitive equilibrium model of endogenous technological change in which growth is driven by the accumulation of knowledge. The key elements of his model (externalities, increasing returns in the production of output, and decreasing returns in the production of new knowledge) are consistent with comparative equilibrium.

The essential feature of the R & D growth models is their emphasis on the importance of human capital as the crucial determinant in the growth process. These models identify a R & D sector which provides ideas and which emphasizes human capital, as well as the existing knowledge, to produce new knowledge.

The relationship between trade and economic performance has been a central topic of debate in the last decade. Most economists believe that openness to international trade contributes to a country's dynamic performance and that the economies of countries with outward-oriented trade policies tend to grow faster over extended periods of time than those of countries that are inward oriented.

In this thesis, a development strategy which builds links between the export of services and knowledge-based growth, is suggested as an appropriate way forward for the UAE.

PART IV:

NEW THINKING ON DEVELOPMENT

STRATEGIES FOR THE UAE

CHAPTER NINE:
KNOWLEDGE-BASED SERVICES

CONTENTS

- 9.1- INTRODUCTION
- 9.2- RATIONALE FOR A DEVELOPMENT STRATEGY INVOLVING
KNOWLEDGE-BASED SERVICES
- 9.3- THE CONCEPT OF "KNOWLEDGE-BASED" ACTIVITIES
- 9.4- OBJECTIVES OF A KNOWLEDGE-BASED SERVICES STRATEGY
OF DEVELOPMENT
- 9.5- THE KNOWLEDGE TRANSFER PROCESS
- 9.6- POLICY CONCLUSIONS

9.1- INTRODUCTION

First, Chapter Nine offers a rationale for a development strategy of knowledge-based services. Secondly, the chapter offers some explanation of the concept "knowledge-based", utilizing in this context the OECD's range of indicators to measure the knowledge intensity of an industry. Thirdly, the chapter goes on to outline the main objectives of a knowledge-based services strategy. Finally, the chapter utilizes some recent research [Padmore and Topham (1995)] to shed future light on the requirements of such a strategy, in terms of the knowledge transfer process. In this context, certain policy conclusions are drawn.

9.2- RATIONALE FOR A DEVELOPMENT STRATEGY INVOLVING KNOWLEDGE-BASED SERVICES

The UAE has a very limited agricultural potential, because of unsuitable land, water scarcity, and the harsh climate, though there has been a consistent and substantial increase in the amount of land devoted to agriculture and forestry over the past twenty years as the result of sustained efforts by the UAE Government to promote agricultural development. Fish resources are also relatively abundant along the UAE coastline.

The UAE is, however, endowed with vast resources of oil, explored and produced on the mainland and offshore. Associated gas from crude oil production and non-associated gas are also produced on the mainland and offshore. The UAE's economy depends almost entirely on oil. Oil accounts for over 70% of the UAE's total export earnings and more than 85% of government revenue. Oil income, therefore, is the single principal source of the UAE's GDP.

In addition, much of the non-petroleum economic activity is stimulated by the oil sector. The UAE's phenomenal growth since the early 1970s has depended entirely on the discovery and exploitation of oil. On the basis of current daily oil production of 2 million barrels per day, oil reserves in the UAE are estimated to last for more than 134 years.

In consequence of oil, the UAE is a very wealthy country. The major surpluses achieved have enabled the UAE to accumulate a sizeable current account balance, held mainly by the governments of the individual Emirates and partly by other private establishments. A small indigenous population, a large expatriate population, and immense wealth generated by oil are the dominant socio-economic features of the UAE at present.

In common with similar countries, the UAE, whose economy has been significantly dependent on the export of one primary product, namely oil, has pursued an industrialization strategy to diversify the sources of its national income and to reduce its dependence on oil. But it has emerged from empirical research and has been reported in the literature that resource-based industrialization (RBI) lacks the flexibility for successful export-led growth. RBI on its own is not an effective vehicle for accelerating economic growth, or for promoting healthy structural change and geographical decentralization. The massive capital investment, high risk, sophisticated technology, and slow creation of viable employment of RBI render it an inappropriate tool for regional development even for capital-surplus countries. The petroleum industries generally remain enclaves, remote from other centres of production and ill-adapted to link with them economically. The local stimulus from isolated, highly capital-intensive plants is muted. RBI, therefore, must be a part of a broader development strategy which promotes the non-resource tradeable sectors.

In the search for an alternative development strategy, it is imperative to take into account the fact that the perception of development has shifted from economic growth to reducing income inequality, to

the alleviation of poverty, meeting the basic needs of the poor, and to socio-economic development with new emphasis on *human development*. ✓ An alternative development strategy also has to take account of the fact that the growth of service industries is one of the most distinctive features of the current global economic restructuring. The rapid growth of the service sector coupled with the information revolution have led to the term "*post-industrial society*". The view is that services hold the key to the future. However, the issue is not that services replace goods but, rather, that the growth of services may complement manufacturing. ✓

There has also been a significant change in the tradeability of services. Advances in technologies have increased the number and types of internationally-traded services. Technological progress in the communications and information sector has eliminated the need for the provider and the user to be within physical proximity. It is apparent that a whole range of services may be traded internationally purely as services or may be incorporated into traded goods.

Today, many services are transported from one country to another in disembodied forms. Many services can be carried out at a distance by post,

telephone, telegraph, facsimile (fax), telex, a computer network, or by other electronic means.

Service industries provide a fertile base for innovation. Advances in technology are creating new tradeable service-based industries and enhancing the degree to which existing services can be traded internationally.

The essential feature of the R & D growth models is their emphasis on the importance of human capital (or embodied knowledge) as the crucial determinant in the growth process. These models identify a R & D sector which provides ideas and which emphasizes human capital as well as the existing knowledge to produce new knowledge. Knowledge must be acquired.

Taking into account the above arguments and the findings in this thesis concerning the UAE's institutional, social, economic, financial, and real resource constraints, this chapter suggests a possible role for exports of knowledge-based services from the UAE to diversify the economy and to sustain economic growth. The link between international trade in services and induced knowledge-based growth can make a significant contribution in terms of this strategy. A development strategy based on exporting services of knowledge-based products could contribute to the

diversification of national income and help sustain the country's economic growth in the long run, by developing its resources of human capital

9.3- THE CONCEPT OF "KNOWLEDGE-BASED" ACTIVITIES

The concept "*knowledge-based*" is a multiplicity of several similar terms such as "high technology", "scientific and technological knowledge", or "advanced technology", all of which are based on the need for a strong R & D effort and technical know-how that contribute to industrial and commercial success.

The OECD (1986) has presented a range of indicators to measure the knowledge-intensity of a knowledge-based industry and its impact on the economy and society at large. Particular attention is given by the OECD to indicators of the diffusion of technology, and of trade, and competitiveness in highly knowledge-based industries. The OECD's "knowledge-intensity indicators" are divided into three main categories measuring: (i) inputs into the science and technology production system such as R & D efforts, (ii) outputs from the science and technology system such as patents, and (iii) impact indicators such as production of and trade in knowledge-intensive goods. The OECD's (1986) *Report*,

however, admits that none of the indicators is a complete measure. For instance, R & D is not the only input into the generation of knowledge.

Nevertheless, the OECD (1986) uses the criterion of the intensity of R & D efforts in the production of a particular industry to classify industries as involving high, medium, or low levels of R & D intensity. High knowledge-based industries are those with a high R & D expenditure. Knowledge-intensity is measured by the ratio of R & D expenditure to production. The OECD (1986) calculates this ratio for each industry for eleven countries taken together as an area (Australia, Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom, and the United States). This ratio is an average weighted by each industry's share in total output for the eleven countries. Table 9.1 depicts the industry ranking for the year 1980 as cited in OECD (1986), p.59, Table 2.11.

Table 9.1

Intensity of R & D Expenditure in the OECD Area
(Weighting of the 11 Main Countries - R & D Expenditure/Output)

1980	
	Intensities
High	
1. Aerospace	22.7
2. Office machines, computers	17.5
3. Electronics & components	10.4
4. Drugs	8.7
5. Instruments	4.8
6. Electrical machinery	4.4
	Average 11.4
Medium	
7. Automobiles	2.7
8. Chemicals	2.3
9. Other manufacturing ind.	1.8
10. Non-electrical machinery	1.6
11. Rubber, plastics	1.2
12. Non-ferrous metals	1.0
	Average 1.7
Low	
13. Stone, clay, glass	0.9
14. Food, beverages, tobacco	0.8
15. Shipbuilding	0.6
16. Petrol refineries	0.6
17. Ferrous metals	0.6
18. Fabricated metal products	0.4
19. Paper, printing	0.3
20. Wood, cork, furniture	0.3
21. Textiles, footwear, leather	0.2
	Average 0.5

Source: OECD (1986), *OECD Science and Technology Indicators: R & D, Invention and Competitiveness*, No.2, p.59, Table 2.11.

In addition, the OECD's (1986) *Report* uses several international indicators, which reflect the levels of R & D efforts according to the size of a country's economy or its population. One of the main indicators is gross domestic expenditure on research and development (GDERD) as a percentage of gross domestic product (GDP). The *Report* reveals that this indicator GDERD/GDP for the OECD countries has been steadily increasing since 1979, reaching to 2.2% of GDP in 1983. The United States' share in total R & D expenditures in the OECD area comprised 46%; the EEC's (European Economic Community's) followed with 28.7%; and then came Japan's with 17.4% of the total for the OECD area in 1983.

It is not suggested in this thesis that the UAE should attempt to replicate the experience of OECD countries. The latter have different economic histories, factor endowments, and very dissimilar geopolitical circumstances. Nevertheless, the key feature of R & D, focusing on activities with high R & D intensity, does have some lessons for the UAE. High earnings from oil could provide the basis for new areas of comparative advantage deriving from investment in R & D.

9.4- OBJECTIVES OF A KNOWLEDGE-BASED SERVICES STRATEGY OF DEVELOPMENT

The main objectives of a strategy based on knowledge-based services would be:

- 1- the diversification of the country's national income,
- 2- the promotion of balanced and diversified growth,
- 3- the creation within the economy of a knowledge-based services sector to contribute to economic development,
- 4- the provision of a highly-skilled and trained labour force,
- 5- an increase in the number and variety of job opportunities,
- 6- the attraction of major technology-intensive companies to stay permanently in the UAE.

Though it is almost impossible to formulate a single, all-embracing development strategy for a country, in general, for a development strategy to be successful, it has to be constantly revised and developed. Existing policies can be modified and new policies brought forward in line with the requirements of knowledge-based economic development.¹

¹ For periodic update on technology transfer and policy news, see *Innovation & Technology Transfer*, The European Commission Directorate General XIII-D.

I have judged that the fundamental requirements of a knowledge-based services strategy in the UAE would be as follows:²

- 1- effective government financial support for research centres and higher education establishments (in both the public and the private sector). The UAE is fortunate in having the necessary financial resources to provide this support;
- 2- emphasis on the availability and quality of educational institutions and research-based universities. These would have the role of providing the essential pool of new graduates, qualified manpower, scientists, and academics;
- 3- an explicit and key role for technology-oriented R & D centres, with major emphasis on technology transfer and commercialization, the achievement of scientific pre-eminence at an international level, and the attraction of leading multinational companies;
- 4- managers and government officials should be encouraged and trained to plan and coordinate enhanced technology development, facilitating technology transfer into the UAE for commercialization and production;

² This section draws heavily on several articles of M&H (1989), OECD (1991), Moore (1993), Oppenheim (1993), Orna (1993), Topham (1994), Jeremy (1994).

- 5- an appropriate legislative and regulatory framework should be provided within which the exchange and use of knowledge is encouraged while protecting intellectual property rights (copyright and patents);
- 6- efforts should be made to maintain a good quality of life environment, with emphasis on the availability of health care, schools, and sports and recreational activities;
- 7- an appropriate and up-to-date physical infrastructure, involving high-quality transport, communications, and utilities (electricity, water, gas, etc.) needs to be provided in the future, as it has been in the past.

9.5- THE KNOWLEDGE TRANSFER PROCESS

In order for a country such as the UAE to specialize in knowledge-based activities through the development of new and advanced technologies, there needs to be a process of technology development and transfer. In this Section I am indebted to Professor N. Topham and K. Padmore for permission to describe a model of technology transfer which may be appropriate to the UAE if it were decided to focus development strategy towards knowledge-based services.

The model of the knowledge-transfer-process [adapted from the © K. Padmore and N. Topham Model (1995)]³ aims to capture the logic of technology transfer, with emphasis on the roles of private businesses, multinational enterprises, the state, financial institutions, scientists, academics, universities, and research centres in the transfer process.

The term "*research park*" generally refers to a concentration of research and development activities which have formal links with universities and research centres, attract major technology companies, encourage the formation of knowledge-based industries, and promote technology transfer. However, Topham (1994) maintains that new high-tech industries do not have to be tied to core regions provided there is good access to national and international transport networks. In general, single site, university science parks in the USA and UK have not proved to be successful in nurturing high-tech activities [Topham (1994)].

The fundamental and interrelated requirements of knowledge transfer are suppliers, factors of production, holders, deliverables, and customers. Their interrelations are illustrated in Figure 9.1.

³ K. Padmore and N. Topham (1995), *Technology Transfer Process*, Salford University Business Services.

On the supply side, the joint efforts of (public/private) universities, research centres, prestigious multinational companies, research laboratory companies, and aspects of international and professional labour markets would provide the factors of production, promising knowledge-based activities (information/ telecommunications technologies, computer software, etc.), laboratories, materials, space, skilled entrepreneurial management, corporate scientists and academics (respectively, as shown in the first two columns in Figure 9.1).

In addition, a "*liaison office*" (attached to the universities, research centres, and multinational companies box in Figure 9.1) is to identify new products and to coordinate work related to the design and the creation of new products with commercial potential.

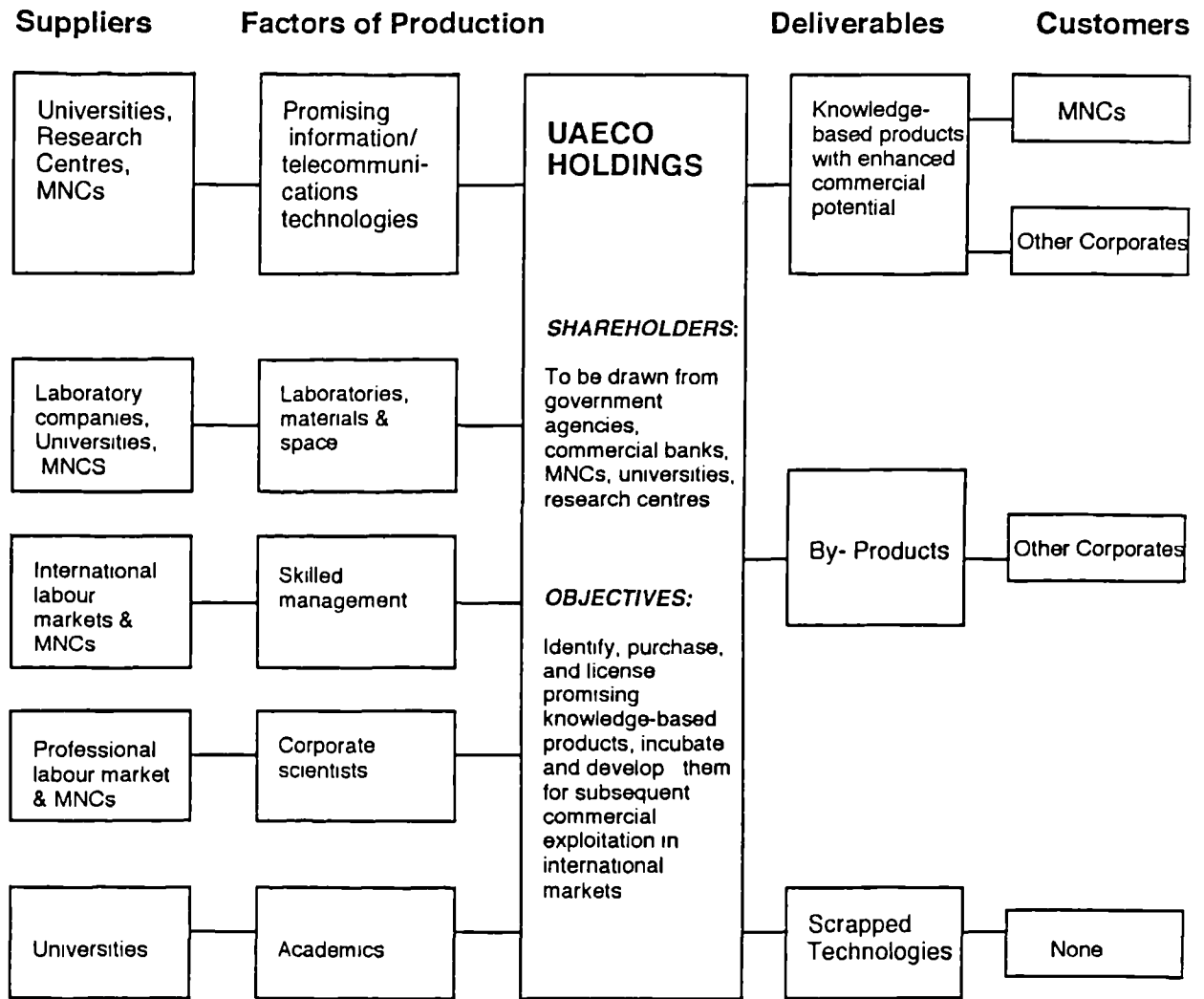
A new company, for example, UAECO Holdings, with shareholders drawn from commercial banks, government agencies, multinational companies, private enterprises, universities, or research centres, would be established with the objective of identifying, purchasing, and licensing promising knowledge-based products. The objective would be to incubate and develop new products (or designs) for subsequent commercial exploitation in international markets.

A sizeable portion of UAECO's profits could be earmarked for the support of universities and research centres so that they may continue building up science and research capabilities for the development of further new products (or ideas).

The scenario would be for three types of outcome:

- 1- knowledge-based activities would be promoted, focusing on those with enhanced commercial potential. Either the participating multinational companies, or other corporates would buy the licence and produce the goods/services.
- 2- other interested corporates would buy by-product technology to complement their existing activities;
- 3- technologies that failed to realize their commercial potential would be quickly identified and scrapped.

Figure 9.1:
Knowledge Transfer Process



Source:
adapted from K. Padmore & N. Topham (1995), *Technology Transfer Process*, Salford University Business Services.

9.6- POLICY CONCLUSIONS

I believe that this knowledge-transfer process could be successfully exploited in the UAE, if a development strategy involving the production and export of knowledge-based services were to be adopted. This could provide a useful and quite specific area for future research, identifying likely "suppliers" to the UAE, and exploiting the UAE's "factors of production", which could be enhanced through the judicious use of oil revenues to promote research and development. I believe that this thesis has successfully identified the likely constraints on such a process (labour supply, institutional aspects, etc.) and also the benefits, in terms of diversification and human development, likely to follow from it.

There are important implications of the knowledge-transfer process for the UAE. First, a greater role for government support is required, to establish comparative advantage in knowledge-based services, especially in the areas of education, training, and R & D efforts.

Second, there are important changes to be expected in the private sector's interaction with government-sponsored research in the public universities, research centres, and laboratories.

Third, the role of multinational enterprises needs to be appraised in terms of its capability for delivering rapid and cost-effective knowledge and skills to local residents.

Fourth, there is the necessity for pursuing a legal system that will protect property rights and thereby promote the creation of knowledge-based industries.

Fifth, there are implications for an open international trade policy. An outward-looking trade strategy is required to capitalize on comparative advantage in knowledge-based services and to reinforce long-run growth performance.

It should be emphasized, however, that the knowledge-services strategy must be considered as part of a wider development policy. Indeed, all of the evidence indicates that there are no simple all-embracing policies that would guarantee the success of a country's development. For instance, in the case of the UAE, policies that aim to sustain and improve infrastructure, maintain existing agricultural and industrial incentives, enhance female participation in the labour force, and confront under-utilized employment in the huge public sector should not be sacrificed. They bring their own benefits.

Nevertheless, I believe that they can be incorporated quite successfully into a development strategy involving knowledge-based services. In particular, a growing number of UAE nationals entering the labour force could be attracted into the knowledge-based sector.

CHAPTER TEN:
GENERAL CONCLUSIONS

The UAE's vast wealth springs from the country's, modest population base and its huge oil resources. The major surpluses achieved have enabled the UAE to accumulate a sizeable current account balance, held mainly by the governments of the individual Emirates and partly by a range of private establishments.

While the UAE's population is essentially small, after the discovery of oil and its exportation in the last two decades, the population of the country has undergone very rapid growth. This has been the result of the combination of the high natural rate of increase of the UAE's indigenous citizens and the massive immigration of expatriates, who have come to comprise more than three quarters of the population.

The UAE's small population severely limits the size of its domestic market, particularly since only a small fraction of the expatriates' incomes is spent domestically whereas the remainder is remitted abroad to the earners' respective countries of origin.

A two-tier labour market has emerged in the UAE, consisting of the indigenous labour force, constituting about 10% of the total work force, and an unlimited supply of foreign labourers.

The two factors which have acted as constraints on the UAE's industrial development, limited raw materials and the size of the domestic market. Counterbalancing these, the abundant oil and gas reserves, the ready availability of financial capital, a well-established infrastructure, a flexible employment policy, abundant cheap energy, industrial free zones and industrial incentive legislation, and political and social stability have been the main incentives for the UAE's industrialization.

To some extent industrialization in the UAE has broadened the base of the economy; increased industrial productivity; diversified exports to more than 184 exportable industrial products; increased the value of industrial exports. Nevertheless, industrialization in the UAE has not reduced significantly the economy's reliance on oil.

The classical trade theory of comparative advantage suggests that trade patterns are determined by differences in comparative costs among countries. Empirical results indicate that conventional trade theories apply not only to goods but also to services. Available physical and human capital are the main factors that affect comparative advantage in trade in services. Location and scale economies are also important. Other advantages relevant to trade in

services are innovation; location and specific natural advantages; cultural advantages; domestic market size; financial availability; accumulated skills, knowledge, and reputation; effective use of telecommunications, information technologies, and network systems; established relationships between producers and customers; presence in major markets; provision of a package of services; and prudent government incentives. In addition, there are three potential comparative advantages: infrastructure that exceeds minimum standards and has excess capacity, language ability, and telematics training.

This thesis suggests that it is possible, primarily through R & D and technology transfer, for the UAE to develop a comparative advantage in knowledge-based services.

Taking account of comparative advantage in knowledge-based industries, trade policy can influence long-term growth by allowing countries to specialize in those industries with scale economies that emanate from learning-by-doing, human capital accumulation, and R & D activities.

From the point of view of economic analysis, this thesis contends that knowledge-based growth models are a promising complement to the standard neoclassical

models and provide new policy implications for developing countries on many topics. In most of the endogenous growth analyses, the accumulation of human capital is viewed as involving externalities, so that government intervention at times may be justifiable.

There is, in fact, a role for international trade in services from the UAE to diversify the economy and to sustain its economic growth in the coming twenty-first century.

Knowledge-based services such as data processing, telecommunications, information-related services, computer services, and software development are highly skilled. It is therefore necessary for governments to facilitate the acquisition of such skills (or comparative advantage), through investments in education, training, and R & D activities. Thus an enhanced, not a reduced role, is anticipated for the government.

The government is expected to establish a comparative advantage in knowledge-based services by exerting a major impact upon the level of education, training, and R & D efforts. Multinational enterprises are also expected to deliver rapid and cost-effective knowledge and skills to local residents. Finally, it is essential that the

government in the twenty-first century pursue a legal system that protects property rights and promotes the creation of knowledge-based industries.

This development strategy has been shown to be consistent with the institutional features of the UAE described in Part I of the thesis. There is no reason why it should conflict with cultural, and broader social and political objectives. In favouring the growth of human capital, the development strategy also has implications for development viewed as "human development", improving the capabilities and choices facing the population, and offering new opportunities for employment to females for example, and also to the indigenous labour at present in "disguised unemployment" in the public sector.

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