

American University in Cairo

AUC Knowledge Fountain

Archived Theses and Dissertations

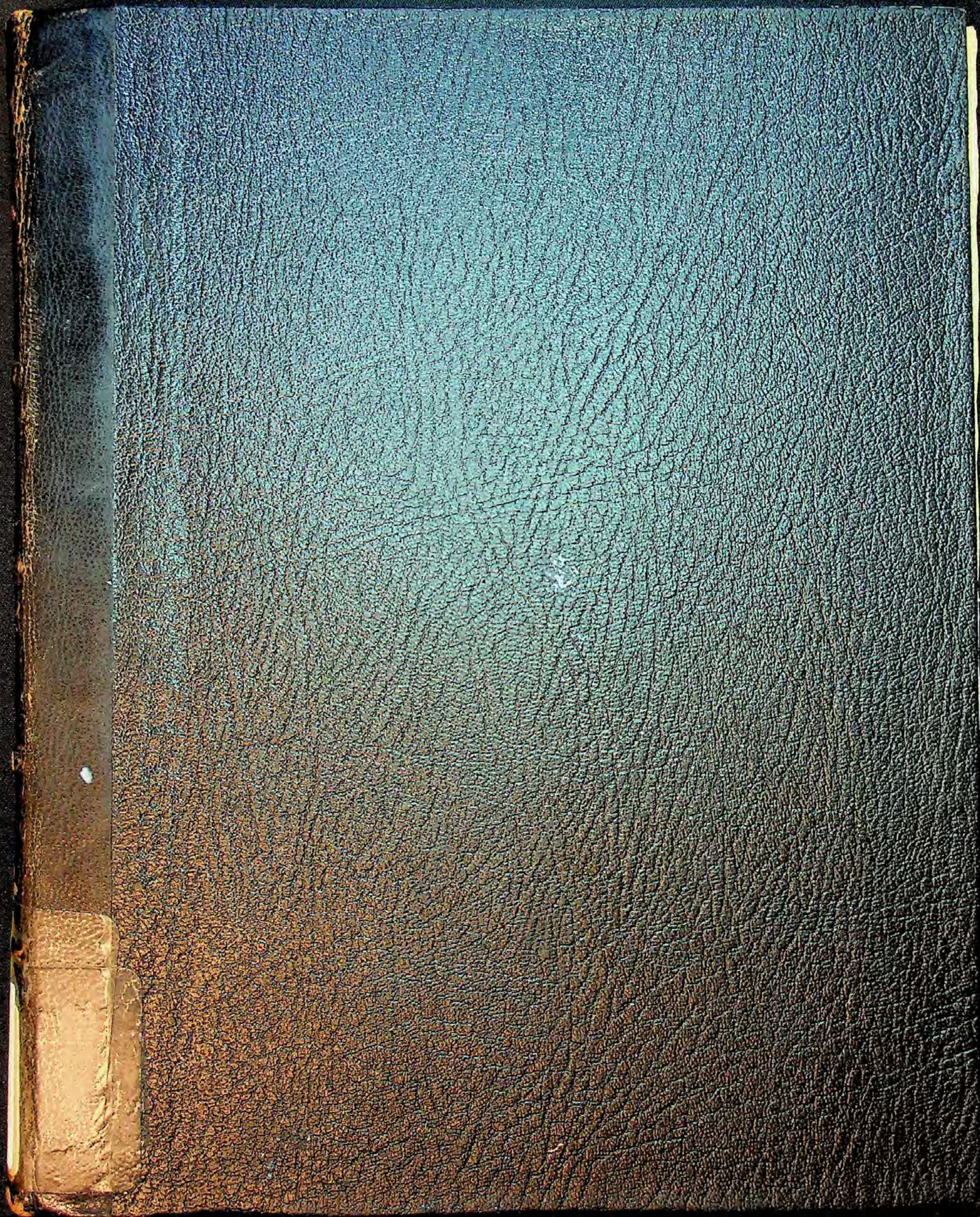
The economic consequences of rapid population growth in the U.A.R.

Safia Kamel Boulos Hanna

Follow this and additional works at: https://fount.aucegypt.edu/retro_etds



Part of the [International Relations Commons](#)



Egypt - Population

14

NON-CIRCULATING

Hanna, Safia Kamel Boulos
economic consequences of
rapid population growth i
Thesis 14

b 1142753x
i 13153663

This Thesis for the Master of Arts Degree

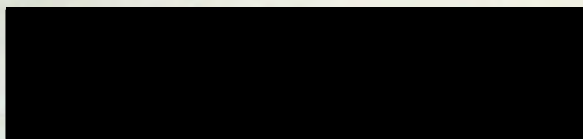
by

SAFIA KAMEL BOULOS HANNA

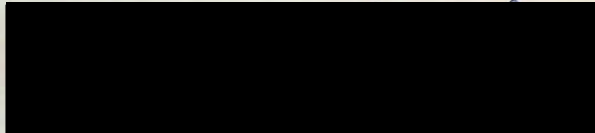
has been approved

May, 1970

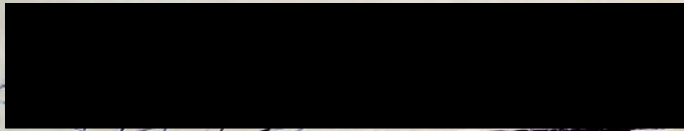
Thesis
1970/14



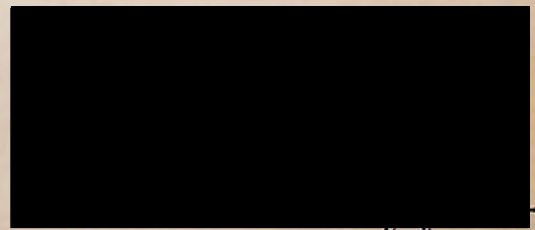
Chairman, Supervisory Committee



Reader, Supervisory Committee



Reader, Supervisory Committee



Head, Major Department

124

THE ECONOMIC CONSEQUENCES
OF
RAPID POPULATION GROWTH IN THE U.A.R.

MSO

BY
Safia Kamel Boulos Hanna.

Thesis Presented in Partial Fulfillment
of the Requirements of the Master of Arts
Degree in Economics

Department of Economics & Political Science
The American University in Cairo

May 1970

TABLE OF CONTENTS

	<u>Page</u>
ACKNOWLEDGMENT	iii
INTRODUCTION	v
LIST OF FIGURES	vi
LIST OF GRAPHS	viii
LIST OF APPENDIX	ix

PART I - POPULATION SURVEY AND PROJECTION

A. <u>INTRODUCTION</u>	1
1. World's Population Problems	1
2. U.A.R.'s Population Problems	<u>5</u>
B. <u>DEMOGRAPHIC SURVEY OF THE U.A.R.</u>	5
1. Demographic Data in the U.A.R.	6
a. Censuses	6
b. Vital Statistics	7
2. Past and Present Trends of Population .	10
a. Death Rates	<u>10</u>
b. Infant Mortality Rates	11
c. Birth Rates	<u>13</u>
d. Fertility Rates	15
e. Age Distribution	19
f. Sex Distribution	21
g. Marital Status	21
h. Urbanisation	<u>27</u>
C. <u>POPULATION PROJECTIONS</u>	30
Assumptions and Method of Projections	30

PART II - THE ECONOMIC CONSEQUENCES OF RAPID POPULATION GROWTH IN THE U.A.R.

A. <u>INTRODUCTION</u>	36
1. National Income and Population Growth .	36
2. Time Period and Factors which Help to Depress the National Income.	41
a. The Short Run Period.	41
b. The Intermediate Period.	42
c. The Long-Run Period.	42

	<u>Page</u>
<u>B. THE SHORT RUN ECONOMIC CONSEQUENCES</u>	43
1. A High Ratio of Dependency	44
2. A High Propensity to Consume	48
a. Consumption in General	48
b. A High Consumption of Food. This Checks Economic Development in the Following Ways:	51
(1) The U.A.R. Government Subsidies Essential Foodstuffs.	52
(2) Food Imports Increases the Balance of Trade Deficit.	53
(3) Malnourishment Affects the Produc- tivity of Labour.	59
3. Saving and Investment	60
a. Low Gross Domestic Savings.	60
b. Gross Domestic Savings and Foreign Loans.	61
c. The Composition of Gross Domestic Savings.	62
(1) Personal Savings	63
(2) Public Savings	63
4. Necessity of Investments in Social Overhead Costs to Accommodate New Births.	65
a. Introduction	65
b. Education	67
c. Estimate of Future Total Expenditure of Primary Education.	68
<u>C. IN THE INTERMEDIATE PERIOD</u>	77
1. Labour Growth and Per Capita Income.	77
2. Labour Growth and Job Opportunities.	78
3. Estimate of Future Supply of Labour and Capital Requirement to Employ Additional Labour.	80
<u>D. IN THE LONG RUN PERIOD</u>	86
1. Horizontal and Vertical Expansion.	88
2. Economic Consequences of Heavy Population Pressure on the Land	89
a. Low Standard of Living	90
b. Inequality of Incomes.....	91
c. Disguised Unemployment in Rural Areas	92
<u>PART III - SUMMARY AND CONCLUSION</u>	94
APPENDIX	i
BIBLIOGRAPHY	xx

A C K N O W L E D G M E N T S

I wish to express, first and foremost, my deep gratitude to Dr. Frederic Shorter, of the Ford Foundation, for two invaluable services. First, he has helped to re-orient my approach to population problems from a macro-economic angle, expounded by Stephen Enke and others, to a micro-economic approach expressed by the Coale Hoover Model. Although the former is a more recent approach, yet it has been criticised lately by a number of economists. The Coale Hoover Model seems to have stood the test of time. Secondly, Dr. Frederic Shorter, has volunteered to work out by computers the population projections found in this thesis. This was carried out by the Ford Foundation, Ankara, Turkey, where he was working at the time. This invaluable service has saved me, at least six months of long calculation. In addition, it is the only projection available about the U.A.R., which extends beyond the year 2000 A.D.

I wish to acknowledge the North African Demographic Centre, Cairo, for the great help they have rendered by allowing me to examine a number of unpublished reports carried out by the centre, in population problems. I would like to thank Dr. Zakaria, in particular, for giving me some of the relevant demographic formula, and for putting under my disposal a number of research students to help clarify to me some of the purely demographic questions requiring a specialist.

I wish to acknowledge Dr. Kaifaa El Shanawany, President of the Egyptian Family Planning Association, for giving me the opportunity to attend a number of national and international conferences on population problems and for providing me with a number of pamphlets and articles on population problems and family planning.

I wish to acknowledge two of my professors of the American University of Cairo, Dr. Raouf Kahil, and Dr. Albert Gray. To the former I owe the keen interest I deve-

loped in the subject of population, as well as the importance of being critical, logic and consistent, to the latter I am indebted for his help in the thesis, specially from the structure point of view.

Last, but not least, I am very grateful to my husband, Sabet Kiddis Rizkalla for undertaking most of the calculation found in the thesis, and for spurring me to complete the work as soon as possible.

I N T R O D U C T I O N

The U.A.R. is aiming at raising the standard of living of the population. The government has made great efforts to increase the national income. The rate of increase of the population was, however, almost as great as the increase of national income. Thus, the rapid rate of population increase is one of the main obstacles to development.

This thesis hopes to show in quantitative as well as qualitative terms, the economic consequences of rapid population growth.

Part I is an introductory demographic survey of the U.A.R.

Part II shows the economic consequences of rapidly growing population.

Part III is the summary and conclusion.

LIST OF FIGURESFigure

- 1 Adjusted Crude Death rate, Infant Mortality and Birth Rate.
- 2 Life Expectancy in the U.A.R.
- 3 Birth Rate per 1000 Persons in the U.A.R. 1952-1966.
- 4 Specific Fertility Rates. Females, 1947.
- 5 Specific Fertility Rates. Females, 1960.
- 6 General Fertility Rates in Successive Census.
- 7 Average Number of Live Births by Educational Attainment of Mother and Duration of Marriage.
- 8 Age Distribution in U.A.R.
- 9 Persons in Age Group, 15 - 64 in the U.A.R.
- 10 Percentage of Women, 15 - 49 and Rates of Married Women in U.A.R., 1917 - 1960.
- 11 Marriage Rates per 1000 of Persons in U.A.R.
- 12 Marriage Rates per 1000 of Persons in Selected Countries.
- 13 Distribution of Population According to Marital Status and Education.
- 14 Divorce Rates per 1000 Persons in U.A.R.
- 15 Divorce Rates per 1000 Persons in Selected Countries.
- 16 Divorce Rates per 1000 of Women, by the Number of Children in U.A.R. - 1960.
- 17 Degree of Urbanisation in U.A.R.
- 18 Projection I Declining Mortality Constant Fertility.
- 19 Projection II Declining Mortality and Declining Fertility.
- 20 Gross Domestic Income and Per Capita Income 1952/53 - 1964/65.
- 21 Projected Gross National Product and Per Capita Gross National Product for the High & Low Fertility Projections.
- 22 Percentage of Population in Dependent Ages.
- 23 Ages 0 - 14.
- 23-A Ratio of Dependency.
- 24 Total Consumption of Selected Consumer's Goods in U.A.R.
- 25 The Rates of Increase of Gross Domestic Product, Consumption, Domestic Savings and Investment in U.A.R.

Figure

- 26 Comparison of Total Expenditure on Some Food Items, 1960 - 1965.
 - 27 Imports of Foodstuffs, 1916-1967.
 - 28 U.S.A. Aid.
 - 29 Value of Food Imports and Exports 1916-1967.
 - 30 Percentages of Imported Food, Consumer goods, Raw Material and Capital Goods to Total Imports, 1910-1968.
 - 31 Gross Domestic Product, Consumption, Saving and Investment in U.A.R. (1960 - 1967).
 - 32 Taxation in U.A.R.
 - 33 Total Public Expenditure on Social Services in the U.A.R.
 - 34 Per Capita Expenditure on Social Services.
 - 35 Estimated Total Expenditure on Primary Education-U.A.R.
 - 36 Percentage Primary School Enrolment Ratio, 1960/70.
 - 37 Planned Primary School Enrolment Ratio, 1970/75.
 - 38 Estimated Primary School Enrolment Ratio, 1975/80.
 - 39 Total Expenditure on Primary Education.
 - 40 Employment by Economic Activity - %
 - 41 Growth of the Labour Force.
 - 42 Total Supply of Labour and Capital Requirement For Labour Employment.
 - 43 Population Density in Selected Countries.
 - 44 Cultivated and Cropped Land in U.A.R., 1877/1966.
-

LIST OF GRAPHS

- 1 Infant Mortality Rates, 1955-1960
- 2 Adjusted Crude Birth Rates and Death Rates, 1955-1960.
- 3 Per Capita National Product in the High and Low Fertility Projections.
- 4 Estimated Total Expenditure on Primary Education in the High and Low Fertility Projections, 1960 - 2030.
- 5 Estimated Capital Requirements for Labour Employment in the High and Low Fertility Projections, 1960-2030, Assuming Constant Capital Intensity.
- 6 Estimated Capital Requirements for Labour Employment in the High and Low Fertility Projection, Assuming $4\frac{1}{2}\%$ Increase in Capital Intensity.

A P P E N D I X

- I U.A.R.'s Two Population Problems: Rapid Population Growth and High Population Density.
- II Distribution of Beds, Doctors and Piped Pure Water in U.A.R.
- III Infant Mortality Rates by Type of Locality, 1934-1960.
- IV Adjusted Crude Death Rates by Type of Locality, 1934 - 1961.
- V Adjusted Crude Birth Rates by Type of Locality, 1934 - 1961.
- VI Method of Population Projection.
- VII Per Capita Consumption of Various Food Items in Selected Countries per Annum in Kilograms.
- VIII Per Capita Intake of Calories, Proteins and Fats Per Day in Selected Countries.
- IX Estimated Total Consumption During the First Five Year Plan.
- X Distribution of Personal Domestic Savings and their Percentage, 1965/66 and 1966/67.
- XI Additional Information on Education.
- XII Distribution of Land Ownership in U.A.R. (1952 and 1961) Before Land Reform Laws.

PART I

DEMOGRAPHIC SURVEY AND PROJECTION

OF THE U.A.R.

P A R T I

POPULATION SURVEY AND PROJECTION

A. INTRODUCTION

1. World Population Problems:

In recent years, there has been a marked world interest in population problems. The improvement in vital statistics in a number of countries has revealed some astounding facts. The world's population is suddenly growing so rapidly as to deserve the term "Population Explosion" or "Vital Revolution".

The world's population totaled only a quarter of a billion in the first century A.D. and it required 1650 years to add another quarter billion. It added one billion in the next 200 years, a second billion in the following century, and a third billion in the next 30 years. It is now expected to add more than three billion by the end of this century at the present rate of growth of 1.9% per annum. (1)

The reason for this sudden population growth may be explained by the widespread introduction into many countries of modern medical knowledge, antibiotics, insecticides, better sanitation, improved food. At the same time, the birth rate has remained constantly high in a number of countries, especially the developing countries. Most of the world's increase of population came from these areas. In 1967, of the 3.4 billion, 67% came from developing countries and 33% from the developed countries. If the present rate of increase continues, the total population of the world will be 7 billions in 2000 A.D., 79% coming from developing countries and 21% from developed countries. (2)

(1) Demographic Year Book: U.N.O. 1966. p.95

(2) Population Program Assistance: Agency for International Development. The Office of the War on Hunger: Population Service, Washington D.C., September 1968. p.4

One important reason for desiring reduction of the present rates of population growth especially in developed countries, is the desire to raise the low standard of living. To achieve this increase, a country must increase the rate of investment as well as meet the current consumption needs. In areas of rapidly growing population, the latter absorbs such a great part of the national income, that there is little left for savings and hence for investment.

Another problem faced by the world is the possible shortage of food. The F.A.O. has estimated that food supplies must be trebled by the turn of the century if the world population is to have enough to eat⁽¹⁾. Faced with such a situation, the scientists will have to discover new ways of supplying food. Man may have to learn to eat the leaves of trees as well as the fruits, or will have to learn to cultivate the desert, the equatorial forests, and to use the dry season in the Savanna lands⁽²⁾. It was also reported that photosynthesis has been achieved in laboratories, and if this becomes economically feasible on a large scale, food may become abundant. In addition, it is predictable that within the next fifty years, people would be able to produce artificial foodstuffs, like steak, made from the waste of oil refineries⁽³⁾.

This is not the only problem, for the world will be faced with limited carrying capacity. J.E. Meade estimates that on the basis of an annual rate of growth of 1.7%, there would be 4,000,000,000,000, that is (4×10^{15}) people in 850 years from now. When the total area of

(1) "Food Supplies & Population": F.A.O. Six Billions to Feed (Rome F.A.O., 1962) p.3 reproduced in The Population Crisis, edited by Larry K.Y./Stuart Mudd. (co-editors) Midland Book, 1965. p.149

(2) A. Lewis Theory of Economic Growth: Unwin University Book, 1963. p.309

(3) Delegation de l'Aménagement du Territoire Symposium about the Future 50 Years in Gif. Sur Yvette (France) Mentioned by Prof. C.A. Cannegieter and Lecture in "Current Development in the Field of Macro Economic Long-Term Planning".

the land found in our planet is divided among that many people it leaves each person with only a territory of fourteen square inches on which to live. That would be standing room only⁽¹⁾.

An unpleasant solution was implied in D.M. Heer "After Nuclear Attack" in which he stated that a nuclear attack would destroy 30% of the world's population, mostly in heavy urbanised areas. This solution is unacceptable on moral grounds. The main hope of the world lies, rather in the voluntary reduction in the number of births.

Failing this, more coercive methods may have to be used by governments, such as putting chemicals in drinking water which will cause partial sterility; requiring a licence for the birth of each child, or taxing heavily parents with more than three children. Since these methods interfere with personal freedom, they are likely to be deferred until they become vitally necessary⁽²⁾. Voluntary birth control seems to be the best method to check population growth.

Due to the recognition of the gravity of the situation, a number of Governments have taken specific steps towards dampening the rate of population growth.

1. The United Nations: On December 18th, 1962, the General Assembly passed the resolution recognizing the relationship between population growth and economic development and requesting the U.N.O. to take active steps to provide assistance in limiting population growth.⁽³⁾

(1) J.E. Meade: "Population Explosion, the Standard of Living and Social Conflict" Economic Journal; June 1967. p.233

(2) Bernard Berelson "Beyond Planning" Studies in Family Planning. (several issues)

(3) The Agency of International Development Programs has increased aid to developing countries for population problems from \$ 2.1 million in 1965 to \$ 34.7 million in 1968. See Population Program Assistance, op.cit.p.20

2. The U.S.A.: In 1965, a statement of U.S.A. policy affirmed the willingness of the U.S.A. to help other countries, upon request, "to find potential sources of information and assistance on ways and means of dealing with population problems"(1).
3. The Soviet Union: For a long time the U.S.S.R. held that population problems did not exist, and that the low standard of living was due rather to maldistribution of wealth in a bourgeois economy. Recently, there has been a shift of policy. The Soviet Union recognized that population growth is an urgent problem for the less developed countries and it announced its willingness in the Economic and Social Council of the U.N.O. to provide technical assistance in the demographic field(2).

(1) Richard N. Gardner "The Politics of Population: A Blue-print for International Cooperation". Found in The Population Crisis, op.cit., p.299.

(2) Richard N. Gardner, op.cit., p.295.

2. U.A.R. Population Problems:

The United Arab Republic is situated in the North East of Africa, on the cross-road of Africa and Asia. It is surrounded by Libya on the West, Sudan on the South, the Red Sea on the East and the Mediterranean Sea on the North.

Except for some slight rain along the Mediterranean coast, the rest of the country is practically dry, receiving one inch or less of annual rain.

Cultivation depends almost entirely on irrigation. As a result, almost 99% of the population live in the narrow Nile Valley and its fan-shaped delta. Of the total area of 1,002,000 square kilometers, only 2½% is inhabited; the rest of the country is a barren desert. (1)

- a) The concentration of the population along the Nile Valley has made Egypt one of the most densely populated countries in the world, the density reaching 845 persons per square kilometer for the cultivated area. This is the first population problem faced by the U.A.R. (See Appendix I).
- b) The high density is not the only demographic problem facing the U.A.R., the second and even more urgent problem is the very rapid rate of growth reaching 2.7% per annum in 1966. At this rate, the population will double every 28 years.

The total size of the population was 30 millions, in 1966 date of the last census. The latest estimate is 33 million (2) This is an increase of one million persons over the preceding year. (3)

(1) Statistical Handbook, U.A.R., 1952-1966. Central Agency for Public Mobilisation & Statistics - Cairo, June 1967, p.3.

(2) Al Ahram, February 9th, 1970.

(3) Al Ahram, January 22nd, 1969.

DEMOGRAPHIC SURVEY OF THE U.A.R.

1. Demographic Data in the U.A.R.:

a. Censuses:

The U.A.R. has a long history of population censuses, the first census using modern technique was taken in 1882, the second in 1897, and since that period, censuses have been taken every ten years up to 1947. The aftermath of the Suez war interrupted the census of 1957, and no census was taken before 1960. The last census taken in 1966, was not a comprehensive one, as it included only a total count of persons.

The 1882 census gave a total count of 6.8 million persons, but it is known to have been deficient. This was due to the fact that the census was taken right after the British occupation of Egypt. The unstable political conditions of the country and the mistrust of the people led to mis-reporting⁽¹⁾. In addition, the number of competent statisticians were very limited. The total was revised by the Census Authority in 1917 in an upward direction.

The census of 1947 was found to be over-counted. Instead of the 19 millions reported, the figure was corrected to 17.9 millions.

Two reasons have been given for believing that there was overcounting. First, there is no evidence of increase in fertility rates, furthermore, in 1945 a population count was made and used as a basis for distributing rationed commodities. In 1947 people may have exaggerated the numbers of their household in the hope of receiving more ration. On the basis of an assumption of growth rate during 1937-47 equal

(1) S. Namek: Population Explosion and Economic Development in the U.A.R. (Arabic). p.16

to those of the period 1907-1937, El Badry has concluded that the official figures for 1947 are 5.6% too high.⁽¹⁾

Another defect in the census is the heavy heaping at ages ending in zero and five. This is mainly due to the fact that the illiterate majority of the population do not know their exact ages⁽²⁾. However, quinquennial age groups prove more satisfactory.

b) Vital Statistics:

The U.A.R. has a long history of birth and death registration in both rural and urban areas. It was made obligatory to register towards the end of last century. However, many rural areas are not covered by a Health Bureau. The population of these areas form 54% of the total population. M.A. El Badry compared the birth rate and death rates of rural areas possessing Health Bureau and those without⁽³⁾. He found that the latter had a lower death rate by 22% than the former. This is inconsistent with the fact that doctors and hospitals are more widespread in rural areas with Health Bureaus (See Appendix II). The reason for the lower death rate is misreporting. So he corrected the figures for the rural areas without Health Bureaus on the assumption that the death rate was the same in both kinds of rural areas.

A more serious, under-reporting came in the infant mortality. We find that Cairo had the highest infant mortality rates, followed by other urban areas, then rural areas with Health Bureau and, lastly, rural areas without Health

-
- (1) M.A. El Badry "Some Demographic Measurements for Egypt Based on Stability of Age Distribution" Milbank Memorial Fund Quarterly XXXIII, No.3, July 1965, p.275.
(2) M.A. El Badry "Systematic Basis in Census Age Reporting" The Egyptian Statistical Journal, Vol.II, 1958, p.61-71.
(3) M.A. El Badry "Trends in the Components of the Population Growth in the Arab Countries of the Middle East. Survey of Present Information" Demography (1965).

Bureaus. This result is inconsistent and can only be explained by under-reporting in urban areas to a greater extent than in Cairo, in rural areas with Health Bureau to a greater extent than urban areas and those without Health Bureaus have the greatest under-reporting. Taking the rate of Cairo as the minimum acceptable for the whole country, there is a deficiency of 4% in urban areas, 13% in rural areas and with Health Bureaus and 48% in rural areas without Health Bureaus. The final result is shown in Figure 1.

FIGURE 1

ADJUSTED CRUDE DEATH RATE, INFANT MORTALITY
RATES AND BIRTH RATES

1934-1960

Per 1000 of Population

<u>Year</u>	<u>Death Rate</u>	<u>Infant Mortality Rate</u>	<u>Birth Rate</u>
1934	34.5	166	48.0
1935	32.5	161	45.9
1936	33.6	164	49.4
1937	31.1	165	47.0
1938	30.9	163	46.0
1939	30.7	161	46.4
1940	32.1	162	46.2
1941	31.5	150	45.1
1942	34.3	168	41.0
1943	33.2	160	42.2
1944	31.5	152	42.3
1945	33.3	153	47.9
1946	29.1	141	45.5
1947	26.0	127	49.1
1948	23.3	139	46.3
1949	24.1	135	45.3
1950	22.4	130	47.1
1951	22.5	129	48.0
1952	20.5	127	48.2
1953	25.1	146	45.9
1954	20.7	138	45.7
1955	21.6	136	45.9
1956	18.6	124	42.3
1957	19.7	131	40.0
1958	19.1	112	42.8
1959	18.8	109	44.8
1960	--	110	--

SOURCE: Original Data from Vital Statistics Up to 1958 and Unpublished Data for 1959-1960. For Adjusted Rates El Badry, op.cit., Tables 2,3 and 5.

2 - Past and Present Trends of Population

a) The Death Rate:

According to the figures of the official census, the crude death rate was 28.8 per thousand in 1936. The adjusted figure was 33.6 per thousand. The most rapid decline took place immediately after World War II years where the death rate declined from 33.3 in 1945 to 26.0 in 1947.⁽¹⁾ The death rate in the U.A.R. for the recent years were as follows: these are unadjusted, however, and may be under-estimated:

1961	:	15.8	per 1000
1963	:	15.4	
1965	:	14.0	
1967	:	14.2	(2)

The reason for this decline may be sought in the following reasons:

- 1) The introduction of antibiotics and sulfa did much to cure diseases which were considered fatal. The decline was specially marked in infant mortality rates (See Fig.1).
- 2) Public health services were extended. The Government spent L.E.10,133,000 in the period 1951-52 in public health service and this was increased to L.E. 44,459,000 pounds in 1964-65. This means an increase of 439%(base year 1951-52).⁽³⁾ (See Fig.33 & 34 in page 66). 75..
- 3) Another reason for the decline of the crude death rate was the introduction of better sanitary conditions, specially the introduction of pure water in the vast majority of villages. By 1960, 82% of the population were supplied with piped pure water (See Appendix II).

(1) El Badry, op.cit., for corrected figures See Appendix IV.
(2) Population Increase in the U.A.R. and Its Impact on Development - Central Agency for Public Mobilization and Statistics, Ref. No.0.55 - 100., September 1969.p.145
(3) Population Growth in U.A.R. and Its Effect on Development, Memo. 2006/66, November 1966. (Central Agency for Public Mobilisation & Statistics),p.26 (Arabic).

- 4) Compulsory vaccination against a number of the more prevalent diseases such as smallpox and diphtheria, helped to reduce deaths.
- 5) The widespread use of insecticides, especially D.D.T. prevented many diseases, like malaria. Many plagues were almost wiped out through medical care or vaccination. The last cholera plague in Egypt in 1947 caused only 20,462 deaths⁽¹⁾, which was very low compared to previous plagues.

The death rate in the U.A.R. is still high compared with the more advanced countries. In fact, the death rate of 15 per thousand of the U.A.R. is more than double the rate of Japan, which is 7 per 1000 and almost double that of Holland, Poland and Scandinavia, which are 8 per 1000⁽²⁾.

Due to the increase in medical care, especially in rural areas, the U.A.R. may attain similar death rates very soon. Per capita expenditure on health has increased from L.E. 0.478 in 1951-52, up to L.E.1,410 in 1966-67⁽³⁾. If these expenditures continue to increase, further declines in the death rate may be anticipated. Improved housing condition and food consumption resulting from any future increase in per capita income, are bound to improve the general health and bring a further decline in mortality.

b) Infant Mortality Rates in U.A.R.

The infant mortality rates are amongst the highest in the world. In 1934, they stood at 166 per 1000. In 1960, they had declined to 110 per 1000 (See Fig.1).

The death rate's decline was largely due to the decrease of the infant mortality rates (less than one year) i.e. from 165 per 1000 in the period between 1933 to 1939, to approximately 118 in 1963-67⁽⁴⁾.

(1) The Determinants and Consequences of Population Trends:
U.N.O. 1955, p.61.

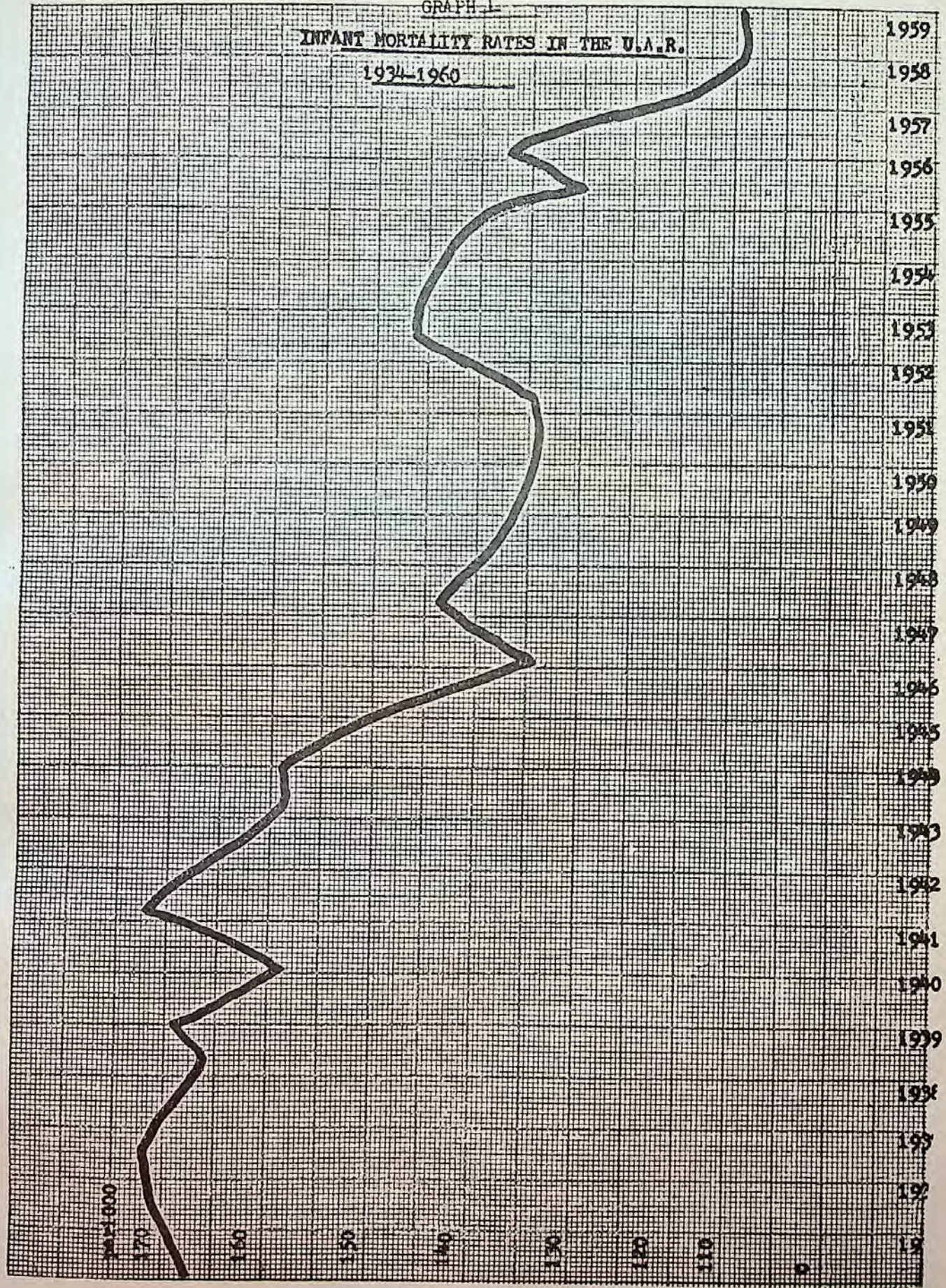
(2) Population Increase, op.cit., 1969, p.30.

(3) See Figure 34.

(4) Population Increase, 1969, p.139.

GRAPH I

INFANT MORTALITY RATES IN THE U.S.A.
1934-1960



The fall in mortality rates among the younger age groups has a double effect on the potential population growth, for it causes a direct increase in the number of children and the population as a whole, and it causes an increase in the number of women of child-bearing age. Instead of dying young, a large number reach the child-bearing age. At the present rate of population growth, the number of females in the most fertile age group 20-29 will double between 1960 and 1980⁽¹⁾.

As a result of the decline in the death rate and of the infant mortality rate, the life expectancy has increased as can be seen from the figure below and in the opposite graph No.1.

FIGURE 2
LIFE EXPECTANCY OF THE U.A.R. - 1937-1960
At Birth

	<u>1947</u>	<u>1947</u>	<u>1960</u>
Males	35.6	41.4	51.6
Females	42.1	47.6	53.8

SOURCE: Population Trends in the U.A.R., op.cit., p.48 & 49.

c) The Birth Rate:

The birth rate of the U.A.R. is one of the highest in the world. It is surpassed only by some of the Latin American countries. Figure 1, shows that the birth rates has remained at a constantly high level since 1936 where it stood at 48.0 per thousand. It fell slightly during World War II reaching 41 per thousand in 1942 and 40 per thousand in 1957. The latest figures are shown below, but they are unadjusted as the previous ones and hence are under-estimated:

(1) Haifaa Shanawany: "On Population Explosion & Population Policy in U.A.R." The Conference on Medical Day for the Far & Middle East, Sixth Session - organized by the Egyptian Medical Association, April 1-6, 1969.

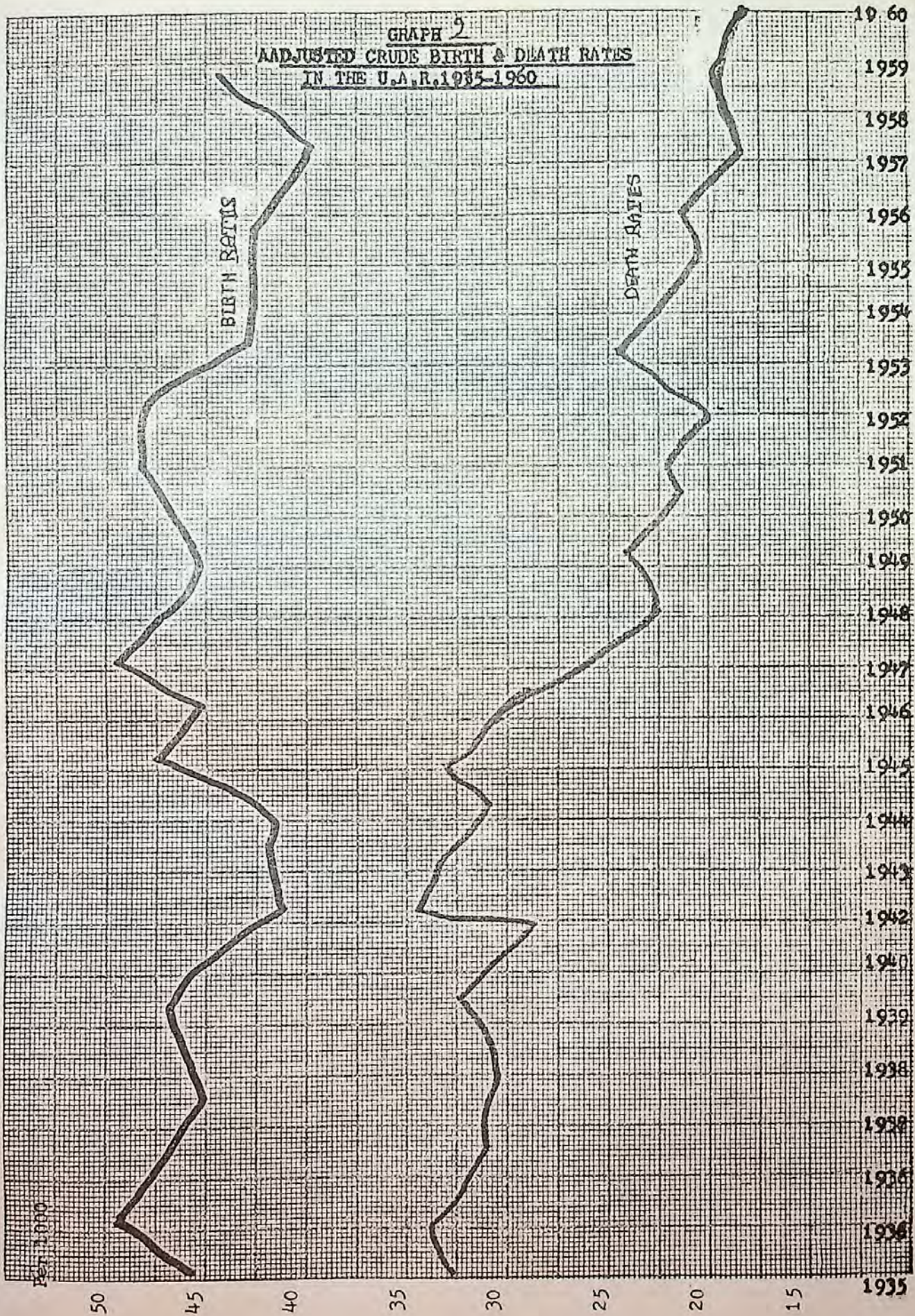


FIGURE 3
BIRTHS PER THOUSAND OF POPULATION
U.A.R. 1962 - 1966

1962	41.3
1963	42.8
1964	42.8
1965	41.4
1966	41.0
1967	39.2

SOURCE: Population Increase, op.cit., Table 40, p.65

The high birth rate in the U.A.R. is a direct result of the high infant mortality rates and the large number of desired children, especially male children. These are a great asset to rural parents, as they help to supplement the family income by working in the field. The social and economic structure of society seem to favour large families as we shall see in Part III.

"It is highly probable that the decline in the death rate will continue for another period, in which the birth rate will remain at the present high level".⁽¹⁾

Thus, there will be a wide gap between birth and death rates and consequently a very large increase in population.

d) Fertility - Measures and Trends:

Fertility measures the rate at which a population adds to itself by births. The more usual method is the general fertility rate. This is obtained by expressing the number of live births as a rate per 1000 of women of child-bearing age - usually 15-49. It is an appropriate yardstick of potential fertility, since the number of births depend not only on the intention and willingness of couples to have children, but' also on the number of women exposed to the risk of pregnancy.

(1) Population Increase, op.cit., 1969, p.139.

Fertility varies according to each age group, hence in the early years, the level of fertility is low and it gradually increases, reaches its maximum in the range 20-30 years, then declines as child-bearing age increases. Hence the general fertility rate depends on the average rate of fertility of women in each age group. In Figures 4 and 5, we have given the age specific fertility. A comparison of the age specific fertility in 1947 and 1960 shows that the fertility has declined in 1960 for the age group 15-19, but has increased in all the other age groups. In 1960, general fertility has reached 190.0, whereas the figure for 1947 was 171.9.

The birth rate, hence, is not sufficient for the study of the growth of population, it is necessary that a detailed study of fertility rates is undertaken, as well as the age and sex composition of the population.

FIGURE 4

AGE SPECIFIC FERTILITY - FEMALE,
U.A.R. - 1947

Age Groups	No. of Females Per 1000	Average Births 1946-47	Average Fertility	% of Total Fertility
15-19	914	43809	47.8	4.2
20-24	706	181235	206.7	22.7
25-29	786	265873	338.0	29.8
30-34	690	186188	270.0	23.8
35-39	654	10659	163.1	14.3
40-44	566	23123	40.8	3.6
Over 45	415	6989	16.8	1.5

FIGURE 5
AGE SPECIFIC FERTILITY - FEMALES - 1960
U. A. R.

Age Group	Number of Females	Average Births 1959-60	Average Fertility	% of Total Fertility
15-19	1044	35386	34.6	2.7
20-24	878	191937	218.6	17.7
25-29	1058	363269	362.69	27.8
30-34	847	310076	366.1	29.7
35-39	883	172900	195.8	15.9
40-44	617	35722	58.0	4.7
Over 45	579	10526	18.2	1.5
Total	5906	1119818	189.6	100.0

Source: Population Increase, op.cit., Table 32, p.80

FIGURE 6
GENERAL FERTILITY IN SUCCESSIVE CENSUS
Number of Live Births per 1000 of Males
and Females - 1917-1960, U.A.R.

YEAR	MALES	FEMALES	BOTH
1917	87.9	81.7	169.6
1927	92.7	85.8	178.5
1937	94.3	87.1	181.4
1947	89.6	82.3	171.9
1960	100.6	89.4	190.0

SOURCE: Population Trends, op.cit., Table 6, p.12

A study of the general fertility rates show a marked increase. These rates appear to have risen to the maximum limit, and are not expected to show a further increase in

the future. On the other hand, they are likely to remain stable for a long period of time before showing any decrease owing to the broad base of the population pyramid.⁽¹⁾

One of the main factors affecting fertility is the education of women. After a period of 30 years of marriage, we find that an illiterate woman has an average of seven children, while the University graduate woman has an average of under four children.

There is a strong positive correlation between the duration of marriage and the number of live born children (See Figure 7). This proves that most Egyptian families whose share of education is not very high, do not plan their family, but continue to have any number of children as long as the marriage period extends.

FIGURE 7

AVERAGE NUMBER OF LIVE BIRTHS BY EDUCATIONAL ATTAINMENT OF MOTHER AND DURATION OF MARRIED LIFE

Education	Duration in the Year 1960					Total
	Less than 5	5-9	10-19	20-29	30 years	
Illiterates	1.09	2.98	5.29	7.08	7.61	4.37
Able to read and write	1.17	3.41	5.69	7.23	6.86	4.98
Certificate Below Intermediate	1.33	3.34	4.92	6.14	6.70	3.56
Intermediate Certificate	1.05	2.92	3.92	4.60	5.05	2.21
University Education	1.09	2.62	3.43	3.42	3.58	1.81
	1.01	2.03	5.41	7.08	7.58	4.35

SOURCE: Population Increase, op.cit., Table 2,3.7, p.129.

(1) Population Increase - op.cit., 1969. Maximum birth rate is approximately 50 per 1000.

In addition, the significant increase in general fertility rates from 1947 to 1960, is due to the development of the health care given to pregnant women and to the medical services rendered during confinement which greatly decreases foetal death rates.

e. Age Distribution:

In a closed population, without significant migration, the principal determinant of age distribution is the course of fertility.⁽¹⁾

Constant high fertility gives a broad based distribution that tapers very rapidly with age. Conversely, mortality changes have only a slight effect on the percentage of age distribution.⁽²⁾

The age distribution in the U.A.R. since 1927 may be seen in Figure 8. The age distribution shows a high percentage of people below fifteen years old. This appears to be almost constant since 1927 except for some increase in 1960. In 1927 it was 38.6%, in 1937, 39%. It appears to have declined in 1947 to reach 38%, but it reached 42.8% in 1960. This causes a very high burden of dependency to the working population.

Moreover, the U.A.R.'s high figure of 42.8% reached in 1960, appears to be one of the highest in the world, with China and India close-by, with 42.22% and 40.72%, respectively. These figures are very high when compared to those of the more advanced countries, such as the U.S.A. with only 27.16% and the U.K. with 22.62%⁽³⁾ of its population below the age of fifteen.

The proportion of persons in the 15-64 age group has remained fairly constant, except for some decline in 1960 over previous years. This conforms with the

(1) A.J. Coale, & E.M. Hoover: "Population Growth in Economic Development in Low Income Countries: Princeton University Press 1958, p.20.

(2) Ibid.

(3) Population Increase, op.cit., Table 5, p.22.

demographic theory that with stable constant high fertility the age structure of the population does not change much.

FIGURE 8
AGE DISTRIBUTION IN THE U.A.R. - %

AGE GROUPS	1927	1937	1947	1960
0 - 4	14.4	13.2	13.6	15.9
5 - 9	13.1	13.9	12.7	14.6
10 - 14	11.1	12.0	11.7	12.3
5 - 14	24.2	25.9	24.4	26.9
15 - 19	9.1	8.5	10.0	8.3
20 - 24	7.8	7.0	7.3	6.9
25 - 29	8.6	8.2	7.8	7.4
15 - 29	25.5	23.7	25.1	22.6
30 - 34	7.5	7.5	6.9	2.4
35 - 39	6.6	7.2	6.9	6.7
40 - 44	5.6	5.9	6.0	4.9
45 - 49	3.8	4.1	4.4	4.4
30 - 49	23.0	24.7	24.2	22.4
50 - 54	4.0	4.2	4.6	3.8
55 - 59	1.6	1.7	1.8	2.4
60 - 64	2.8	2.7	2.9	2.6
65 - 69	0.9	1.9	0.9	1.3
50 - 69	9.3	9.5	10.2	10.1
More than 70	3.1	3.0	2.5	2.1

SOURCE: Population Increase, op.cit., Table 6, p.24.

FIGURE 9

PERSONS IN THE AGE GROUP 15-64, THE U.A.R. - %

<u>1927</u>	<u>1937</u>	<u>1947</u>	<u>1960</u>
56.9	57.0	57.6	53.8

SOURCE: Calculated from Figure 8

f. Sex Ratio:

The ratio of males to females is almost at par. The percentage of males to total population has remained between 49.5% to 50.7% since 1882.

The proportion of males in the last five census between 1927 and 1966 in the U.A.R. has fluctuated between 98 and 102 for every 100 females which is indicative of equality between the number of males and females.

The sex and age composition of the population has an important effect on the pattern of dependency. In the U.A.R., 42.8% of the population are below the age of 15, while about 50% of the population are women. Since only 10% of the females are in the labour force, we find that the proportion of earners in the U.A.R. to total population is as low as 15.75%, as confirmed by the family budget sample survey carried out in 1959.

g. Marital Status:

In the absence of widespread use of modern contraceptive methods, a rise in the birth rate is usually associated with the following facts:

- (1) A rise in the proportion of females of child-bearing age.
- (2) The proportion of those married amongst them.
- (3) The duration of marriage.
- (4) The age of marriage
- (5) The size of the family.

The proportion of women of child-bearing age, to total females according to the population in the 1960 census, is 50% and the percentage of married amongst them is 70%.

In the U.A.R., the proportion of women of child-bearing age has barely changed over the years. Yet the number of married women against them has declined (See Figure 10).

FIGURE 10

PERCENTAGE OF WOMEN 15-49 AND RATIO OF MARRIED WOMEN, 1917-1960, E G Y P T.

Year	Total (000)	Female Aged 15-49 (000)	Percentage 15-49	Married Women 15-49(000)	Ratio Of Married Women
1917	6,349	3,026	47.8	2,270	750
1927	7,120	3,513	49.3	2,600	740
1937	7,954	3,856	48.5	2,700	727
1947	9,575	4,734	49.5	3,282	693
1960	12,946	6,390	48.6	4,231	675

SOURCE: Compiled and Computed by Zikri, "Socio-Cultural Determinants of Human Fertility in Egypt, U.A.R. Unpublished Doctorage Disseiation Syracuse University, 1963, p.97. cited by Haifaa Shanawany: Family Planning, An Equilibrium Response to Demographic Conditions in the U.A.R., unpublished Ph.D. thesis, Cornell University, 1967.

In spite of the decline in the rate of married women, the birth rate has not declined due to early marriages, a high divorce rate and a high fertility. Also, despite the decline in the rate of married women, the U.A.R. has still one of the highest marriage rates in the world, as can be seen in the Figures 11 and 12.

FIGURE 11
MARRIAGE RATE IN THE U.A.R.

<u>Years</u>	<u>Marriages Per 1000</u>
1941	13.7
1945	14.9
1950	13.4
1955	9.7
1960	10.9
1965	9.5

SOURCE: Population Increase, op.cit., p.63.

FIGURE 12
MARRIAGE RATES IN SELECTED COUNTRIES

<u>COUNTRY</u>	<u>Average Rate of Marriages(1953/62)</u>
U.A.R.	9.5
Japan	8.7
U.S.A.	9.0
U.K.	7.7
France	7.0
Chile	7.7
Syria	7.8

SOURCE: Population Increase, op.cit., p.65.

The decrease in marriage rates are due to the increase in the proportion of urban population where marriage rates are lower, and to the propagation of education. A study of the relation between marital status and education in the light of 1960 population census shows that among illiterates, 13% were not previously married, those married were 71%, divorced 2% and widowed 13%.

The corresponding proportion for literate people including those who received education below University level, were 31.0% who were never married, 66% married, 1% divorced and 2% widowed.

The marriage rate for University graduates was 61%, the rate of those who were never married was 37% (See Fig.13).

FIGURE 13

DISTRIBUTION OF POPULATION ACCORDING TO
MARITAL STATUS AND EDUCATION - 1960 CENSUS

Marital Status	Illiterate	Secondary Education	University Education
Never Married	13.4	30.7	37.1
Married	71.3	65.6	60.7
Divorced	1.7	1.1	0.9
Widowed	12.7	2.1	1.0
Not Stated	0.9	0.5	0.3
Total	100.0	100.0	100.0

SOURCE: Population Increase, op.cit. 1966, Table 25, p.64.

The Duration of Marriages:

The longer the duration of marriage, the greater is the exposure to the risk of pregnancy. The 1960 census of the U.A.R. confirms this fact.

Marriage may end in divorce or by the death of one of the partners. These conditions sometimes work as a check on fertility. In the U.A.R., however, due to the very rapid rate of remarriage of divorcees, (66% of divorced women remarry⁽¹⁾), the fertility rates are increased due to desire

(1) Population Increase, op.cit. 1966, p.66.

to have offsprings with the new partner, though the total number stated as divorced are only 1.6% of total population according to 1960 census. (1)

The U.A.R. has one of the highest divorce rates in the world, though in recent years this rate has declined.

FIGURE 14

DIVORCE RATES IN THE U.A.R.

<u>Y E A R</u>	<u>NUMBER OF DIVORCES PER 1000 OF POP.</u>
Average for 1941-46	4.2
1952	3.2
1960	2.5
1965	2.2

SOURCE: Population Increase, op.cit., random figures taken from a chart table 24 p.63 of divorce rates from 1941-65.

FIGURE 15

DIVORCE RATES IN OTHER COUNTRIES

<u>Countries</u>	<u>Year</u>	<u>Number of Divorces Per 1000 of Pop.</u>
U.S.S.R.	1962	0.3
New Zealand		0.3
Algeria	1959	0.69
U.S.A.	1960	2.18
	1966	2.4
France	1965	0.8

SOURCE: Demographic Year Book, 1965, Table 23.

(1) Population Increase, op.cit. Table 22, p.60.

The 1960 census reveals that the probability of divorce decreases with each additional child. Thus the divorce rate is as high as 67.43 per 1000 for childless couples. This decreases to 7.69 per 1000 for couples with two children, 1.86 per 1000 for couples with four children and 0.27 per 1000 for those having six children.

FIGURE 16

RATE OF DIVORCE PER 1000 OF WOMEN BY NUMBER OF CHILDREN - 1960

<u>Number of Children</u>	<u>Number of Divorces</u>	<u>Number of Marriages</u>	<u>Rate In 1000</u>
No children	46665	692,063	67.43
One child	9990	509,383	19.61
Two children	4192	545,131	7.69
Three Children	2112	542,627	3.89
Four Children	2004	539,265	1.86
Five Children	473	515,675	0.92
Six Children	402	1,496,402	0.27

SOURCE: Vital Statistics, 1960.

The Age of Marriage:

Marriage at an early age affects fertility in that there is a longer period of exposure to pregnancies. The social culture, as we shall see later, favours early marriages, especially amongst the females. In 1960, 75.5% of the females were married within the age group 20-24⁽¹⁾ leaving a span for child-bearing, ranging between 25 and 34 years. The average age of marriage was slightly raised from 24.2 to 25.9 for males and 18.6 to 19.7 for females within the period of the two census 1947 and 1960⁽²⁾.

The Size of the Family:

As a result of the four factors concerning marital status which promote fertility, we find that the total

(1) Population Increase, op.cit., p.56.
 (2) Population Increase, op.cit., p.64.

number of children born to married women during their child-bearing period was 6.39 in 1960⁽¹⁾. The official figure for 1947 census was 5.96. But the increase in fertility is more apparent than true. This census of 1947 gives an average of children born during the current marriages only, excludes offsprings by previous marriages. When these are included, we find that a woman who terminates her reproduction period in marriage has 6.2 to 6.3 children. This figure is almost identical to the 1960 figure⁽²⁾.

h. The Urbanisation:

The importance of urbanization in relation to population, is the fact that in Western countries the birth rate started to decline with the increase of urbanisation and industrialization.

In the U.A.R., the degree of urbanization has more than doubled since 1907⁽³⁾ as will be seen from the following Figure 17:

-
- (1) Haifaa Shanawany: "Family Planning: An equilibrium Response to Demographic Conditions in U.A.R." Unpublished Ph.D. Cornell University, 1967.
 - (2) M.A. El Badry: "Some Aspects of Fertility in Egypt" The Milbank Memorial Funds, Quarterly, Vol. XXXIV No. 1, January 1956, p. 43.
 - (3) The U.A.R. census considers a town to be urban if its population exceeds 15,000, see A.M. Said "The growth and development of urbanisation in Egypt", Social Research Centre, AUC, Cairo 1960, p. 20.

FIGURE 17
DEGREE OF URBANISATION IN THE U.A.R.

<u>Year</u>	<u>Degree of Urbanization</u>
1907	19%
1917	21%
1927	26%
1937	28%
1947	33%
1960	37%
1966	40%

SOURCE: Population Growth, op.cit., p.115, Table 45.

A 40% level of urbanisation is sometimes considered to correspond to an intermediate state of industrialisation. In the U.A.R., urbanisation is proceeding at a more rapid rate than industrialization⁽¹⁾. It is more a response to land congestion than to employment possibilities created in the cities.

The urban population of the U.A.R. is concentrated in two large cities, Cairo and Alexandria. Cairo contains 14.2% of the total population of the country in 1966 and Alexandria contains 6% of the total population.⁽²⁾

In addition, Cairo and Alexandria are growing at a more rapid rate than the rest of the country. Cairo is growing at the rate of 4.5% per annum, Alexandria at 3.3% per annum, while the rest of the country is growing at the rate of only 2.7% per annum⁽³⁾.

(1) Haifaa Shanawany "U.A.R. Quality Not Quantity"
Reprinted by the E.F.P.A. from a Middle East African Review, Sept./Oct. 1968, p.4.

(2) Population Increase, op.cit., Table 51.

(3) Population Incr., op.cit., Table 47, p.118

These two metropolis are considered as "Primate Cities", i.e. they are parasitic in the sense that they tend to obstruct economic growth in the country by contributing little to the development of the hinterland⁽¹⁾.

The newcomers moving in the cities tend to live together with their kinship group from the original villages. Their basic outlook on life does not change and the values favouring large families persist in the urban environment. The result is a lack of rural - urban differential fertility rate.

This is not a new phenomena. It was mentioned by Cleland using data from 1906 to the early 1930⁽²⁾. El Badry using 1947 data⁽³⁾ and Zikry using 1960 census⁽⁴⁾.

Zikry reports a higher fertility for urban than for rural areas. The reason for this may be sought in better health conditions which reduce the risks of miscarriages, the tendency to marry more often due to better income, etc.

Lastly, Hanna Rizk made a study of 2,000 urban, 700 semi-urban and over 3,000 village women in Egypt. He showed that the fertility difference between the urban and rural women was too small to be statistically significant.⁽⁵⁾

(1) Haifaa Shanawany "Family Planning: An Equilibrium Response to Demographic Conditions in the U.A.R." Unpublished Ph.D. Cornell University, 1962.

(2) W. Cleland, The Population Problem of Egypt, A Study of Population Trends and Conditions in Modern Egypt, Pennsylvania Science Printing Press, 1936.

(3) El Badry, Some Demographic Aspects of Fertility in Egypt, op.cit. 1965.

(4) A.K. Zikry, Urbanisation and Its Effect on the Fertility of Women in the U.A.R., North Africa Demographic Centre, December 1964.

(5) Hanna Rizk "Patterns of Fertility in Selected areas in Egypt. Unpublished Ph.D. Princeton University 1963 cited in El Badry, some Demographic Aspect op.cit.

C. POPULATION PROJECTION

Population projections are very important for countries wanting to plan their economic development, the development programmes aim to raise the standard of living and the total size of the population is one of the variables affecting it. In addition, it is necessary to know the future composition of the population when planning for social services, education, infra-structure. Lastly, part of the national resources are the manpower resources. These depend on the population size and structure.

Not all population projections are intended to provide estimates of the most probable future number⁽¹⁾. It is sometimes useful to calculate the growth of population that would result from the continuation of the current fertility and mortality. Such a study may be helpful in evaluating the merits of various proposals relating to population policy.

Other population projections aim at being more realistic and try to estimate the probable size of the population. The U.N.O. population studies⁽²⁾ show that there can be no certainty in the estimates of future population trends, even when the purpose of the projection is to try and determine the probable future numbers. Such projections, however, serve a useful practical purpose by indicating the approximate number, making use of the information available and assuming no unforeseen change.

In view of the difficulty of predicting the probable future, the U.N.O. population studies advises that two or three projections are necessary and are usually carried out, assuming different fertility corresponding to high, medium and low rate. Mortality may be predicted fairly accurately. There is an almost universal tendency of mortality to decline due to improved medical knowledge.

(1) Manual On The Method of Estimating Population, Manual III.
Method of Pop. Projection by Sex and Age, U.N.O.,
ST/50A/Series A, U.N.O. Population Studies No.25.p.1

(2) Ibid.

In our thesis we have projected the population up to the year 2030 A.D.⁽¹⁾. The reason for choosing a long term period is that the effect of different fertility assumptions will have a noticeable influence on economic variables in the long-term period.

Two projections were worked out. Both assume a typical declining mortality which reaches an expectation of life at birth of 67.5 years for females (63.6 years for males) by the period 2010-2015 and holds constant thereafter. This is based on the usual mortality decline trend found in other countries. The projection differs in only two respects. One assumes constant fertility throughout the whole period and the other assumes that a major fertility decline is achieved, that fertility is reduced by 50% in a period of 20 years starting from 1970-75, and that fertility is constant both before and after that demographic transition. Such a decline, if achieved, would bring Egypt closer to European standards, although the annual birth rate would still be in the mid-20's per thousand of population (European rates are 15-20 per thousand).

The reason for these two assumptions, is, first of all, that it serves to illustrate in quantitative terms the two possible extremes, and it serves our purpose in showing the economic consequences of the two projections. It would be very helpful to policy makers in evaluating the merits of various proposals relating to population policy.

Secondly, we find that, according to a U.N.O. study,⁽²⁾ which has classified all the countries of the world under five categories, U.A.R. fits in the high fertility countries (birth rate 40 per 1000). The fertility trends in these countries of the world over long periods has generally been either level or slightly upwards. The slightly upwards movement is

(1) Projections were worked out by computers, under the supervision of Dr. Frederic C. Shorter, Ford Foundation, Turkey. For method of Projection See Appendix VI.

(2) Manual III, Population Projection by Age and Sex, op.cit. p.48

a result of improvement in health, decrease of diseases causing sterility and progressive improvement of economic conditions. "There are few examples in modern times of a rapid decline in fertility from very high levels"⁽¹⁾. The U.N.O. studies continues to say that though generalisation cannot be inferred, the five categories, serve as a background against which each situation must be examined. They add that "where fertility is very high with no clear indication of any incipient decline, it may remain equally high for a long period in the future and the possibility of a moderate rise may have to be considered". A decline may commence in the near or distant future⁽²⁾. It may be produced by changing attitudes and practices with respect of age at marriage and the number of children desired by parents. Where such changes have been observed in the past, the new attitudes and practices have been adopted first by a small group of the population and gradually diffused among wider group, so that the general level of fertility declines only gradually at first but with growing momentum, when substantially lower levels were reached.

In view of the United Nations study, the author is inclined to think that the first projection appears to estimate the most probable future numbers, unless a revolutionary change takes place in the socio-economic and cultural attitudes of the country. At the present, there is no indication of such a change, as we shall see in Part III.

Another possibility may be that the policy makers become so alarmed at the economic consequences resulting from constant high fertility, that more compulsory methods of birth control be enforced on the population⁽³⁾. Lastly, new methods of long-acting contraceptives may be discovered which act for a period of five or ten years. At present, there are

(1) Manual III. p. 48-49

(2) Ibid.

(3) Bernard Berelson "Beyond Family Planning", op.cit., several issues.

new injections called Depo-Provera, which causes sterility for three months⁽¹⁾. If the period could be prolonged, it would be an easier task to offer a high bonus, and inject it on a wide scale. With such possibilities, it may be possible to reach the fertility assumption of the second projection.

Before these can be achieved, it is of vital importance for policy makers to be made aware of the dangers of a continuation of the high fertility trend and its consequences to the economy. Only with such an awareness, will the policy makers give the first priority to birth control policies. This thesis is hoping to show these consequences in quantitative terms, in the hope that it may serve such a purpose.

The two projections show the overall differences between the high fertility and low fertility population. By the end of the period under review, the high fertility population will have reached 260 million, while the low fertility projection will be 98 million. This is almost one-third less than the high fertility projection.

(1) Time Magazine, May 30th, 1968.

FIGURE 16
POPULATION PROJECTION - U.A.R.
(THOUSANDS)

PROJECTION 1
DEBILITIC MORTALITY, CONSTANT FERTILITY

AGE	1960 POP 1	1965 POP 2	1970 POP 3	1975 POP 4	1980 POP 5	1985 POP 6	1990 POP 7	1995 POP 8	2000 POP 2	2005 POP 3	2010 POP 4	2015 POP 5	2020 POP 6	2025 POP 7	2030 POP 8
0	2096.3	2477.8	2830.1	3407.4	4048.5	4800.5	5601.9	6697.9	7942.7	9612.5	11457.2	13383.6	16461.7	19577.1	23610.1
5	1741.5	1986.9	2367.0	2770.8	3299.4	3945.6	4678.5	5492.1	6506.6	7828.9	9474.7	11348.1	13665.9	16305.0	19459.7
10	1537.3	1720.4	1932.8	2342.8	2742.5	3271.6	3912.3	4646.9	5455.0	6532.7	7783.4	9225.7	11306.3	13646.4	16244.8
15	1207.5	1519.4	1700.9	1942.8	2320.1	2720.1	3244.9	3886.0	4615.6	5425.7	6497.5	7746.5	9387.0	11239.8	13590.3
20	1099.7	1198.2	1496.4	1678.2	1917.9	2293.8	2689.3	3214.3	3849.3	4520.2	5384.1	6447.7	7700.1	9330.8	11192.4
25	924.1	1039.2	1166.0	1471.6	1650.4	1890.8	2261.4	2657.6	3176.4	3802.3	4536.2	5332.4	6399.2	7642.2	9266.6
30	813.2	903.6	1016.3	1143.6	1443.3	1623.3	1859.8	2230.3	2621.1	3140.7	3769.9	4485.3	5285.1	6342.4	7574.4
35	702.3	792.6	890.7	993.7	1119.2	1283.3	1592.2	1829.5	2193.9	2585.5	3098.1	3719.4	4436.1	5227.1	6272.9
40	616.0	681.7	759.4	837.8	967.9	1092.6	1261.6	1482.3	1721.1	2053.2	2441.8	2902.1	3465.7	4237.3	5082.2
45	529.8	594.5	657.9	745.0	830.6	930.6	1061.6	1242.4	1501.1	1773.0	2103.7	2485.0	2986.4	3574.4	4288.2
50	455.9	505.5	567.2	630.1	713.6	798.6	904.1	1024.4	1201.1	1404.6	1697.9	1959.0	2313.5	2902.1	3493.0
55	382.0	426.1	472.4	532.8	592.0	673.8	754.1	858.0	972.1	1103.8	1260.7	1464.6	1697.9	2002.1	2488.1
60	303.0	344.4	384.1	429.1	484.0	541.7	616.6	695.0	790.8	902.3	1017.9	1151.5	1303.7	1512.9	1761.8
65	234.1	261.1	291.9	329.1	367.7	409.1	469.1	539.5	608.2	699.0	797.6	901.7	1017.9	1163.7	1350.4
70	160.2	179.2	199.9	226.8	255.7	289.9	330.4	375.2	431.5	493.2	566.9	646.8	736.6	836.6	956.5
75 +	148.2	165.2	184.6	210.6	239.4	276.8	316.1	368.5	422.7	496.1	572.9	659.8	771.7	899.9	1033.8
TOTAL	12916.1	14786.9	16997.4	19713.2	22991.0	26994.1	31675.4	37423.8	44261.2	52732.7	62847.6	75152.6	89980.6	107708.8	129886.9

TABLE 3

0	2236.6	2515.5	2933.9	3482.4	4150.3	4938.2	5762.6	6910.4	8194.7	9941.0	11848.8	14333.2	17062.3	20395.0	24471.5
5	1858.1	2114.5	2397.0	2815.8	3364.4	4034.2	4800.1	5631.7	6757.0	8038.9	9776.2	11713.2	14159.2	16887.1	20161.7
10	1640.2	1835.1	2088.3	2371.3	2795.7	3333.8	3977.5	4743.7	5592.0	6715.5	8008.4	9715.2	11657.3	14101.6	16786.7
15	1196.0	1420.2	1612.7	1865.6	2245.6	2758.9	3301.7	3963.8	4723.6	5551.5	6666.7	7951.2	9656.4	11585.5	14014.7
20	1051.0	1173.8	1390.1	1722.2	2031.1	2310.7	2717.8	3255.4	3911.8	4669.6	5487.9	6590.5	7873.3	9511.7	11472.0
25	918.1	1027.6	1147.7	1358.4	1558.5	1776.9	2269.7	2675.4	3207.5	3858.7	4603.2	5413.4	6513.9	7731.7	9450.5
30	808.8	896.4	1003.4	1123.4	1252.4	1491.8	1714.0	2023.1	2331.1	2831.5	3408.3	4140.1	5047.9	6134.1	7656.4
35	700.3	786.4	871.6	978.5	1095.5	1244.8	1479.5	1634.1	1971.3	2358.9	2810.3	3379.8	4074.9	4874.9	5941.6
40	604.2	675.7	755.8	844.0	947.5	1064.4	1219.5	1393.5	1576.6	1812.3	2107.3	2450.1	2954.6	3589.5	4266.5
45	519.2	576.0	644.0	726.4	808.0	910.7	1023.0	1139.5	1326.1	1501.5	1725.9	1974.2	2343.0	2825.2	3409.4
50	424.9	485.7	533.9	602.5	682.7	762.8	859.7	973.7	1091.1	1230.4	1393.2	1601.4	1840.7	2124.5	2631.3
55	362.3	395.4	441.6	492.5	553.3	627.1	700.7	793.7	895.7	1001.5	1099.9	1244.4	1439.0	1654.1	1963.0
60	277.9	315.7	344.5	357.2	431.8	488.2	553.3	622.1	704.7	800.1	874.2	926.2	1057.1	1222.4	1405.1
65	205.3	226.6	257.4	283.2	316.3	358.0	404.7	462.5	520.0	593.8	674.2	766.2	819.0	819.0	947.0
70	132.7	150.5	166.1	190.8	210.8	235.6	268.4	306.8	350.6	398.5	455.1	516.7	549.5	549.5	555.2
75 +	122.4	129.8	143.7	161.5	184.1	208.6	236.9	271.9	311.3	362.1	421.5	474.6	549.5	549.5	555.2
TOTAL	13066.0	14925.0	17139.9	19868.9	23180.5	27351.1	31979.4	37817.8	44762.8	53382.7	63672.4	76824.8	91323.6	109372.7	131035.0
TOTAL	25984.1	29711.9	34137.3	39582.2	46171.6	54229.2	63654.8	75241.6	89024.0	106115.4	126519.9	151377.4	181304.2	217081.5	260021.9
DEBILITARY GUILD MORTALITY ADJUST FERTILITY	13 15 5	14 15 5	15 16 5	16 16 5	17 17 5	17 17 5	18 18 5	18 18 5	19 19 5	19 19 5	20 20 5	20 20 5	20 20 5	20 20 5	20 20 5
BIRTH RATE	0.0438	0.0435	0.0435	0.0437	0.0438	0.0435	0.0433	0.0432	0.0433	0.0435	0.0434	0.0433	0.0430	0.0429	0.0430
DEATH RATE	0.0170	0.0157	0.0157	0.0130	0.0112	0.0098	0.0097	0.0083	0.0083	0.0074	0.0069	0.0074	0.0069	0.0069	0.0069
GROWTH RATE	0.0268	0.0278	0.0278	0.0296	0.0308	0.0325	0.0321	0.0334	0.0336	0.0351	0.0352	0.0359	0.0361	0.0360	0.0361

FIGURE 19

POPULATION PROJECTION - U.A.R.
(THOUSANDS)

DECLINING MORTALITY - DECLINING FERTILITY
PROJECTION II

AGE	1960		1965		1970		1975		1980		1985		1990		1995		2000		2005		2010		2015		2020		2025		2030			
	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2		
0-4	2096.3	2477.8	2380.1	3000.6	3081.7	3009.2	2557.7	3243.2	3449.9	4003.2	4131.6	4239.3	4378.7	4710.9	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	
5-9	1741.5	1986.9	2367.0	2770.8	2905.5	3003.4	2932.8	2703.7	3179.6	3597.6	3945.9	4092.3	4378.7	4710.9	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	
10-14	1537.3	1720.4	1962.8	2342.8	2742.5	2811.0	2978.0	2913.0	2835.4	3163.2	3579.0	3925.5	4077.2	4183.6	4321.0	4321.0	4321.0	4321.0	4321.0	4321.0	4321.0	4321.0	4321.0	4321.0	4321.0	4321.0	4321.0	4321.0	4321.0	4321.0	4321.0	
15-19	1267.5	1519.9	1700.9	1943.3	2320.1	2720.1	2857.5	2958.0	2958.0	2671.0	3146.2	3599.8	3999.3	4060.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	
20	1059.7	1183.8	1496.4	1678.2	1917.9	2283.8	2699.3	2830.5	2830.5	2650.5	3122.0	3538.4	3885.9	3538.4	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	
25	924.1	1039.3	1166.0	1471.6	1650.4	1930.8	2261.4	2261.4	2657.6	2901.9	2871.2	2843.6	2843.6	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	
30	813.2	903.6	1016.3	1471.6	1650.4	1930.8	2261.4	2261.4	2657.6	2901.9	2871.2	2843.6	2843.6	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	
35	702.3	792.6	880.7	1471.6	1650.4	1930.8	2261.4	2261.4	2657.6	2901.9	2871.2	2843.6	2843.6	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	
40	616.0	681.7	769.9	1471.6	1650.4	1930.8	2261.4	2261.4	2657.6	2901.9	2871.2	2843.6	2843.6	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0
45	529.8	594.5	657.9	1471.6	1650.4	1930.8	2261.4	2261.4	2657.6	2901.9	2871.2	2843.6	2843.6	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0
50	455.9	505.5	557.2	1471.6	1650.4	1930.8	2261.4	2261.4	2657.6	2901.9	2871.2	2843.6	2843.6	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0
55	392.0	426.1	472.4	1471.6	1650.4	1930.8	2261.4	2261.4	2657.6	2901.9	2871.2	2843.6	2843.6	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0
60	306.0	344.4	384.1	1471.6	1650.4	1930.8	2261.4	2261.4	2657.6	2901.9	2871.2	2843.6	2843.6	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0
65	234.1	261.1	291.9	1471.6	1650.4	1930.8	2261.4	2261.4	2657.6	2901.9	2871.2	2843.6	2843.6	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0
70-74	166.2	179.2	199.9	1471.6	1650.4	1930.8	2261.4	2261.4	2657.6	2901.9	2871.2	2843.6	2843.6	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0
75 +	148.2	155.2	184.6	1471.6	1650.4	1930.8	2261.4	2261.4	2657.6	2901.9	2871.2	2843.6	2843.6	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0
TOTAL	12916.1	14786.9	16997.4	19306.4	21630.3	23870.1	25763.8	28135.1	30791.1	33773.6	36736.1	39662.5	42660.4	45775.7	49103.8	49103.8	49103.8	49103.8	49103.8	49103.8	49103.8	49103.8	49103.8	49103.8	49103.8	49103.8	49103.8	49103.8	49103.8	49103.8	49103.8	

M A L E S

AGE	1960		1965		1970		1975		1980		1985		1990		1995		2000		2005		2010		2015		2020		2025		2030			
	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2	POP 1	POP 2		
0	2236.6	2515.5	2933.9	3066.6	3159.2	3095.6	2836.9	3346.1	3765.7	4140.0	4272.8	4394.2	4538.5	4710.9	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	5169.7	
5	1838.1	2114.5	2397.0	2815.8	2962.7	3070.8	3009.0	2273.9	3271.8	3703.3	4071.4	4223.9	4343.9	4478.7	4823.9	4823.9	4823.9	4823.9	4823.9	4823.9	4823.9	4823.9	4823.9	4823.9	4823.9	4823.9	4823.9	4823.9	4823.9	4823.9	4823.9	4823.9
10	1640.2	1835.1	2083.3	2371.3	2755.7	2935.7	3042.8	2986.6	2752.9	3251.7	3689.6	4016.4	4203.8	4456.6	4665.0	4665.0	4665.0	4665.0	4665.0	4665.0	4665.0	4665.0	4665.0	4665.0	4665.0	4665.0	4665.0	4665.0	4665.0	4665.0	4665.0	
15	1196.0	1430.2	1812.7	2065.6	2345.6	2758.9	2907.5	3017.2	2907.5	2671.0	3146.2	3599.8	3999.3	4060.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	4166.4	
20	1051.0	1173.8	1590.1	1782.5	2031.1	2310.7	2717.8	2869.4	2869.4	2650.5	3122.0	3538.4	3885.9	3538.4	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	4036.1	
25	918.1	1027.6	1147.7	1558.4	1746.9	1995.1	2267.7	2267.7	2657.6	2901.9	2871.2	2843.6	2843.6	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	
30	803.8	896.4	1003.4	1123.4	1255.4	1491.8	1676.2	1676.2	2232.1	2585.9	2846.1	2846.1	2846.1	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	3122.0	
35	700.3	786.4	871.6	978.5	1095.5	1234.4	1398.5	1398.5	1871.3	2140.6	2329.9	2329.9	2329.9	2657.6	2657.6	2657.6	2657.6	2657.6	2657.6	2657.6	2657.6	2657.6	2657.6	2657.6	2657.6	2657.6	2657.6	2657.6	2657.6	2657.6	2657.6	
40	604.2	675.7	758.8	844.0	947.5	1064.4	1149.5	1149.5	1573.6	1812.3	2072.1	2072.1	2072.1	2329.9	2329.9	2329.9	2329.9	2329.9	2329.9	2329.9	2329.9	2329.9	2329.9	2329.9	2329.9	2329.9	2329.9	2329.9	2329.9	2329.9	2329.9	
45	519.2	576.0	644.2	726.4	808.0	910.7	910.7	910.7	1236.1	1501.5	1725.2	1725.2	1725.2	1971.2	1971.2	1971.2	1971.2	1971.2	1971.2	1971.2	1971.2	1971.2	1971.2	1971.2	1971.2	1971.2	1971.2	1971.2	1971.2	1971.2	1971.2	
50	434.9	485.7	538.9	605.5	682.7	782.8	782.8	782.8	1023.0	1230.4	1407.7	1407.7	1407.7	1601.4	1601.4	1601.4	1601.4	1601.4	1601.4	1601.4	1601.4	1601.4	1601.4	1601.4	1601.4	1601.4	1601.4	1601.4	1601.4	1601.4	1601.4	
55	362.3	395.4	441.6	492.5	553.3	627.1	627.1	627.1	793.7	951.7	1097.1	1097.1																				

P A R T I I

THE ECONOMIC CONSEQUENCES OF RAPID POPULATION

GROWTH IN THE U.A.R.

P A R T I I

THE ECONOMIC CONSEQUENCES OF RAPID POPULATION
G R O W T H

A. INTRODUCTION

One of the main objectives of the U.A.R. government is to raise the standard of living of its population. In spite of great effort, the income per capita in the U.A.R. is still very low, \$150⁽¹⁾ (L.E.64.500 m/ms.). One of the main obstacles for development is the rapid population growth.

A rapidly growing population affects the national income in two ways: First, the greater numbers by which the "pie" of the national income has to be divided causes a lower per capita income. Secondly, a number of factors about rapid population growth tend to depress the national income.

1. National Income and Population Growth:

The income per capita is found by dividing the national income by the total population. Hence the greater the population, the smaller will be the income per capita. Estimates of the national income since the end of last century indicate that the total income has increased greatly in the period, from L.E.90,000,000 in 1898 (current prices) to L.E.1884,000,000 in 1964⁽²⁾. This increase has always competed with the increase in population. As a result, the per capita income has tended to remain almost constant.

Taking constant prices (1952/53), we find that in 1952/53, the Gross Domestic Income was 806,000,000 pounds. It has increased to L.E.1,554,000,000 in

(1) Economic Times, Bombay, February 1st, 1968 Supplement, cited in M.Z. Shafei: "Le Developpement Economique en R.A.U. (Arabic), L'Egypte Contemporaine, October 1968, LIX, No.334, p.8.

(2) Population Increase, op.cit., 1966, Table 110, p.274 and 275.

1965/66. This is an increase of 80%.

FIGURE 20
GROSS DOMESTIC INCOME AND PER CAPITA INCOME
1952/53 - 1964/65

<u>Years</u>	<u>Constant 1952/53 Prices</u>	
	<u>Domestic Products</u>	<u>L.E. Million</u>
		<u>Per Capita Income</u> <u>L.E.</u>
1952/53	806.0	37.0
1953/54	871.0	39.1
1954/55	930.0	40.8
1955/56	881.0	37.7
1956/57	897.0	37.5
1957/58	959.0	39.9
1958/59	985.0	39.4
1959/60	1091.0	42.6
1960/61	1139.0	43.3
1961/62	1190.0	44.2
1962/63	1324.0	48.0
1963/64	1416.0	49.9
1964/65	1480.0	50.7
1965/66	1554.0	52.2

SOURCE: Population Increase - op.cit. Table 3.3.3
p.299, 1969.

The per capita income has increased from L.E.37.0 per annum (constant 1952/53 prices) in 1952/53, to L.E.52.2 in 1965/66. This is an increase of 41% (See Fig. 20). The population during this same period increased from 21,437,000 in 1952 to 29,390,000 in 1965, i.e. an increase of about 40%.⁽¹⁾

(1) Statistical Handbook, U.A.R. Central Agency for Public Mobilisation & Statistics, 1952-66, Cairo, 1967.

In order to determine in qualitative terms, the effect of population growth on the income per capita in the future, we have projected the Gross National Product at an annual rate of 5%. The reason for choosing this rate, is the fact that in the past years, this appears to be the rate which actually took place⁽¹⁾. The Third Five-Year Plan, which is at present being studied, aims at a growth rate of not less than 5%⁽²⁾. The planners are aiming to be more realistic than they were before. They are taking into consideration that part of the resources of the country will have to be diverted for defense purposes, as well as for a war economy. The effect of a war economy on the G.D.P. is to increase consumption at the expense of savings, hence investments. Lastly, it would be difficult for a country to keep a high rate of economic growth for a long-time period. Since we are projecting the population sixty years ahead, we have thought it wise to use an average rate of growth which could apply to all the period.

The next step was to calculate the per capita income for the high fertility and low fertility projections. It was found that, by the end of the century, the high projection population would have an income per capita of about L.E.104, while the low fertility population would have an income per capita of L.E.150. This is a difference of L.E.46 or 44% (See Fig.21) higher than the high fertility projections.

By the end of the period, i.e. sixty years from now, the difference will be far greater. The high fertility projection will have approximately a per capita income of L.E.154,

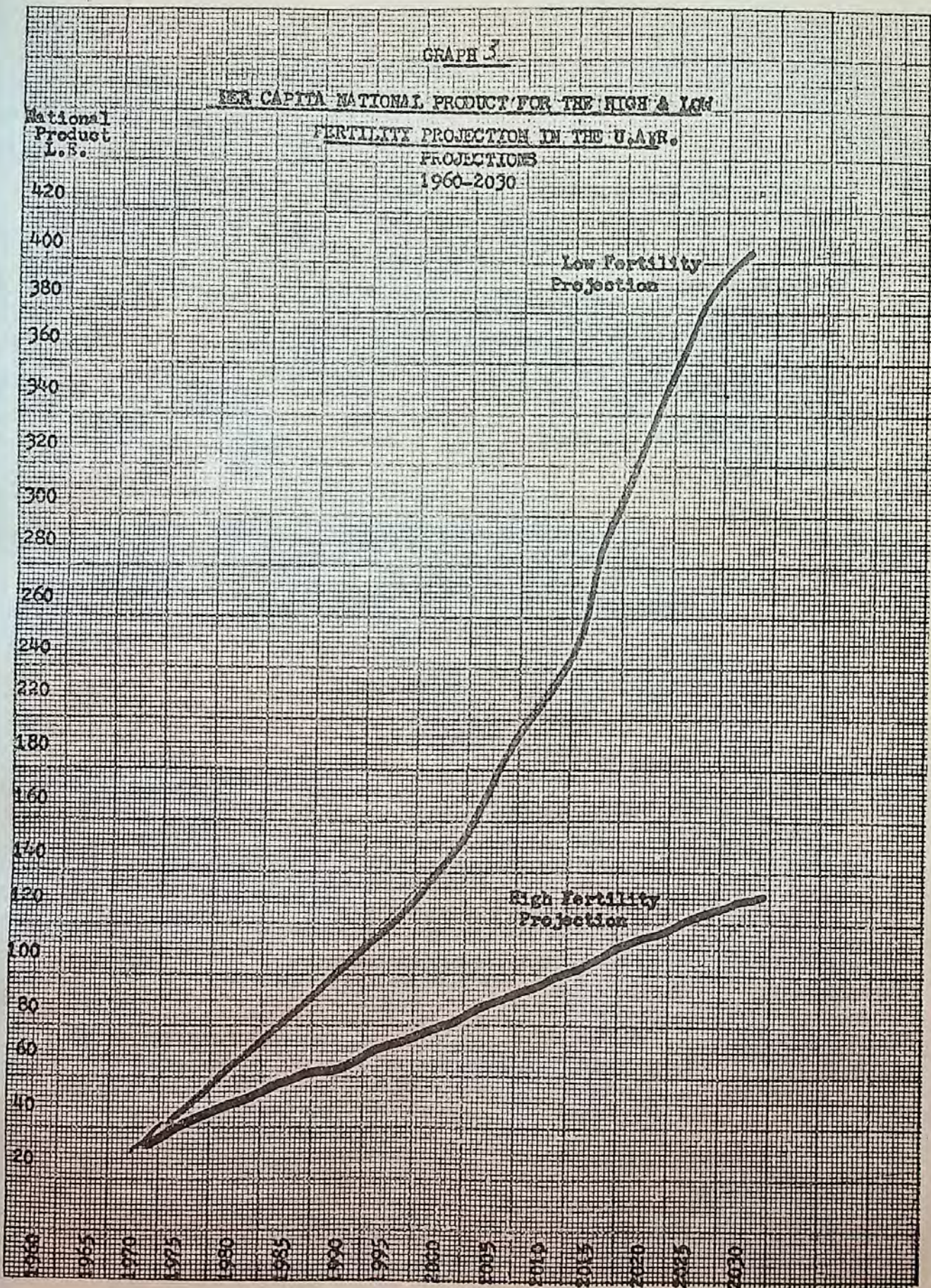
(1) B. Hansen and G. Marzouk, Development & Economic Policy in U.A.R., North Holland Publication Co., Amsterdam, 1965. Table A.3 p.320, Annual Rate of Growth from 1953/56 - 1962/63 is 5.2%.

(2) Al Ahram Al Iqtisadi, February 1970, No.347, p.22, and Al Ahram, January 18th, 1970.

FIGURE 91
PROJECTED GROSS NATIONAL PRODUCT AND PER CAPITA GROSS NATIONAL PRODUCT
IN THE U.A.R. - 1960 - 2030

	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020	2025	2030
Gross National Product, L.E. Million at Constant 1953/54 Prices Rate of Growth 5%	1321.0	1686.0	2151.8	2746.2	3505.0	4473.3	5709.2	7286.6	9299.8	11869.2	15148.4	19333.6	24675.2	31492.5	40193.3
Population Projection I in thousands Per Capita Gross National Product I - L.E.	29984.1	29711.9	34137.3	39582.2	46171.6	54229.2	63654.8	75241.6	89024.0	106115.4	126519.9	151377.4	181304.2	217081.5	260021.9
Population Projection II in thousands Per Capita Gross National Product I - L.E.	50.9	56.7	63.0	69.3	75.9	82.5	89.7	96.8	104.5	111.9	119.7	127.7	136.1	145.0	154.6
Population Projection II in thousands Per Capita Gross National Product I - L.E.	29984.1	29711.9	34137.3	38799.5	43418.0	47901.1	51677.6	56414.7	61721.1	67676.2	73575.9	79394.1	85318.5	91463.6	98031.2
	50.9	56.7	63.0	70.9	80.7	93.4	110.5	129.2	150.7	175.4	205.9	243.5	289.2	344.3	410.0

Calculated by Author from Population Projections in FIG. 18 & 19 on the Basis of 5% Growth of Gross National Product



Based on Figure 21

while the low fertility projection will have L.E.410. This is a difference of L.E.256 or about 166% higher than the high fertility projection.

Some people tend to think that it is difficult to think sixty years ahead. But, in fact, to avoid what might happen to the population sixty years from now, it is necessary to take drastic steps today. This year, there is an addition of one million person. With improved medical knowledge and practices, it is very likely that a number of those born today will survive to be sixty. There will be no way of decreasing these numbers then, short of a catastrophe.

2. Factors Which Help to Depress National Income:

We shall examine in three stages the factors which will help to depress the national income in a rapidly growing population⁽¹⁾.

If we assume that one point of time, there is a rapid population increase, three stages can be distinguished:

a. The Short-Run Period:

This period lasting up to 25 years, is one in which there is a great increase in the number of children, and a resulting great difference in burden of dependency between the two projections.

This difference in dependency once established, continues throughout the whole period in the projection. The high burden of dependency in the high fertility population makes it difficult to save and hence helps to depress the national income.

(1) A.J. Coale "Population & Economic Development, The Population Dilemma" edited by Philip Hauser, The American Assembly, Columbia University, second printing, 1964, p.51.

b. The Intermediate Period:

This period, lasts from 25 to 50 years. There is, in addition to the heavy burden of dependency in the high fertility population, an increase in the rate of growth of the population in labour force ages (15-64). The rate of increase in the labour force is at first slight, and then increases rapidly, reaching a maximum value in about 65 years.

The high fertility population faces an increased density in labour in relation to available resources. additional capital must be invested in order to ensure that there is no decline of productivity and that there are enough jobs for newcomers to the labour force.

c. The Long-Term Period:

In this period, usually after 50 years, there is a high density of population on the limited land resources causing high population pressure.

B. THE SHORT-RUN ECONOMIC CONSEQUENCES

On examining the two population projections (Fig.18 and 19), we noticed that until 1970, both have the same percentage of population below the age of 15 (42.8%). After that date, the difference in the number of children is slight at first but continues to increase at a rapid rate. In 1980, the difference is 4.8%, it reaches 52.3% at the end of the century and 76.1% after sixty years (See Fig.22).

On examining the figures in (Fig.22) we find that the difference in the percentage of children below 15 years in the two projections is due to the fact that the high fertility projection has an almost constant percentage in this age group throughout the period. The percentage varies slightly from 43% in 1960 to 45% in the year 2000 to 47% at the year 2030. This conforms with the demographic theory stating that "Persistent high levels of fertility give a broad-based distribution and a constant age distribution".⁽¹⁾

The low fertility projection, on the other hand, has a decreasing percentage in the age group 0-14. It starts at 43% in 1960, declines to 37% in 1985, 31% in the year 2000 and eventually to 30% in the year 2030.

The economic consequences resulting from a high percentage of the population below the productive age may be summed as follows:-

A young population causes a high burden of dependency. The labour force must support a greater number of dependents. There is, hence, great pressure towards spending most of the national income for consumption. One of the main items of consumption in low income countries, is the consumption of food. Due to the fact that the scope for increasing the food production is limited, the U.A.R. will have to depend

(1) A. Coale & E.M. Hoover, op.cit., p.22.

on imported foodstuffs. This causes an additional strain on the balance of trade and diverts resources which could have been used to import machines and raw materials for development.

The high rate of consumption leaves little room for domestic savings, which could be used to finance investments. The result is that the country will have to check its investments or rely on foreign sources to finance its investment, neither of which are desirable.

Lastly, the government has to divert much of its limited resources in order to supply social overhead costs, such as education, housing and public health in order to accommodate the new births in addition to improving the quality of these services.

In the next sections, we shall examine each of these consequences in greater details.

1. A High Ratio of Dependency:

One of the economic consequences of a large percentage of the population below the age of fifteen, is that of putting a heavy burden on the labour force who must provide for non-productive children. There is therefore, a high ratio of dependency.

The ratio of dependency is defined as the number of persons not in the labour force per 100 in the labour force⁽¹⁾.

This is calculated by taking the persons from ages 0-14 and those over 65 divided by the labour force age groups 15-64 times 100.

$$\text{i.e. } \frac{\text{ages (0-14)} + \text{(64 and over)}}{15 - 64} \times 100$$

The result may be seen in (Fig.22).

(1) Method of Analysing Census Data on Economic Activity of The Population, ST/50 A/Series 43, p.13, U.N.O.

FIGURE 22

PERCENTAGE OF POPULATION, IN DEPENDENT AND LABOR FORCE AGES

		1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020	2025	2030															
Projection I																															
Males & Females		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%														
(1) 0 - 14		11110	43	12630	42	14629	43	16368	42	17637	40	17996	37	19557	34	17966	31	19305	31	21859	32	23681	32	24922	31	25741	36	26924	29	28907	30
(2) 15-64		13871	53	15949	54	18265	53	20989	54	24206	56	28114	58	32095	62	36124	64	39769	64	42774	63	46414	62	50230	62	54121	63	58514	62	62141	61
(3) 65 +		1003	4	1113	4	1243	4	1402	4	1575	4	1791	4	2025	4	2325	3	2644	3	3043	3	3481	6	4242	7	5456	7	6024	9	7083	9
Projection II																															
Males & Females		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
(1) 0-14+(65+)		12113	13763	15872	18993	21966	26115	30779	36470	43152	51793	61836	74607	89430	107017	127848															
(2) 15 - 64		13871	15949	18265	20989	24206	28114	32876	38772	45872	54382	64684	76770	91855	110065	132175															
(3) (1) + (2) =		87.3%	86.3%	86.9%	88.6%	90.7%	92.9%	93.6%	94.1%	94.1%	95.1%	95.6%	97.2%	97.4%	97.2%	96.7%															
Ratio of Dependency																															
Projection I																															
(1) + (3) divided (2)		1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020	2025	2030															
(1) (0-14)+(65+ over)		12113	13763	15872	18993	21966	26115	30779	36470	43152	51793	61836	74607	89430	107017	127848															
(2) 15 - 64		13871	15949	18265	20989	24206	28114	32876	38772	45872	54382	64684	76770	91855	110065	132175															
(3) (1) + (2) =		87.3%	86.3%	86.9%	88.6%	90.7%	92.9%	93.6%	94.1%	94.1%	95.1%	95.6%	97.2%	97.4%	97.2%	96.7%															
Projection II																															
(1) (0-14)+(65+)		1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020	2025	2030															
(1) (0-14)+(65+)		12113	13763	15872	17770	19212	19787	19582	20291	21949	24302	27162	29164	31197	32948	35890															
(2) 15 - 64		13871	15949	18265	20989	24206	28114	32095	36124	39769	42774	46414	50230	54121	58515	62141															
(1) + (2) = Ratio of Dependency		87.3%	86.3%	86.9%	84.7%	79.4%	70.4%	61.0%	54.2%	55.2%	58.2%	58.5%	58.1%	57.6%	56.3%	57.6%															

Calculated by the author. Figures on Population based on Projections in Fig. 18, 19 provided by Dr. Frederic Shorter.

FIGURE 23

Ages 0-14

Year	(1) Projection I (Ages 0-14)	(2) Projection II (Ages 0-14)	(3)-(1)-(2) Diffe- rence	(3) ÷ (1) % Differ- ence
1960	11110	11110	--	--
1965	12650	12650	--	--
1970	14629	14629	--	--
1975	17191	16368	- 823	4.8
1980	20391	17637	- 2754	13.5
1985	24324	17996	- 6328	26.0
1990	28753	17557	-11196	38.9
1995	34146	17966	-16180	47.4
2000	40508	19305	-21203	52.3
2005	48690	21859	-26831	55.1
2010	58355	23681	-34674	59.4
2015	70365	24922	-45443	64.6
2020	84354	25741	-58613	69.5
2025	100992	26924	-74068	73.3
2030	120765	28807	-91958	76.1

SOURCE: Based on Fig.22

Both projections have the same ratio of dependency until the year 1970. After this date, the high fertility population has an increasing ratio of dependence reaching 94.1 persons who are dependent per 100 of those in the labour force, by the end of the century.

The low fertility projection has a decreasing ratio of dependents after 1970, reaching 55.2 by the end of the century.

FIGURE 23-A

RATIO OF DEPENDENCY

<u>Year</u>	<u>Projection I</u> <u>%</u>	<u>Projection II</u> <u>%</u>	<u>Difference</u> <u>%</u>
1960	87.3	87.3	--
1965	86.3	86.3	--
1970	86.9	86.9	--
1975	88.6	84.7	3.9
1980	90.7	79.4	11.3
1985	92.9	70.4	22.5
1990	93.6	61.0	32.6
1995	94.1	56.2	37.9
2000	94.1	55.2	38.9
2005	95.1	58.2	36.9
2010	95.6	58.5	37.1
2015	97.2	58.1	39.1
2020	97.4	57.6	39.8
2025	97.2	56.3	40.9
2030	96.7	57.3	38.9

SOURCE: Calculated from Fig. 22

The difference between the two projections may be seen in Fig. 23A. It is at first small, only 3.9% in 1970, and it increases rapidly to reach 36.9% by the end of the century and 38.9% by the year 2030.

A high burden of dependency implies that the labour force must produce for a large number of dependents. The situation in the U.A.R. is made worst by the fact that the labour force is made up of 90% males and only 10% females⁽¹⁾. This puts an even heavier burden on the male labour force who must provide for non-productive dependents. The result is that there is a great pressure to spend most of the income on consumption, leaving little that would be saved. We shall examine in greater details these questions.

2. High Propensity to Consume:

a) Consumption in General:

There is a steady increase in the quantities consumed from 1952 to 1967 of various goods, as can be seen from Figure 24. The largest increases are found in maize (233%), wool textile (478.3%) and margarine (400%).

(1) B. Hansen & G. Marzouk: Development & Economic Policy - U.A.R., op.cit., p.37.

FIGURE 24

TOTAL CONSUMPTION ON SELECTED CONSUMER'S
GOODS IN THE U.A.R.-1952, 1964 AND 1967

Goods	Units 1000 tons	1952	1964	% Increase		% 1967 Over 1952
				During Per- riod 1952/ 1964	1967	
Wheat & Flour		1647.5	3129.0	90.0	3762.0	228.3
Maize		1082.5	2229.0	106.0	2522.0	233.0
Millet		382.0	740.0	93.7	816.0	213.6
Cotton Seed Oil		78.0	127.0	62.8	132.0	169.2
Margarine		12.0	31.0	158.3	48.0	400.0
Tea		16.2	27.1	67.3	27.0	166.7
Sugar		287.0	346.5	20.7	497.0	173.2
Cotton Textiles	Million Meters	324.8	441.8	36.0	541.4	166.7
Silk		44.2	45.8	3.6	58.9	133.3
Wool		2.3	9.4	307.0	11.0	478.3

SOURCE: Based on Population Increase, op.cit., September 1969, Table 3.3.1, p.297.

A marked increase in total consumption took place during the First Five-Year Plan. The target of the Plan was to double the national income within ten years. The plan fell short of the target, due to the fact that total consumption during the period rose almost at the same rate as the national income. The result was that domestic savings fell far short of the planned target and capital formation had to be financed from external loans.

The following figures give the evaluation of the First Five-Year Plan:

FIGURE 25

THE RATE OF INCREASE OF GROSS DOMESTIC PRODUCT
CONSUMPTIONS, DOMESTIC SAVINGS AND INVESTMENTS
IN THE U.A.R.-1959/60 - 1964/65

	<u>Current Prices-L.E.Million</u>		
	<u>1959/60</u>	<u>1964/65</u>	<u>% Increase in 1964/65 over 1959/60</u>
Gross Domestic Product	1375.6	2050.6	49.1
Total Consumption	1199.7	1762.2	46.9
Domestic Savings	175.9	288.4	63.9
Investments	171.4	364.4	112.6

SOURCE: Ministry of Planning, Evaluation of First Five Year Plan 1960/61 - 1964/65, February 1966, cited by Maurice Makramallah "Consommation et Planification en R.A.U." (French), Egypte Contemporaine, LIX annee, No.331, January 1968.

The target of the plan was as follows: an increase of domestic savings of 116.3%; instead, there was an actual increase of 63.9%⁽¹⁾. Total consumption increased from 1199.7 million pounds to 1762.2 million pounds, that is an annual increase of consumption of 8% per annum. On the other hand, the Gross Domestic Product has increased from L.E.1375.6 million to L.E.2050.6 million in 1965; that is, an increase of 8.4% per annum. The rate of increase of total consumption (8%) is almost as great as the increase in Gross Domestic Product⁽²⁾.

The annual rate of increase of consumption of 8% cannot be entirely explained by population increase, which is only increasing at 2.7% per annum.

(1) Maurice Makramallah, op.cit., based on Figure 25.

(2) Ibid.

We may attribute one-third of the rate of growth of consumption to population growth. The rest may be explained by the redistribution of income in favour of lower income groups who have a greater propensity to consume. Other factors are the increase in wages by 9.9% per annum, which was not followed by a similar rise in labour productivity, the increase in the size of the labour force from 6,006,000 to 7,333,400, i.e. an increase of 1,327,400 workers during the First Five Year Plan.

There was also a large increase in government spending on public services.

b. A High Consumption of Food:

In low income countries, one of the main items of expenditure is food. The Egyptian Family Budget Survey of 1958/59 reveals that around 76.7% of total expenditure on consumption went to food. This percentage decreased to 62.8% in 1966⁽¹⁾. This high percentage justifies us for taking a special section on the consumption of food, since it explains where a large part of the total consumption is spent.

An increase in the demand for food depends on population increase and per capita income. The rate of increase of the per capita incomes has fluctuated, but never exceeded the 8% reached in 1959/60⁽²⁾. Hence it is reasonable to attribute the large increase in the demand for food to the rapid population growth.

Fig.26 shows us the rate of increase in consumption in some of the main foodstuffs.

(1) R. Sayed Ragab, "A Comparison of the Family Budget Survey of 1958/59 That of 1965/66 in the U.A.R.", August 1967, Unpublished (Arabic), Ministry of Planning, p.20.

(2) Population Increase, op.cit., 1966, Table 90, p.206.

FIGURE 26

COMPARISON OF TOTAL EXPENDITURE ON SOME FOOD
ITEMS - 1960/1965

In Thousands of Pounds

<u>Food Items</u>	<u>1960</u>	<u>1966</u>	<u>% of Increase of 1966 over 1960</u>
Beans & carbohydrates	181401	23576	30%
Dried Beans	18013	39920	127%
Meat, Fish and eggs	97504	194322	99%
Fresh and canned ve- getables	31776	75170	125%
Sugar and Sugar Products	33740	50735	57%
Fats and oils	15536	34426	121.6%

SOURCE: R. Ragab, op.cit., Table 3, p.15

The increase in the demand for food is likely to res-
train economic development in several ways:

(1) In the U.A.R. the government subsidises some of the essen-
tial foodstuffs in order to ensure a minimum standard of
living. These are bread, sugar and vegetable oil. The
consumer pays for these at higher prices which are below
the cost price. He gets a fixed ration per month of sugar,
edible oil and tea, at the low prices and buys any extra
quantity of these commodities at the higher market prices.
In order to do so, the government spent L.E.8.5 million
in 1959/60 and this was increased to L.E.46 million in
1967/68⁽¹⁾. The sum was spent as follows:-

BreadL.E. 22,424 million
Vegetable OilL.E. 11,213 million
SugarL.E. 6,756 million⁽²⁾

(1) Al Ahram El Eqtisadi, February 15th, 1968 (Arabic)

(2) Ibid.

(2) Food Imports Increases the Balance of Trade Deficit:

A quarter of a century ago, the U.A.R. was self-sufficient in the production and consumption of foodstuffs. The growing increase in the population and the limited scope of agricultural expansion, led to an increasing dependence on imported foodstuffs.

Between 1935 and 1960, both agricultural production and food production failed to increase as fast as the population. Thus, while population increased by 62%, food production increased only by 47%⁽¹⁾.

The total cropped area in the U.A.R. was 8,054 million feddans in 1955. It reached 10,370 million feddans in 1960⁽²⁾ and 10.8 million feddans in 1966⁽³⁾.

(1) Galal Amin: Food Supply & Economic Development With Special Reference to Egypt, Frank Cass & Co., 1966, p.68.

(2) Economic Bulletin, National Bank of Egypt, Vol.XX, No.4 1967, Table 5/19.

(3) Population Increase, op.cit., 1969. p.200. Table 3.1.2

FIGURE 27

I M P O R T S
3/4 a. Foodstuffs⁽¹⁾

(1) In Millions of Pounds
(2) In Thousands of Tons

Year	Cereals & Milling		Animal & Vegetable Oil		General Grocery		Tobacco		Others		Total	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
1916	2.7	271	0.3	9	0.9	45	1.2	8	1.2	12	6.3	345
1920	13.3	391	0.5	6	4.8	56	3.2	9	2.2	16	24.0	478
1930	2.0	246	0.5	14	2.7	142	1.6	5	3.6	44	9.8	451
1940	0.1	6	0.5	13	1.3	15	1.0	6	2.9	144	5.8	184
1950	21.9	723	1.3	12	8.9	23	5.6	13	18.1	305	55.8	1076
1955	0.1	2	3.5	44	11.2	22	5.0	11	10.2	153	30.0	232
1960	26.7	1186	3.7	49	8.4	23	5.1	11	9.1	129	53.0	1398
1961	27.6	1204	5.8	73	10.1	28	5.0	11	11.3	178	59.8	1494
1962	27.0	1694	4.4	61	11.9	33	6.0	12	13.3	196	82.6	1996
1963	47.0	1996	13.5	131	12.3	30	7.0	12	20.8	203	120.6	2372
1964	74.7	N.A.	13.9	N.A.	13.0	N.A.	7.5	N.A.	18.2	N.A.	127.3	N.A.
1965	66.4	N.A.	10.3	N.A.	14.5	N.A.	8.1	N.A.	19.0	N.A.	118.3	N.A.
1966	70.2	N.A.	10.1	N.A.	16.2	N.A.	8.3	N.A.	29.6	N.A.	134.3	N.A.
1967	84.4	N.A.	18.5	N.A.	16.0	N.A.	7.6	N.A.	18.8	N.A.	145.3	N.A.
1968												
./March	14.2	N.A.	4.1	N.A.	1.8	N.A.	1.7	N.A.	2.1	N.A.	23.9	N.A.
./June	21.7	N.A.	3.3	N.A.	2.6	N.A.	1.8	N.A.	3.2	N.A.	32.6	N.A.
y/Sept	15.3	N.A.	3.0	N.A.	1.8	N.A.	1.6	N.A.	1.8	N.A.	23.5	N.A.
ober	5.8	N.A.	2.0	N.A.	0.7	N.A.	0.7	N.A.	0.7	N.A.	9.9	N.A.
ember	2.9	N.A.	0.2	N.A.	0.3	N.A.	0.5	N.A.	0.7	N.A.	4.5	N.A.

SOURCE: The Central Agency for Public Mobilisation & Statistics, N.B.E. Economic Bulletin, Vol. XXII, No. 2, 1969.

1) Economic Aid figures are excluded from imports with the exception of 1963 and 1964.

The result is that the U.A.R. had to import an increasing quantity of food as seen in Fig.27. Total imports of foodstuffs increased from 345 million tons in 1910 to 1076 million tons in 1950 and reached 2372 million tons in 1963.

The value of imports has fluctuated but there is a marked trend of rising food imports. In 1910, the value of imported foodstuffs amounted to L.E.6.3 millions; the 1950 figure was L.E.55.8, i.e. a rise of 885%. In 1967 the figure stood at L.E.145.3 million, an increase of 260%.

The value of imported cereals and milling products show a marked increase with the exception of one year, 1955. These increased from L.E.21.9 million in 1950 to L.E.84.4 million in 1967, that is an increase of 400%.

Except for the years 1963 and 1964, these figures do not include economic aid figures. Food aid to Egypt came mainly from the U.S.A. The figures can be seen below:

FIGURE 28

Year	U.S.A. AID FIGURES		% of Aid Value To Total Imports of Foodstuffs
	Aid Value L.E. Million	Total Value of U.A.R. -Imports & Foodstuffs	
1959/60	2492	58468	4.3
1960/61	5168	48411	10.7
1961/62	3910	76836	11.6
1962/63	7731	104664	7.4
1963/64	2190	127533	1.7
1964/65	3473	122137	2.9
1965/66	5103	122275	4.2
1966/67	3253	137158	2.3

SOURCE: Al Ahram El Eqtisadi - March 1st, 1968, No.310,
p.22, "Consumption & Distribution in a War
Economy."

In order to determine the extent to which food imports helped to increase the balance of trade deficit, we have subtracted food exports from food imports to reach the net food imports (See Fig. 29). Then this was calculated as a percentage of the Balance of Trade Deficit. It is found that, in some years, food imports contributed to 69.8% of the balance of trade deficit in the year 1959. Between 1961 and 1966, the food import contributed to an average of 46.4% of the total deficit in the balance of trade. The figure for 1967 is exceptionally high (94%) and may be explained by the exceptional war conditions.

× The increase in food imports, not only causes balance of payment difficulties, but it leads to a cut in the imports of machines and essential raw materials, and a slow down in industrialization. Fig. 30 shows that food imports in the years between 1960-68 formed on an average about 28% of total imports. This is almost one-third of total imports. Raw material and capital goods imports formed on an average 61% during the period 1960-1968. This means that the food imports were nearly half those of raw materials and capital goods, which are so necessary for industrialization.

FIGURE 29

VALUE OF FOOD IMPORTS AND EXPORTS
1910-1967 - U.A.R.

Expressed in Millions of Pounds

Years	(1) Food Impbrt	Food Export	Net Food Import(-) Export(+)	Balance Of Trade	Net Food Import As % of Balance of Trade Deficit
1910	5.1	3.2	- 1.9	+ 5.3	--
1920	20.8	5.1	- 15.7	- 12.2	128.7
1930	8.8	3.4	- 5.4	- 14.6	37.0
1940	4.8	4.2	+ 0.6	- 2.4	25.0
1950	50.2	10.8	- 39.4	- 41.4	95.2
1955	25.0	12.6	- 12.4	- 41.2	30.1
1957	54.6	18.5	- 36.1	- 11.0	328.2
1958	52.4	21.5	- 30.9	- 73.8	41.9
1959	53.5	10.5	- 43.0	- 61.6	69.8
1960	47.9	18.9	- 29.0	- 34.7	83.6
1961	54.8	14.8	- 40.0	- 74.9	53.4
1962	76.6	21.0	- 55.6	-142.7	39.0
1963	113.6	34.7	- 80.9	-171.6	47.1
1964	119.8	45.0	- 74.8	-180.0	41.6
1965	110.2	34.3	- 75.9	-142.6	53.2
1966	125.7	36.6	- 89.1	-202.2	44.1
1967	137.6	46.1	- 91.5	- 97.3	94.0

NBE 3/1 a.

SOURCE: Calculated from figures given in the Central Agency for Public Mobilisation & Statistics, cited in National Bank of Egypt, Economic Bulletin, Vol.XXII, No.1, 1969, 3/4 a, for years 1957 and 1958. Economic Bulletin, Vol.XX No.4, 1967.

(1) Value of tobacco has been deducted from total food-stuffs. Economic Aid figures are excluded from imports with the exception of 1963 and 1964.

FIGURE 30

TOTAL IMPORTS AND PERCENTAGE OF IMPORTED FOOD,
CONSUMER GOODS, RAW MATERIALS AND CAPITAL GOODS
1910 - 1968

Expressed in Millions of Pounds

Year	Total Imports (1)	Food Imports (2)	% Of Food Import To Total Import	Consumer Goods (4)	% Of Consumer Goods To Total Import (5)	Raw Material Capital Goods (6)	% of Raw Material And Capital Goods To Total Imports (7)
1910	23.6	5.1	21.6	8.8	37.3	8.5	36.0
1920	104.2	20.8	20.0	44.1	42.3	32.9	31.6
1930	47.5	8.8	18.5	16.4	34.5	19.8	41.7
1940	32.4	4.8	15.0	9.6	29.6	18.2	56.2
1950	216.8	50.2	23.2	48.4	22.3	119.9	55.3
1955	187.2	25.0	13.4	37.4	20.0	124.0	66.2
1960	232.5	47.9	20.6	32.6	14.0	144.5	62.2
1961	243.8	54.8	22.5	27.2	11.2	156.2	64.1
1962	301.0	76.6	25.4	31.0	10.3	193.3	64.2
1963	398.4	113.3	28.4	42.2	10.6	242.4	60.8
1964	414.4	119.8	28.9	33.8	8.2	260.8	62.9
1965	405.8	110.2	27.2	45.3	11.2	250.4	61.7
1966	465.4	126.1	27.1	47.6	10.2	292.8	62.9
1967	344.3	137.7	40.0	32.3	9.4	174.2	50.6
1968	289.6	91.9	31.7	28.9	10.0	168.8	58.3

Economic Aid figures are excluded from imports with the exception of 1963 and 1964.

SOURCE: The Central Agency for Public Mobilisation & Statistics, Found in Economic Bulletin, National Bank Of Egypt, Vol. XXII, No. 3, 1969.

- (1) Table 3/1 a. (3) are calculated by dividing $\frac{(2)}{(1)} \times 100$
 (2) Table 3/4 a. (5) are calculated by dividing $\frac{(4)}{(1)} \times 100$
 (4) Table 3/4 b. (7) are calculated by dividing $\frac{(6)}{(1)} \times 100$
 (6) Table 3/4 c.

3) Malnourishment Affects the Productivity of Labour:

The increased demand for food due to population growth prevents an improvement in the quality of food, which is so necessary for the health and physical productivity of labour.

The average Egyptian diet contains the minimum caloric requirements estimated by the F.A.O. at 2486 per capita per day. The quality of the diet is very poor, however, containing a high proportion of calories derived from cereals and starchy food and sugar to total caloric intake, and a very low intake of animal protein.

The per capita consumption of different foodstuffs per annum in kilograms in selected countries shows us that the U.A.R. is the lowest country in the consumption of meat, eggs and fish with the exception of India. The animal protein intake per capita per day is only 12.6 grams⁽¹⁾. Available figures on the quantities of food indicate that in recent years there has been an increase in the rate of consumption of food grains and a decrease in the rate of consumption of meat, fish and eggs⁽²⁾. As the latter group consists of a high rate of protein, any decrease in these will lead to poor health conditions and diseases, resulting from malnutrition.

In 1964/65, the per capita consumption in the U.A.R. was estimated at 2943 calories per day, in 1966/67 it rose to 3000 calories, of which 12.6 grams, or 15%, came from animal protein⁽³⁾. This is a very low rate when compared to that of other countries. Therefore, the increase in population, if not met by an equal increase in animal protein intake, will lead to a decrease in the standard of living.

The minimum required calories estimated by F.A.O. at 2486 per capita per day, are not calculated for heavy physical work. The minimum caloric requirement of such labour is

(1) See Appendixes VII and VIII.

(2) Population Increase, op.cit., 1969. p. 268

(3) Population Increase, op.cit., 1969. p. 268

4660 calories per day⁽¹⁾. Since most of the labourers fall within this lower income group, we find both malnutrition and under-nourishment. These factors contribute to low labour productivity in the U.A.R. as well as a high degree of absenteeism.

The advantage of cheap labour is often cancelled by low labour productivity. In addition, recent studies show that a prolonged period of under-nourishment and malnutrition during childhood is bound to affect the physical and mental as well as intellectual abilities of the adult.

3. Savings and Investment:

a. Low Gross Domestic Savings Due to High Consumption:

We have seen in the last section that total consumption increased very greatly.

The result was that local savings fell far short of financing the investments of the Plan project and the government had to rely on foreign loans.

The problem here is that it would be very difficult to increase savings by a further check on consumption. The reason is that inspite of a very rapid increase in consumption, consumption is still very low when compared to that of other countries. It is very low, too, when compared to what would constitute a decent or even minimum standard of living. It would be too great a sacrifice to ask present generations to check their consumption much further. The only feasible check on consumption is that obtained from preventing new births.

(1) Galal Amin, op.cit., p.111.

b) Gross Domestic Savings and Foreign Loans:

Gross Domestic Savings (See Fig.31) averaged 13.8 of the G.N.P. during the first five years of the Plan⁽¹⁾. The average investment during the First Five-Year Plan was 17.5 of G.N.P.⁽²⁾

The difference between Domestic Savings and Investment was 4.3% of G.N.P. The difference was financed by external loans which formed 27.6% of the total investment of the plan⁽³⁾. Fig.31 shows that in some years the difference between Domestic Saving and Investment reached 7.2% in 1963/64.

FIGURE 31

GROSS DOMESTIC PRODUCT, CONSUMPTION, SAVING AND INVESTMENT IN THE U.A.R.(1960-67).

Years	G.D.P.	Final Consumption	% Of Final Consumption to G.D.P.	Gross Domestic Saving	% Of Gross Domestic Saving to GDP	Total Domestic Investment	% Of Investment to GNP	Deficiency Of Saving As % Of GDP
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8) = (7)-(5)
1960/61	1459.3	1249.3	85.6	210.1	14.4	225.6	15.5	1.1
1961/62	1513.3	1348.6	89.1	164.7	10.9	251.1	16.6	5.7
1962/63	1684.6	1489.0	88.4	195.6	11.6	299.6	17.8	6.2
1963/64	1887.9	1651.1	87.5	236.8	12.5	372.4	19.7	7.2
1964/65	2050.6	1762.2	85.9	288.4	14.1	364.3	17.4	3.3
1965/66	2388.2	2078.8	87.0	309.3	13.0	446.2	18.7	5.7
1966/67	2475.2	2134.9	86.3	340.3	13.7	396.7	16.0	4.6

SOURCE: Follow-up & Evaluation of First Five-Year Plan for 1960-1965.

Lotfi Abdel Azim: "Foreign Loans Versus Foreign Capital As A Method of Development", Al Ahram El Iqtisadi, No.311, August 1st, 1968 (Arabic) for years 1965/66 and 1966/67

Columns 1,2,4,6 were given
Columns 3,5,7,8 were calculated.

- 1) M.Z. Shafei "Le Developement Economique en R.A.R. (Arabic) L'Egypte Contemporaine, October 1968, LIXeme No.334,p.747.
- 2) Sayed El Bawab: "Consumption and Investment in War and Development Economy", Al Ahram El Eqtisadi, April 1st, 1968. No.303 (Arabic)
- 3) Lotfy Abdel-Azim: "External Finance through Foreign Loans or Foreign Capital", Al Ahram El Eqtisadi, March 15, 1968, p.943 (Arabic).

On September 22nd, 1964, U.A.R. and U.S.S.R. reached an agreement by which the U.S.S.R. was to give a loan of 300 million rubbles.

In the year 1965/66, the deficit between domestic savings and investments reached around 5.7% of Gross National Product.

The foreign loans increased from 74.5 million pounds in the year 1964/65 to 136.6 million pounds in 1965/66. Thus, foreign loans amounted to 30.2% of total investment. (1)

The lack of higher rate of savings will cause either a check on investments or dependence on foreign loans, neither of these alternatives are desirable. Foreign loans may not be an immediate burden, but they are a future burden in the form of interest and capital repayment.

c. The Composition of Gross Domestic Savings:

Savings may be either personal savings or public savings.

When personal saving forms a large percentage of the national income, the family with a large number of children finds it more difficult to save. When the government is an important saver, the population increase, by causing a lower per capita income, makes it more difficult for the government to raise money from taxation.

In the U.A.R. private savings appear to be more important than public savings. During the 1960s, out of an average Gross Savings of about 12% of G.N.P., only 2% were public savings (2). Public savings had declined

(1) Lotfy Abdel Azim: "The Burden of Population Explosion In the Long Term", Al Ahram El Eqtisadi, March 15th, 1968, No. 302. p. 366

(2) Hansen & Marzouk, op.cit., p. 224.

from 6% of G.N.P. to the present low level due to the budget policies⁽¹⁾, i.e. the expansion of public consumption. Public or collective consumption increased from L.E.228.1 million in 1959/60 and reached L.E.431.3 million in 1964/65.⁽²⁾

1. Personal Savings:

When we examine personal savings (Appendix X) we find that during the year 1966/67, 96% of these savings were compulsory savings in the form of social insurance fund. By the end of the year, however, the figures reduced to 70.42% due to out-payments. These account for over 20% of total domestic savings during the First Five-Year Plan.⁽³⁾

The fact that 20% of the total domestic savings comes from compulsory social insurance payments, indicates that incomes are too low to allow for substantial voluntary savings.

Voluntary savings are low because per capita income is so low and the propensity to consume is so high. The rate of population growth is one of the chief factors depressing per capita income.

2. Public Savings:

One of the main sources of public savings is through taxation. The higher burden of dependency puts pressure on consumption. It also helps to depress the national income, and the per capita income; as a result, it becomes more difficult for the government to collect taxes, especially income taxes, since a large percentage of individuals will have incomes which are exempted from income taxes.

(1) Ibid.

(2) See figure in Appendix IX.

(3) D. Mead, Growth & Structural Change in the Egyptian Economy. The Economic Growth Centre, Yale University, 1967, Richard D. Irwin, p.232.

In examining the tax system, we find that income taxes contribute on an average in the years 1945/46 and 1965/66 3.6% of the G.N.P. - the average for the years 1960/61 - 1965/66 being 3.50%. During the same period 1945/46 - 1965/66 all indirect taxes amounted to 13.1% of G.N.P.

There is a tendency to rely more on indirect taxes, especially on price increasing sources of public revenue, and loss in direct taxes, as may be seen from the table below:

FIGURE 32
TAXATION IN THE U.A.R.

<u>Period</u>	<u>Direct Taxes</u>	<u>All Indirect Taxes</u>	<u>Total</u>
1938/39	19.7	80.3	100
1945/46 - 1949/50	23.9	76.1	100
1950/51 - 1954/55	21.3	78.7	100
1955/56 - 1959/60	23.4	76.6	100
1960/61 - 1965/66	19.6	80.4	100
1963/64 - 1965/66	18.1	81.9	100

SOURCE: Riad El Sheikh, op.cit., p.88

Dr. Riad El Sheikh: "The Egyptian Taxation System, An Evaluation from A Long-Term Development Point of View, L'Egypte Contemporaine, April 1968, LIXeme Annee, No.332, Table I, p.85 8-67.

Our main reason for relying on indirect taxes is the fact that the government can collect more revenue. The low per capita incomes make it more difficult for the government to tax directly. However, indirect taxes cause a heavier burden on the lower income groups and are hence, undesirable from an equity point of view.

4. Investments in Social Overhead Costs to Accommodate New Births.

a. Introduction:

In a rapidly growing population, the government has to divert part of its scarce resources to invest in social overhead costs just to accommodate new births, in addition to improving the quality of the service.

The high mortality rates amongst age groups less than 15 years old, cause a great burden to the State. Many of these children die before reaching economically productive years. A large share of the national income is spent on their consumption of goods and services, in particular social services, such as education and public health. The total amount of the national income spent in 1960 on children dying before the age of 15 is estimated at approximately L.E.49.3 million⁽¹⁾.

In addition, the government of U.A.R. has pledged to give universal free education to all stages of learning, also free medical care, social insurance, etc. This means that the U.A.R. government will incur a larger expenditure on social overhead costs than other countries where these sources are paid for.

There is a marked increase in public expenditure on services in the U.A.R. since 1951/52 as seen in Figure 34. These services include education, social services, health, housing and public utilities. These have increased from L.E.23,399 thousand in 1951/52 (base year) to L.E.196,796 thousand in 1964/65. After that date, there is some decline reaching L.E.144,680 thousand in 1967/68. Taking the index number with 1951-52 as the base year, the increase is from 100 to 807 in 1964-65 to 593 in 1967-68. During the same period, the per capita expenditure on service does not rise to this extent, due to population growth. Taking the index number and 1951/52 as base year, per capita expenditure rose

(1) Population Increase, op.cit., 1969.

from 100 to 589 in 1964/65 instead of 807 (the total expenditure) then declined to 402 in 1967/68 instead of 593 (total expenditure). (See Figures 33 and 34).

FIGURE 33

PUBLIC EXPENDITURE ON SERVICES IN THE U.A.R.

A. Total Expenditure (1000 L.E.)

Fiscal Year	Education		Soc. Serv.		Health		Housing & Pub. Util.		Total	
	L.E.	Index	L.E.	Index	L.E.	Index	L.E.	Index	L.E.	Index
	1000	No.	L.E.	No.	L.E.	No.	L.E.	No.	L.E.	No.
51-52	2459	100	58969	100	10133	100	5938	100	24399	100
59-60	3348	136	7090	121	13500	133	11563	195	35501	146
62-63	19132	778	13385	228	28790	284	86078	1450	147385	604
63-64	26212	1066	17356	296	31170	308	89338	1565	164076	672
64-65	33302	1354	20025	341	44459	439	99010	1667	196796	807
65-66	25907	1054	19192	327	43684	431	81694	1376	169667	695
66-67	28019	1139	24063	416	43017	425	87273	1470	182372	747
67-68	23656	962	21233	362	37756	373	62035	1045	144600	593

SOURCE: Population Increase, op.cit., Table 2.1.3

★ Beginning of the Second-Year Plan

FIGURE 34

B. Per Capita Expenditure

Fiscal Year	Pop. Est. Millions	Education		Social Services		Health		Housing & Public Utilities		Total	
		L.E.	Index	L.E.	Index	L.E.	Index	L.E.	Index	L.E.	Index
51-52	21.2	0.116	100	0.277	100	0.478	100	0.280	100	1.151	100
59-60	25.5	0.131	113	0.278	100	0.529	111	0.453	162	1.391	121
62-63	27.6	0.693	597	0.485	175	1.043	218	3.120	1114	5.341	464
63-64	28.3	0.927	799	0.613	221	1.102	231	3.158	1128	5.800	504
64-65	29.0	1.148	990	0.690	249	1.535	321	3.413	1219	6.784	589
65-66	29.8	0.869	749	0.644	232	1.466	307	2.741	979	5.694	495
66-67	30.5	0.919	792	0.789	284	1.410	295	2.861	1022	5.979	519
67-68	31.3	0.756	652	0.670	245	1.206	252	1.982	708	4.622	402

Annual Average

Rate of Increase(1) 10 1/2%

5%

5%

5 1/2%

(1) Calculated from Fig. 34

b. Education:

The government has made a tremendous effort to increase the literacy rate and to raise the standard of education. When Egypt became independent in 1922 and took over the control of education from the British, almost 90% of the total population were illiterates⁽¹⁾. In 1923 the Egyptian Constitution provided for compulsory education⁽²⁾, but somehow the plan failed as no accurate calculations of materials and human resources were made.

The government of the U.A.R. provides free education in all levels. Primary schools fees were abolished in 1944, secondary school fees in 1951 and lastly University fees and Higher Institutes in 1962/63⁽³⁾.

1. Government Expenditure on Education:

Government expenditure on education has increased tremendously since 1952. Total expenditure on education increased from L.E.2459 million in 1951-52 (See Figure 34) to L.E.33302 million in 1964-65. This is an increase of about 1250%. In recent years there was a slight decline to L.E.23656 million in 1967-68. Taking the index number with 1951-52 as base year, the increase was from 100 to 1354 in 1964-65 and 962 in 1967 and 1968. This is an enormous increase.

In examining per capita expenditure on education during the same year, taking 1951/52 as the base year, the increase was from 100 in 1951/52 to 990 in 1964/65 and declined to 652 in 1967-68. The slower rate of increase in per capita expenditure compared to total expenditure is due to rapid population growth, which absorbed much of the resources which could have been spent to raise the standard of literacy.

The percentage of illiteracy is still very high. It stood at 71% in 1960⁽⁴⁾ of which 56% were for males and 83% for females.

(1) S.A. Gadallah, Land Reform in Relation to Social Development in Egypt, p.11-12, University of Missouri Press, Columbia, 1962.

(2) U.A.R. Ministry of Education, Documentation and Research in Education in U.A.R., Dr.I. Hafez, Cairo, 1964, p.9.

(3) Ibid.

(4) See Figure in Appendix XI.

c. Estimates of Future Expenditure on Primary Education in the High and Low Fertility Projections:

We shall concentrate on primary education for our projection. The reason for this is that, first, we are dealing with the short-run period and it is one of the first problems which the government is faced with in case of an increase in fertility. Secondly, at present 42.8% of the population die before they reach the age of 15, so we could determine some of the waste of resources. Thirdly, primary education is the basis of any further education and contains the largest number of students.

In this section we shall try to determine the total expenditure required for primary school education for the period 1960-2030 for both the high and low fertility projection.

In order to do so, we shall take the following steps:

- (1) we shall determine the future number of children aged 6-12 (Row 3 in Figure 35).
- (2) We shall estimate the primary school enrolment ratio in order to determine the actual school attendance out of the total number of children aged 6-12 (row 4 in Fig.35).
- (3) The next step is to determine the per capita expenditure on primary school children (see row 6).
- (4) by multiplying the per capita expenditure of students in primary school by the number of children expected to be attending school at a given future date, we shall arrive at the future total expenditure on education of primary school children (row 7).
 - (a) In the above step we shall assume that after 1980 there is a constant per capita expenditure which makes no room for improvement, but which enables a 98% enrolment ratio by that year.
 - (b) We shall assume that there is some improvement in the quality of education service. We have, therefore increased per capita expenditure by 3% to make room for improvement in the quality of education(row 9)⁽¹⁾.

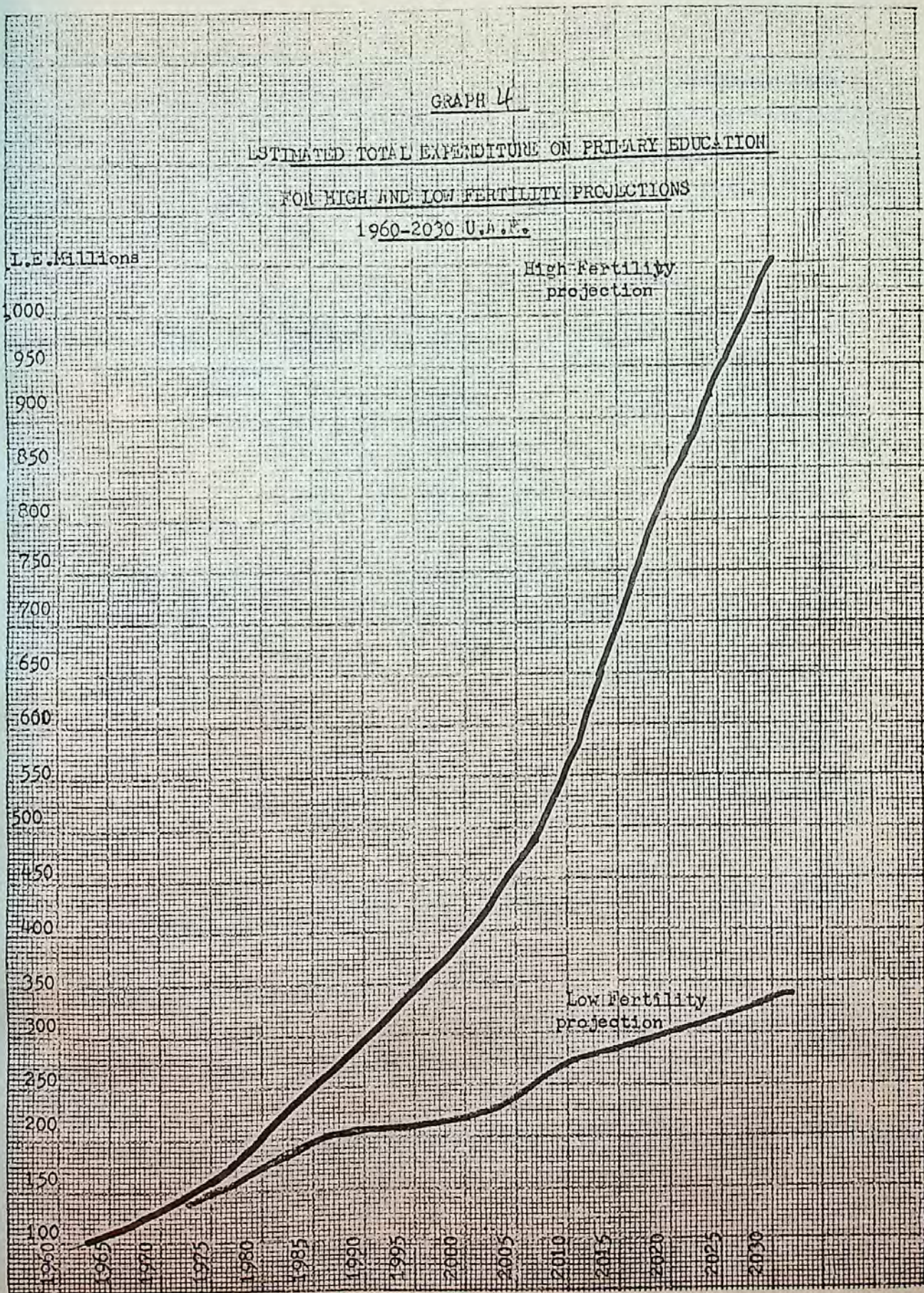
(1) See p. 72 for reason for choosing 3% increase of per capita expenditure.

FIGURE 35

ESTIMATED TOTAL EXPENDITURES ON PRIMARY EDUCATION - U.A.R.

	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020	2025	2030
1- Males between 6-12 yrs.	2504.662	2796.612	3179.221	3677.654	4370.565	5241.600	6258.723	7392.851	8774.181	10510.085	12649.774	15254.177	18372.894	22037.221	26268.845
2- Females " 6-12 yrs.	2337.815	2625.028	3071.510	3636.191	4292.232	5132.629	6109.762	7206.187	8540.258	10213.398	12275.968	14783.558	17784.138	21307.720	25402.311
3- Total Males & Females 6-12 yrs.	4842.477	5421.640	6250.731	7313.845	8662.797	10374.279	12368.485	14599.044	17314.439	20723.483	24925.742	30037.735	36157.122	43346.029	51671.156
4- Primary School Enrollment Rates	69%	76.8%	79.3%	91%	96%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%
5- Total School Attendance	3331.3	4163.820	4956.830	6655.599	8488.541	10166.793	12121.115	14307.063	16968.150	20309.013	24427.227	29436.98	35433.980	42478.128	50637.733
6- Per Capita Expenditure L. E. (Constant)	21.5	22.6	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2
7- Total Expenditure - L. E. 00's	71623.2	94102.3	114998.5	154409.9	196957.4	235869.6	281209.9	331923.9	393661.1	471169.1	566711.7	682937.9	822068.3	985492.6	1174795.4
8- For Improvements with 3% Annual Increase	21.5	22.6	23.2	23.2	24.0	24.7	25.4	26.2	27.0	27.8	28.6	29.5	30.4	31.3	32.2
9- Total Expenditure with 3% Annual Increase L. E. 00's	71623.0	94102.3	114998.5	154409.9	203749.0	251119.8	307876.3	374845.1	458140.1	564590.6	698618.7	868390.9	1077193.0	1325317.6	1630535.0
Projection II															
1- Males Aged 6-12 yrs.	2504.6	2796.6	3179.2	3677.7	4078.1	4228.1	4250.6	4022.4	4208.6	4939.2	5488.1	5838.2	5907.8	6187.7	6533.4
2- Females aged 6-12 yrs.	2337.8	2625.1	3071.5	3636.2	4005.3	4141.6	4150.3	3920.8	3916.6	4799.8	5326.1	5658.1	5815.6	5982.5	6317.9
3- Total Ages 6-12 yrs.	4842.4	5421.7	6250.7	7313.9	8083.4	8369.1	8400.9	7943.2	8124.6	9739.0	10814.2	11496.3	11723.4	12170.2	12851.3
4- Primary School Enrollment Rates	69%	76.8%	79.3%	91%	96%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%
5- Total School Attendance	3331.3	4163.9	4956.8	6655.6	7921.7	8201.7	8232.9	7784.3	7962.1	9544.2	10597.9	11266.4	11488.9	11926.8	12394.3
6- Per Capita Expenditure L. E.	21.5	22.6	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2	23.2
7- Total Expenditure L. E. 00's	71623.0	94104.1	114997.8	154409.9	183783.4	190279.4	191503.3	180595.7	184720.7	221425.4	245871.3	261380.5	266542.5	276701.8	292187.8
8- Per Capita Expenditure with 3% annual increase	21.5	22.6	23.2	23.2	24.0	24.7	25.4	26.2	27.0	27.8	28.6	29.5	30.4	31.8	32.2
9- Total Expenditure with 3% annual increase L. E. 00's	71623.0	94104.1	114997.8	154409.9	190120.8	202582.0	209115.7	203948.7	214976.7	265328.8	303010.0	332358.8	349282.6	373308.8	405536.5

Calculated by the author from data provided by projections in figures & Ministry of Education figures as explained in the text.



Based on Figure - 35

(1) The Future Number of Children Aged 6-12:

Our original projection is prepared in five-year age groups and not for single years of age. To derive estimates for primary school-age population, it was necessary to interpolate the figure by use of the Sprague's multiplier⁽¹⁾. The formula used was as follows:-

$$0.728 \times W_5 + 0.784 \times W_{10} - 0.112 \times W_{15}$$

where W stands for number of people in age groups. In this case the age groups are 5, age group 10 and age group 15.

Since our original projection had separate age groups for males and females, we have worked separately the males and females aged 6-12, then added them as seen in row (1) and (2) in Figure 35.

The total number of children aged 6-12, will be 17,314,439 in the end of the century for the high fertility population and only 8,124,6 in the low fertility population. This is a difference of 9,189,839. By the end of the period, in the year 2030 in the high fertility projection will have 51,671,156. This is a staggering figure when compared to the present total population of the U.A.R. now estimated at 33 million. The low fertility projection will have 12,851.3.

The difference between the high fertility and low fertility projections is 38,819,856 persons in age group 6-12.

(2) Primary School Enrolment Ratio:

The primary school enrolment ratio may be defined as the "number of primary pupils per 100 children of primary school age"⁽²⁾.

The statistics of the Ministry of Education do not differentiate between males and females. The primary school enrolment is as follows:

-
- (1) Sprague devised a method of splitting an estimated five-year age group into single year age group.
- (2) Estimating Future School Enrolment in Developing Countries
ST/SOA/Series A/40. A Manual of Methology. Population Studies, No.4, U.N.O./UNESCO. p. 13

FIGURE 36

PRIMARY SCHOOL ENROLMENT RATIO

<u>Year</u>	<u>Percentage</u>
1960/61	69.0
1961/62	69.8
1962/63	71.8
1963/64	74.8
1964/65	76.8
1965/66	76.8
1966/67	73.0
1967/68	71.9
1968/69	74.4
1969/70	76.6

SOURCE: Ministry of Education, Planning Committee

The reason for the decline in 1966/67 was the fact that in December 1965, the Ministry removed all the names of students who were registered at school, but who did not in fact attend school.

The decline found in 1967/68 was due to the June war which disorganized the normal every-day life of the inhabitants of the Canal Zone.

The Third Five-Year Plan which aims at a 100% enrolment by the year 1980, has put forth the following planned enrolment ratio:

FIGURE 37

PLANNED PRIMARY SCHOOL ENROLMENT RATIO
1970-1975

<u>Year</u>	<u>Percentage</u>
1970/71	79.3
1971/72	81.5
1972/73	83.7
1973/74	86.0
1974/75	88.4

SOURCE: Ministry of Education, Planning Committee.

The enrolment ratio for the remaining years 1975-1980 has not yet been published, but the author has taken the figures provided by M. Abdel Messih⁽¹⁾. They are as follows:-

FIGURE 38

ESTIMATED PRIMARY SCHOOL ENROLMENT RATIO
1975-1980

<u>Year</u>	<u>Percentage</u>
1975/76	91.0
1976/77	93.0
1977/78	95.0
1978/79	97.0
1979/80	100.0

SOURCE: M.F. Abdel-Messih, op.cit., Table 28, p.46.

We have used the above figures for our projection as see in Fig.35, row 4.

In practice, it is almost impossible to reach a 100% primary school enrolment ratio, due to the fact that a certain percentage of children are physically or mentally disabled and therefore unable to attend school. A more practical goal of maximum enrolment is 98% or 99% instead of 100%. We have chosen a 98% primary school enrolment ratio, starting from the year 1980 and remaining constant thereafter.

(3) Per Capita Expenditure of Primary School Students:

A study was carried out by the North African Demographic Centre, sponsored by the U.N.O. and U.A.R., in order to determine the total capital requirement and current expenditure to promote a 100% enrolment ratio by the year 1980 in conformity to the goals of the Ministry of Education.⁽²⁾

(1) Mamdouh Farid Abdel-Messih. "Full Enrolment in Primary Education in U.A.R." U.A.R. and U.N.C. North African Demographic Centre, Sept. 1966 (Unpublished Research in Arabic)

(2) Mamdouh Abdel-Messih, op.cit., p.26.

Three surveys were carried out by the Ministry of Education, in order to determine the per capita expenditure of primary school students. These surveys were carried out in 1955/56, 1961/62 and in 1966/67. The results were L.E.8,869, L.E.9,971 and L.E. 11,714 per student, respectively. These expenditures, however, only included current expenditure, but did not include any investments.⁽¹⁾

Since our population projection is a long-term one, we have preferred to use M.F. Abdel Messih's survey, which takes into consideration the capital expenditure. However, we have noticed that the rate of growth of per capita expenditure provided by the Ministry of Education is 2½%. We have used the figure of 3% in our projections in order to make room for improvement. The period was divided into two parts, from 1964/1965 until 1971/1972 and the second was from 1971/72 up to 1980.

For the first period (1964/65-1971/72) the needed investments to increase the number of students from L.E.3,120,556 in 1964/65 to reach L.E.4.276,650 in 1971/72 would be L.E.19,556,390⁽²⁾. The necessary current expenditure would be L.E.3.881,240. These figures do not take into consideration those who failed and are repeating their classes. By adding the capital and current expenditure and dividing it by the number of new students, we reach a per capita expenditure per student of L.E.22.6.

(1) Ministry of Education. "Average Per Capita Expenditure of Students and Classes in Primary Education(1966/67). Department of Statistics, Research Centre, April 1968, p.20 (unpublished report in Arabic)

(2) These capital investments are as follows:

Preparing new classes.....	L.E. 2,056,050
Preparing new schools	L.E. 735,500
Cost of erecting new buildings.....	L.E.14,369,640
Land for new schools	L.E. 2,405,200
	<u>L.E.19,566,390</u>

For the second period, the required capital investment is L.E.37,253,870 and L.E.6,418,500 current expenditure to bring the total number of students from 4,517,511 in 1972/73 to 6,205,624 in 1980. We have calculated the per capita expenditure per student for the second period to be L.E.23.2.

For our projection we have taken the figures provided by M.F. Abdel-Messih, i.e. L.E.22.6 per student for the year 1965-70 and L.E.23.2 from 1970-80. The year 1980 marks the period of maximum enrolment, so we have kept the per capita expenditure of students at the constant rate of L.E.23.2. This would not take into consideration any improvement in the quality of education, but would show us the minimum expenditure necessary to maintain a 98% enrolment. In a later step, we have increased the per capita expenditure by 3% per annum to make room for improvement in the quality of education (See Figure 35).

FIGURE 39

TOTAL EXPENDITURE ON PRIMARY EDUCATION

Years	(1) Projection I	(2) Projection II	(3) Difference	% (1) over (2)
1960	71,623.2	71,623.0	--	--
1965	94,102.3	94,104.1	+ 1.8	--
1970	114,998.5	114,997.8	- 0.7	--
1975	154,409.9	154,409.9	--	--
1980	196,957.4	183,783.4	- 13174.0	107.2
1985	235,869.6	190,279.4	- 45590.2	124.0
1990	281,209.9	191,003.3	- 90206.6	147.2
1995	331,923.9	180,595.7	- 151328.2	183.8
2000	393,661.1	184,720.7	- 208940.4	213.1
2005	471,169.1	221,425.4	- 249743.7	212.8
2010	566,711.7	245,871.3	- 320840.4	230.5
2015	682,937.9	261,380.5	- 421557.4	261.3
2020	822,068.3	266,542.5	- 555525.8	308.4
2025	985,492.6	276,701.8	- 708790.8	356.2
2030	1,174,795.4	292,187.8	- 882607.7	402.1

SOURCE: Taken from Figure 35, assuming no increase in per capita expenditure to make room for improvement.

d) Total Expenditure in Primary Education:

After the start of a decline in fertility (1970-75), there is at first a small difference between the total numbers in primary school age 6-12 and hence in total expenditure. The difference is 19.33% (See Fig.36). The difference continues to grow rapidly reaching 53.08% by the end of the century and 75.13% by the end of the year 2030.

In absolute terms, we find that the government has to spend the sum of L.E.393,661,100 on primary education by the end of the century for the high fertility projection compared to L.E.184,720,700 for the low fertility projection. This is a difference of L.E.208,940,400. This means that the total expenditure in primary education high fertility population is 213% greater than the lower fertility one.

By the year 2030, the total expenditure in the high fertility population will be L.E.1,174,795,400 and for the low fertility population L.E.292,187,800. The difference is L.E.882,607,600. This means that total expenditure in the high fertility is 402% greater than the low fertility population.

In reality, the total expenditure will be far greater if we increase the per capita expenditure to make room for improvement. If we take a 3% annual increase in per capita expenditure to be a reasonable one, we find that the total expenditure for primary education will be L.E.458,140,100 in the end of the century for the high fertility projection and L.E.214,976,700 for the low fertility projection. By the end of the period year 2030, the high fertility population will cost L.E.1,630,535,000 compared to L.E.405,536,500 in the low fertility population.

C. THE INTERMEDIATE PERIOD

Fifteen years after the decline in fertility, i.e. starting in the year 1985, there develops, first a slight, then a widening difference in the rate of growth of the population aged 15-64.

We notice that the difference in the rate of growth and size of the population aged 15-64 do not appear except after 15 years from the start of a decline in fertility. The reason for this is, that those who will reach the age of fifteen within the next fifteen years have already been born, and any change in the fertility rates between now and then will not affect the size of the 15-64 age group until fifteen years hence.

1. Labour Growth and Per Capita Income:

The significance of the growth of the labour force for income per capita is that a higher rate of growth requires a higher rate of needed investment to achieve a given capita output, while there is nothing about faster growth that generates a greater supply of investible funds⁽¹⁾. If the capital output ratio is 3 : 1, a population growing at 1% per annum would require to invest 3% of current output to maintain its per capita income, while a population growing at 3% must invest 9% of its current output.

An accurate estimation of capital/output ratio is difficult particularly in predominantly agricultural economies due to pest attacks and price instability of primary products in the international markets. In addition, capital/output ratio depends on other factors such as the existence of idle capacity and choice of technique so that capital/output ratio may change as a result of a significant change in these factors.⁽²⁾

(1) A. Coale and E.M. Hoover, op.cit., p.19.

(2) A.K. Sen. "Some Notes on the Choice of Capital Intensity in Development Planning". Quarterly Journal of Economics, November 1957, pp.561-67.

According to a number of research papers, the net capital/output ratio in the U.A.R. was 1.9 for the period 1948-53 and 2.8 over the period 1953-60⁽¹⁾, while the capital output ratio over the period 1960/61-1964/65 has been found to equal 2.4⁽²⁾.

This means that investments worth 7.2% of the current output are just sufficient to maintain the per capita income of the population.

If the U.A.R. aimed at increasing per capita income by 3%, it would require savings worth 13.68% of G.N.P.⁽³⁾.

2. Labour Growth and Job Opportunities:

Increases in labour supply creates the problem of finding additional employment opportunities. Unless adequate job opportunities are opened up, for these people, unemployment, open or disguised, will result.

The magnitude of the problem of providing future jobs for the new entries to the labour force, becomes greater when one considers the typical changes in the composition of employment which result from industrialization. If the history of the advanced countries is repeated, then we find that employment in agriculture remained constant, while the non-agricultural sector of the economy provided sufficient jobs for the whole increase in the labour force. Unless this happens, the additional labour employed in agriculture will further reduce the per capita share of land and will increase the disguised unemployment in this sector⁽⁴⁾.

(1) National Planning Committee Memos. 43, 54, 72 (1959-60).

(2) Follow up and Evaluation Report on the First Five-Year Plan. Ministry of Planning, February 1966, Table 3, p.97 cited in Economic Bulletin, National Bank of Egypt, Vol. XXII, No.1, 1969.

(3) This is obtained from the formula:

$$\text{Growth per capita income} = \frac{S}{\text{ICOR}} - \text{Pop.}\%$$

Pop. growth per annum is 2.7 - ICOR. i.e. Capital output ratio is 2.4 - Per capita income increases at 3%

$$\therefore 3\% = \frac{S}{2.4} - 2.7 \quad \therefore S = 13.68\%$$

(4) The question of disguised unemployment in agriculture will be discussed in the next section.

FIGURE 40
EMPLOYMENT BY ECONOMIC ACTIVITY - %

	<u>1937</u>	<u>1947</u>	<u>1960</u>
(1) Agriculture	68.8	58.4	57.0
(2) Industry	7.5	8.7	10.0
(3) Service	21.7	31.4	31.0

SOURCE: Hansen & Marzouk - col.(1) and (3) Table 2.8 p.35
Col.(2), Table 5.5 p.122.

Employment in the industrial sector also expanded rapidly but, on the whole, this sector is a poor employer of labour due to the capital intensive nature of industrialization. Industrial employment increased from 8.7% of total employment in 1947 to 10% in 1960. Additional employment in industry, however, absorbed less than 15% of the increase in the number of adult males in U.A.R. from 1947 to 1960⁽²⁾.

Employment in the service sector has increased rapidly. In 1937, this sector employed 21.7% of total labour force, this percentage was increased to 31% in 1960. (See Fig.41).

Labour productivity appears to have risen in a number of branches of the service sector (commerce, construction) but there is evidence that there is considerable disguised unemployment in the government and personnel service. From 1947 to 1960, 80% of the increase in employment in the services and nearly 50% of total employment increase in the whole economy were in these two areas.⁽³⁾

This leads us to conclude that the problem of under-employment was transferred from the agricultural sector to the service sector, notably government and personal services.

The reason may be explained partly by the government policy of employing all graduates of public universities,

(1) D. Mead, Growth & Structural Change, op.cit., p.40.

(2) D. Mead, op.cit., Table 2.9, p.33, p.127.

(3) D. Mead, op.cit., p.154.

partly due to the pressure of the population on the limited arable land and the resultant congestion. Since in both the service sector and the agricultural sector (as we shall see in the next section) there is evidence of under-employment, the increase in labour supply will have to find job opportunities in the industrial sector.

3. Future Labour Supply and Capital Requirement to Employ Additional Labour

We hope in this section to estimate the future labour force and the capital requirement necessary to employ the additional workers resulting from population increases in the high fertility and low fertility projection.

In order to do so, we have taken the following steps.

- a) We have estimated the future population aged 15-64 in both projections.
- b) We have taken the labour force participation ratio and multiplied it by the total population aged 15-64 in both projection, in order to obtain the future numbers in the labour force.
- c) The capital labour ratio will give us the amount of capital necessary to employ an additional labourer. Having obtained this ratio, we multiply it by the future labour force in order to obtain the total capital investment to employ the total labour force.⁽¹⁾

(1) A similar study was undertaken in Turkey: See Baran Tunger: The Impact of Population Growth on the Turkish Economy: Hacettepe University, Chapter IV & V, p.24-28.

FIGURE 41
GROWTH OF THE LABOUR FORCE

Year	In Thousands			
	(1) Projection I Age: 15-64	(2) Projection II Age: 15-64	(3) Difference (1)-(2)	%
1960	13871	13871	--	--
1965	15949	15949	--	--
1970	18265	18265	--	--
1975	20989	20989	--	--
1980	24206	24206	--	--
1985	28114	28114	--	--
1990	32876	32095	+ 781	102.4
1995	38772	36124	+ 2648	107.3
2000	45872	39769	+ 6103	115.3
2005	54382	42774	+ 11608	127.1
2010	64684	46414	+ 18270	139.4
2015	76770	50230	+ 26540	152.8
2020	91855	54020	+ 37734	169.7
2025	110065	58515	+ 51550	188.1
2030	132175	62141	+ 70034	212.7

SOURCE: From Projections Figures 18 and 19 - Calculated by the author.

a) The Future Size of the Labour Force Ages:

We have obtained the future size of the labour force ages 15-64 from our projections. A summary is obtained in Fig.42.

The difference in total size between the two projections is small at first, reaching 781 thousand in 1990, but this difference increases to 11608 thousand in the year 2000 to reach 70034 thousand in the year 2030. By the end of the century the high fertility population has 115.3% as many people of labour age as the low fertility projection and by the end of the year 2030, the high fertility population has 212.7% more people of labour force age as the low fertility population. (See Fig.42).

b) Labour Force Participation Ratio: H.U.

Labour force participation ratio represents the proportion of total population in working age (15-64) that is in the labour force. The participation ratio in the U.A.R. appears to have remained constant at 25%. This ratio is very low. The last sample survey of the Labour Force published in 1968⁽¹⁾ indicates that the female labour force participation rate is only 1.5% whereas for the males the rate is 23.5%.

By multiplying the labour participation ratio by the total numbers in labour force ages (15-64) we obtain the economically active population.

The economically active population is "generally understood to compose all those persons who contribute to the supply of labour for the production of economic goods and services, including not only those employed at the time of investigation, but also those unemployed but available for work⁽²⁾.

c) Capital/Labour Ratio:

Any attempt to estimate the precise capital requirement for the employment of the increased supply of labour would require reliable capital/labour ratios. Data on capital formation are far from being satisfactory not only in the U.A.R. but in advanced countries. In addition, the measurement of capital raises difficult theoretical questions, especially concerning the rate of depreciation.

Since our primary objective is not to determine the exact capital requirements, but rather to point out the additional burden necessitated by the different rates of

(1) Compiled from Sample Survey of Labour Statistics: May 1964 Memo. 222-01, May 1968, Table I, p.2-4. The same figure was given by the sample survey of the Labour Force, Collective Research, April 1962.

(2) Demographic Aspect of Manpower - Paper I. Sex and Age Patterns of Participation in Economic Activity Population's Studies No.33. U.N.C. Department of Economics and Social Affairs, N.Y., p.962.

population growth, these approximations should be sufficient for our present study.

In projecting the capital requirement for the increased labour supply, we have assumed that all additional labour will be employed outside agriculture and the service sectors. The reason for this is that both these sectors are suffering from disguised unemployment and additional labour in these sectors will only increase the amount of under-employment.

Additional employment is assumed to be found in the manufacturing sector, since it is this sector that additional labour will add to the total output.

A recent study has estimated the capital/labour ratio for the manufacturing sector as at whole at approximately L.E.600/per worker in 1960 and L.E.680/per worker in 1965 (at current prices). For modern establishments, these figures should perhaps double⁽¹⁾.

It is worth noting that inspite of the rise in capital intensity in recent years in the U.A.R., the figures are still low when compared to advanced countries like Sweden where the capital/labour ratio is L.E.3000/per worker.⁽²⁾

(1) Mabro, R. "Industrial Growth, Agricultural Under-employment and the Lewis Model, The Egyptian Case 1937-1965", The Journal of Development Studies, July 1967, p.342.

Mabro's capital stock series claims to be an improvement on previous attempts because of the choicd of a new deflator - a weighted average of U.K. export prices index (55%) the price index of building materials (25%), metals (10%) and industrial money-wage index (12%). Previously, Hansen & Marzouk, op.cit., p.131, gave the figure of L.E.7-800 per person employed in 1960, for the whole of manufacturing industry and L.E.1500 per person employed for establishments employing 10 persons or more. The author preferred Mabro's figures for being more recent and for the use of the new deflators. The difference between the two is not big.

(2) Hansen & Marzouk, op.cit., p.132.

d) Total Capital Requirement for Employment:

We have taken the figure of L.E.680 for the capital/labour ratio, and at first assumed it remained constant throughout the period. The reason for this is that we want to isolate all factors, such as a greater capital intensity, etc., in order to see the capital requirement for the additional worker. The result was that by the end of the century, the capital requirement for the high fertility population will be L.E.77,982,400 while the low fertility capital requirement will be L.E.67,605,600. This is a difference of L.E.10,276,800 (See Fig.42).

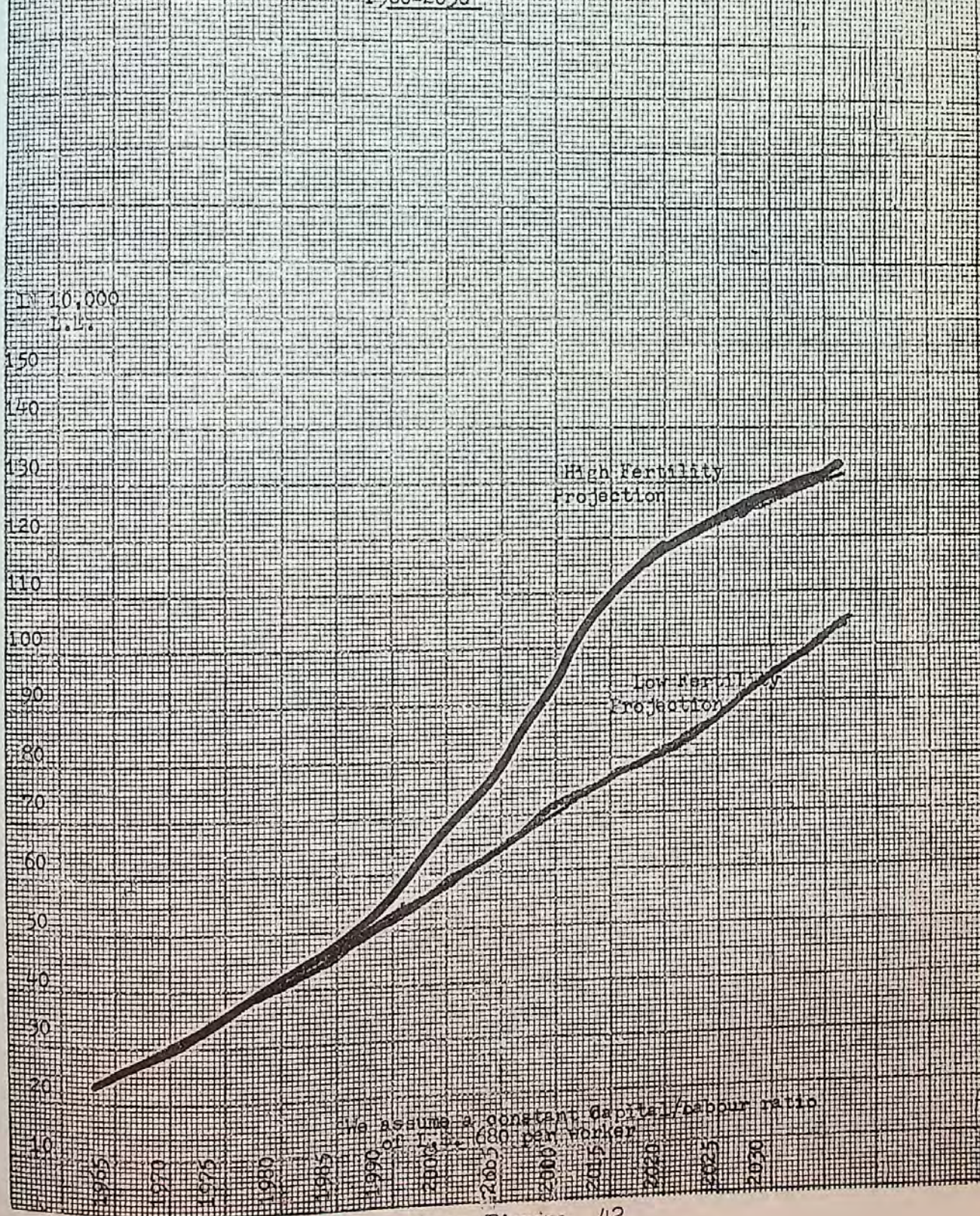
By the end of 2030 A.D., the high fertility population will require L.E.224,692,400, while the low fertility projection will require L.E.105,638,000. This is a difference of L.E.119,054,400.

In order to obtain a more realistic picture, we have increased the capital intensity to reach about L.E.3000/per worker by the end of the century. This figure is equivalent to that found in advanced countries. This will mean a rate of growth of capital intensity of $4\frac{1}{2}\%$ per annum. We have assumed this rate to continue throughout the period. The result is that by the end of the century, the capital requirement will be L.E.363,306,240 for the high projection and L.E.314,962,560 for the low projection population. This is a difference of L.E.48,342,680.

By the end of the period, years 2030 A.D., the capital/labour ratio would have reached L.E.11.886 per worker. The capital requirements will be L.E.3,929,490,900 for the high fertility projection and 1,846,490,100 for the low fertility projection. This is a difference of L.E.2,083,000,800 (See Figure 43).

GRAPH 5

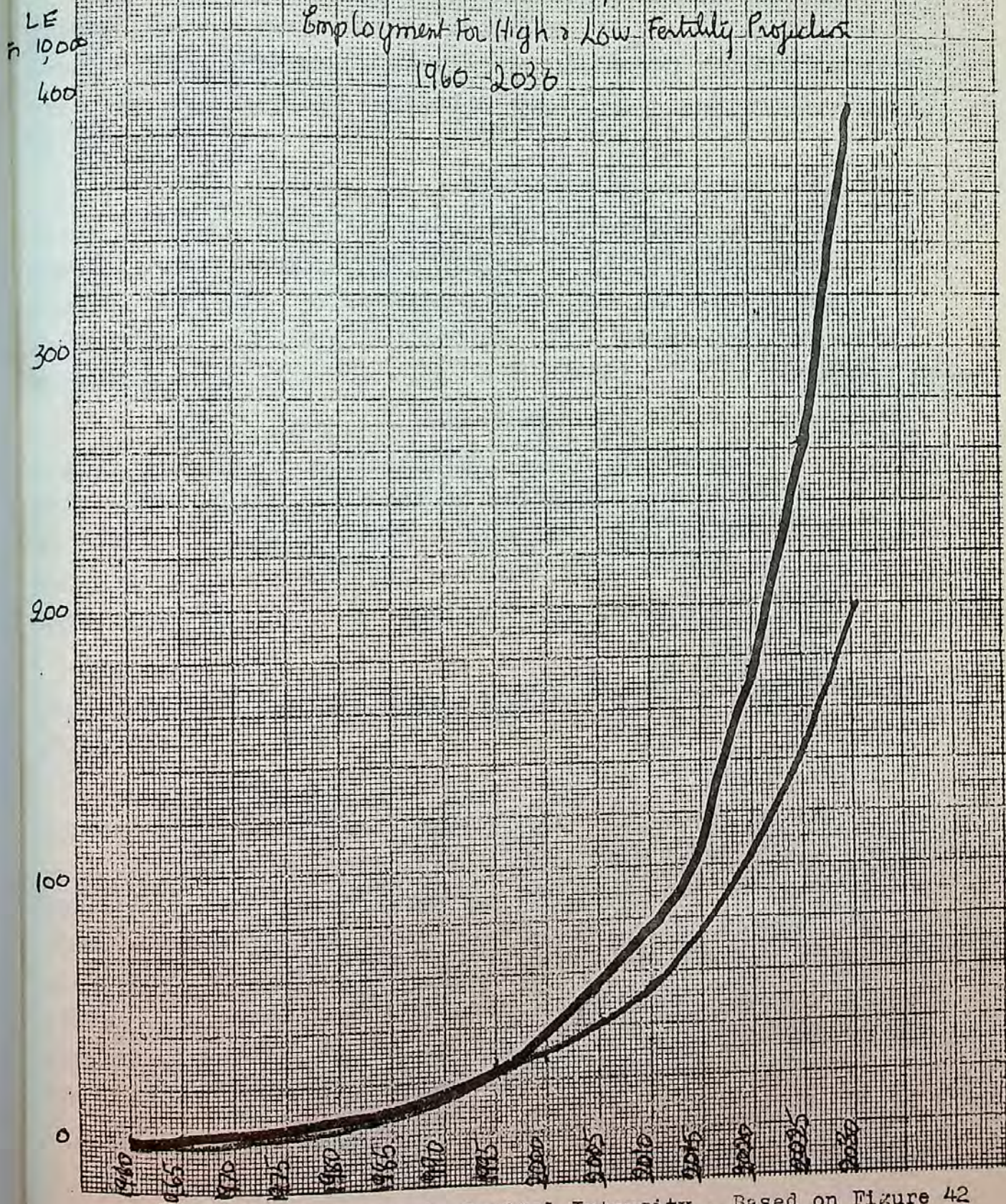
ESTIMATED TOTAL CAPITAL REQUIREMENT FOR LABOUR EMPLOYMENT
FOR THE HIGH AND LOW FERTILITY PROJECTION IN U.A.R.
1960-2030



We assume a constant Capital/Labour ratio
of 1:1.680 per worker

Based on Figure 42

Graph 6
Estimated Total Capital Requirements For Labour
Employment For High & Low Fertility Projections
1960-2030



Assuming 4½ % increase in Capital Intensity . Based on Figure 42

D. IN THE LONG-RUN PERIOD

The cumulative effect of difference in the rate of growth of the labour force, produces, in the long run, an overwhelming difference in size of the total population between the high and low fertility population and in the density of labour force.

Thus, the total size of the population in the year 2020 (i.e. 50 years after the start of the decline in fertility), for the high-fertility projection is 181,304,200, while for the low fertility projection 85,318,500 persons. This is a difference of 95,985,700 people. This means that the high fertility population is more than double the low fertility one.

At the end of the period under review, i.e. 60 years after the decline in fertility, the high fertility projection will have 260,021,900 persons while the low fertility projection will have 98,031,200. This is a difference of 161,990,700 persons. This means that the high fertility is two and a half times as great as the low fertility population.

The result of this large difference in total size of population, will be a large difference in the density of population.

The relevance of density is especially important in an economy which is mainly agricultural, or based on other primary production. In such cases, the number of workers in relation to the limited resources, become an important factor affecting labour productivity. Large numbers of workers imply diminishing productivity of labour and a lower standard of living. In industrial countries where capital formation keeps pace with the increase in the labour force, the problem of density loses its importance.

The problem of population density is relevant to the U.A.R. economy, since she is still a predominantly agricultural country. Gross domestic income from agriculture is estimated at L.E.589.1 million pounds (constant 1959/60 prices)

out of a total gross domestic income of L.E.2020.7 million⁽¹⁾ in the year 1965/66.

Exports of agricultural products were around 72% of total exports in 1965, and the percentage of labour force engaged in agriculture was 58% in 1960⁽²⁾ and 50.6% in 1966/67.

The cultivated area, however, accounts only for 3.5% of the total area of 100.2 million square kilometers.

The overall population density in 1966 was 30 persons per square kilometer (77.8 per square mile). However, when we take into account that only 3.5% is under cultivation, we find that density per square kilometer of the cultivated land is 845.

The density has been continuously increasing since 1897, where it stood at 313 persons per square kilometer, as seen in Appendix I.

The U.A.R. has one of the highest population densities in the world.

When we compare the density of 845 persons per square kilometer to the more industrial countries, where density is less relevant as a factor of productivity, we find that the density is extremely high. It is higher than that of France (88 persons per sq.km.), Italy (170 persons per sq.km.), Netherlands (360 per sq.km.).

FIGURE 43
POPULATION DENSITY IN SELECTED COUNTRIES

Country	Population	Area in 1000 km.	Density per Sq.km.-1964
France - 1962	46,520,191	547,626	88
Italy - 1961	49,876,790	301,225	170
U.S.A. - 1960	179,323,175	9363,353	21
Netherlands 1960	11,461,964	33,612	361
Federal Repub. of Germany-1961	53,977,418	247,973	226

SOURCE: Demographic Yearbook, 1965.

(1) National Bank of Egypt, Economic Bulletin, Vol. XXII, No. 3
1969, Table 7/1b.

(2) Population Increase, op.cit., 1966, p.148.

Horizontal and Vertical Expansion of Arable Land in the U.A.R.

The total cultivated area of U.A.R. is 6,145 million feddans in 1963⁽¹⁾. The completion of the High Dam will add 1,300,000 feddans and convert 700,000 feddans into perennial irrigation⁽²⁾. This will cause the total cultivated area to reach around 8,000,000 feddans.

The total cropped area in 1967 was 10,462 million feddans⁽³⁾. The government has undertaken extensive land reclamation projects since 1952. They have added 791,000 feddans during the period 1952 to 1966/67⁽⁴⁾.

In spite of this large increase in cultivable land, the increase of population was even more rapid. Thus, between 1898 and 1966, the population increased from 9.7 million to 30 million, that is, an increase of 210%. The cropped area has increased from 6.8 million in 1898 to 10.3 million in 1966, i.e. 51.5% increase only (See Fig.44).

As a result, the per capita share of agricultural land may be seen from Figure 44.

FIGURE 44
CULTIVATED AND CROPPED LAND IN U.A.R.-1897/1966

Year	Population in Millions	Cultivable Land		Cropped Land	
		Million feddans	Per Capita feddan	Million feddans	Per Capita feddan
1897	9.7	5.1	0.53	6.8	0.71
1907	11.2	5.4	0.48	7.6	0.68
1917	12.8	5.3	0.41	7.7	0.60
1927	14.2	5.5	0.39	8.7	0.61
1937	15.9	5.3	0.33	8.4	0.53
1947	19.0	5.8	0.31	9.2	0.48
1960	26.0	5.9	0.23	10.2	0.39
1966	30.1	6.0	0.20	10.4	0.14

SOURCE: Population Increase, op.cit., 1966, Table 62, p.143.

- (1) National Bank of Egypt, Economic Bulletin, Vol.XXII, No.1 1969, Table 5/1a.
- (2) Galal Amin, op.cit., p.70, Doreen Warriner, Land Reform and Development in the Middle East, Oxford University Press, 1962, p.22.
- (3) N.B.E., Economic Bulletin, op.cit., Table 5/1a.
- (4) Agricultural Economics - July 1968, Ministry of Agriculture p.17 (Arabic). This figure excludes those reclaimed by High Dam, but include the New Valley, Ibis, Moudiriyah El Tahrir, Nubia, Mariout, etc.

The per capita feddans was 0.53 feddans in 1897 and it has decreased .20 in 1966. The cropped land on a per capita basis decreased from .71 feddans to 0.14 feddans.

The result is that though the U.A.R. has one of the world's highest yields per acre, it has a very low output per man⁽¹⁾

In addition, the scope of increasing the cultivated land, after the completion of the High Dam, appears quite limited in the present state of technical knowledge. The maximum the U.A.R. could reach is estimated at 10 million feddans.⁽²⁾

Vertical expansion could be increased by the improvement of drainage and the greater use of fertilizers as well as improved methods of pest control and, lastly, by using high quality seeds. The U.S.A. is now beginning to develop a level of agricultural technology for tropical and sub-tropical regions, enabling them to double or triple yields in traditional varieties. Thus, we may be at the threshold of a new agricultural revolution⁽³⁾.

However, it is doubtful that vertical expansion alone would solve the population pressure, especially that U.A.R. has already reached a high level of intensive agriculture and a high productivity per acre.

By the time the High Dam will be completed, the total population will have increased between 5 and 6 million, so that the prospective increase in area cultivated and cropped will provide only for the prospective increase in population.

2. Economic Consequences of Heavy Population Pressure:

The economic consequences may be summarized as follows:

- a) low standard of living.
- b) great inequalities of wealth.
- c) open and disguised unemployment.

(1) Doreen Warriner, Land Reform, op.cit., p.20.

(2) Hurst, H.E. The Nile. (London, 1952) p.287, cited by Galal Amin, op.cit., p.70.

(3) Lester R. Brown: "Population Explosion and the Agricultural Revolution", International Development 1968. Tenth Anniversary World Conference, Society for International Development, p.127.

a. Low Standard of Living:

Countries with heavy population pressure and limited land resources are subject to the laws of diminishing returns. By this law, additional labour (or other variable factors) when added to the fixed factor, land, experience, diminishing marginal productivity and therefore low wages.

The small land holdings lead to inefficiency. In 1961, 52.1% of the total area of U.A.R. belonged to persons owning less than 5 feddans (Appendix XII). The lack of efficiency leads to higher costs of production and lower fertility.

A survey was carried out in a small village in Shebin El Kom, in the province of Menoufia⁽¹⁾. It was found that the cost of production of one feddan of cotton was L.E.20.103 in farms less than one acre, and L.E.16.612 in farms more than ten acres⁽²⁾. That is 17½% more.

Small farms of less than one feddan required 123 men days per acre, while the farms over ten acres required 66 men days⁽³⁾ for the same crop.

The result is a low per capita income; the per capita income for rural areas being L.E.26 per annum⁽⁴⁾

Low standards of living lead to poverty, disease and mal-nutrition. Mal-nutrition directly affects labour productivity.

(1) Abdel-Hamid, F. El Attar and El Dessouki, A.S. el Malaki, Etude Analytique de Probleme de L'Utilisation des elements de Travail dans une unite agricole a Shebin El Kom" (Arabic), L'Egypte Contemporaine, Juillet 1968, LIX annee, No. 333. p. 97-126

(2) op.cit., p.120, Table 7.

(3) A.H. El Attar, op.cit., p.105.

(4) A.H. El Attar, op.cit., p.99

b. Inequality of Incomes:

Inequality of income results from the fact that capital is a scarce factor in relation to labour, which is abundant. The producers will be willing to pay more to get hold of the scarce factor and will offer little to the abundant supply of labour seeking employment. The result is that the wage rate is low and the profits are high. This encourages saving and capital accumulation by the capitalists and landowners, and thus, increasing the inequality of wealth.

In the U.A.R. savings of the landowners were used to purchase land. This enhanced the land values and furthered the inequality of incomes. Thus, before the Revolution of 1952, .4% of the landowners possessing more than 50 feddans owned 34.2% of the total land area, while 94.3% of farmers possessing less than 5 feddans, owned 35.4% of the land.

After the Agrarian Reform Laws of 1952 and 1961, the situation was improved and we find that 94.1% of the owners with less than 5 feddans, owned 52.1% of the total land area, while 0.4% of owners who possessed over 50 feddans now account for only 15.2% of total land area⁽¹⁾.

A third Agrarian Reform Law has taken place in 1968, lessening landownership to 50 feddans, but the results are not yet published.

The problem of inequality of wealth does not exist to the same extent as before. The U.A.R. Government firmly believes in removing the great inequalities of income amongst the different classes of society. It has done so by limiting ownership of land, and shares in industrial enterprises, controlling rents and introducing a high progressive taxation. At the same time, it has granted social securities, free education and free medical treatment to all citizens.

(1) Statistical Handbook, U.A.R., op.cit., p.42 for 1952 Land Reform Law and p.44 for 1961 Land Reform Law.

The result is that population pressure on the limited land resources is no longer manifested in great inequalities of income. It is rather seen in disguised unemployment as we shall see in the next section. However, land reform laws have resulted in smaller land holding. We have seen that the cost of production is higher for small farms. As the population pressure increases and land holdings become even smaller, the government may have to resort to collective farming in order to obtain greater efficiency.

c. Disguised Unemployment in Agricultural Areas:

The simplest definition of disguised unemployment implies that some labour could be withdrawn from the agricultural areas without reducing the volume of farm output, i.e. the marginal productivity of labour is zero.

In the U.A.R. there is great evidence for the existence of a large percentage of disguised unemployment in rural areas. The exact extent is not certain. Warriner at first estimated a 50% disguised unemployment in rural areas in 1948, but later she revised her position in 1955 on the grounds that she had omitted labour for capital maintenance⁽¹⁾. In 1960, the National Planning Committee gave the figure 25%⁽²⁾. B. Hansen seems to challenge this view on the bases that there is some open unemployment, about 3%, but a large seasonal under-employment⁽³⁾. Hansen found that there was a shortage, rather than unlimited supply of labour, during the peak seasons, and that wages during this season rose sharply in response to the shortage and that the laws of supply and demand determine the

(1) D. Warriner, "Land Reform", op.cit.

(2) General Frame of Five-Year Plan. National Planning Committee, Cairo, 1960, p.118.

(3) Hansen. "Marginal Productivity Wage Theory and Subsistence Wage Theory in Egyptian Agriculture", Journal of Developmental Studies, Vol.II, No.4, July 1966, and Hansen & Marzouk, op.cit., p.63.

wage rate at least during the peak season. Hence he concluded, Egyptian agriculture suffers from seasonal under-employment rather than disguised unemployment and that we cannot remove one man permanently without detrimental effect on total production.

How can we reconcile the two views of seasonal shortage and permanent under-employment? Dr. A. Mohie el Dine⁽¹⁾ introduced the size of farm as a new variable, and takes into account important institutional rigidities that affect the supply of agricultural labourers. In small farms, there may be considerable amount of disguised unemployment, while a large farm nearly, may suffer from acute shortage of particular labour. Institutional rigidities and immobility of labour prevents the surplus labour in family farms to move to larger farms in peak seasons where they are required. Hence the shortage is in the specific category of paid labour. In addition, men, women and children have specific jobs determined by tradition. The men would absolutely refuse to do a woman's job, even where there is a shortage in the peak seasons, so that the shortage is in one type of labour while the others may be abundant. The same applies to different regions, one region may have a shortage while another has a surplus, immobility of labour prevents the surplus labour to move to areas with shortages.

Since 1960, there is evidence of increase in agricultural wage rate⁽²⁾ and this can be explained by the fact that a number of paid agricultural labourers have been attracted to the industrial and service sectors. While the total number is not so great, it is precisely in the category of paid agricultural workers that the shortage appears. The family farms have an over-surplus, but custom and tradition prevents them from becoming paid agricultural workers.

(1) A. Mohie El Din "Agricultural Investment & Employment in Egypt since 1935" Ph.D. Thesis, London, 1966 (Unpublished) referred to by Mabro "Industrial Growth", op.cit.

PART III

SUMMARY AND CONCLUSION

P A R T I I I
S U M M A R Y A N D C O N C L U S I O N

Most developing countries aim at raising the standard of living of their population. By definition, per capita income is the product of a division of output by population. In order to raise the output per head, either the National Product must increase or the rate of growth of population must decrease, or both.

There is no doubt that developing countries must put all their efforts to increase their total output, but unless the rate of population growth is reduced drastically, and immediately, the moderate increase in the size of the total output, is bound to be wiped out by population increases.

A number of recent researches have shown that "\$5 invested in birth control is worth \$100 invested in Economic development". (1)

The demographic survey of U.A.R. reveals a rapidly declining death rate. The death rate has not yet, however, reached a minimum and there is a great probability of further decline, especially amongst the infants below the age of one.

The death rate at present is 14.2 per thousand, and it would be reduced to about half that amount, as the government executes its policy of building more hospitals in rural areas.

In addition, any improvement in per capita income is bound to help decrease the mortality rate. A large percentage of the population suffers from poverty, malnutrition and diseases. These help to cause premature deaths. An improvement in nutrition is bound to cause better health and greater resistance to diseases and illnesses.

(1) Lyndon Johnson speech before the U.N.O. General Assembly in San Francisco, 1965. See Stephen Enke "The Economic Aspect of Showing Population Growth", Economic Journal, March 1966. p. 46

The birth rate during the first half of the century was amongst the highest in the world and has remained almost constant with some slight variation. The average during the period was 41.3 per 1000. In 1967, the rate was 39.2 per 1000.

The birth rate is the result of physical factors as well as socio-economic factors, such as customs, traditions, education, housing and income.

The physical factors are those factors which in the absence of birth control methods, tend to expose women to greater risk of pregnancy. These are the age of marriage, the rate of marriage and divorce, the number of females in child-bearing age.

In the U.A.R., all these factors tend to contribute to a high fertility. The marriage rate is amongst the highest in the world, although recently there has been some decline. Marriage is universal and takes place at an early age, especially amongst females. Divorce rates are high, but since a large percentage of divorcee remarry and desire offsprings with the new partner, this factor tends to increase fertility rather than decrease it. The proportion of females of child bearing age has not changed over the years, but with the decline of mortality and longer life expectancy, the total numbers in this age group will greatly increase. With the improvement in per capita income, it is very probable that the birth rate will increase further. Higher per capita income leads to improved health of mothers and decreases the rate of miscarriage and foetal death.

The socio-economic factors in the U.A.R. tend to favour large families. We have seen that agriculture is still a predominant occupation and cotton in particular, accounts for a large percentage of the agricultural production. A number of processes in the cultivation of cotton are undertaken only by children. These are picking cotton, removing infected leaves from cotton plants, and spraying the plants with insecticides. The reason for using child labour is

due to the nature of cultivation, which is very intensive. In order to exploit every possible inch of the scarce land, the distance between one plant and another is the very minimum which allows proper growth. The result is that children move more easily between the plant without causing damage to the plants.

In addition, cotton picking is a labour intensive process and in view of the large amount of labour required during this season, it is cheaper to use child labour.

The result is that children are an asset rather than a liability. They help to supplement the family income. Social customs tend to favour large families. Children, especially sons, are greatly desired and valued. Apart from economic reasons, they give the parents security in their old age.

Rural women have an inferior status, their role is that of a wife and mother. The barren women are despised and are in constant fear of divorce. The probability of divorce declines with each additional child as seen from 1960 census.

Women seem to have additional reasons for wanting more children. It is a way of keeping their husbands. The Arabic proverb says "Pluck his wings before he can fly" implying that children will force the husband to spend all his cash thus preventing him from marrying another wife, or looking for pleasure outside the house. Having many children is a proof to the woman that she retains the love and attention of her husband.

As a result of all these factors, we find that the ideal family in rural areas is the large family. This dates back to the time when the mortality rate was high and it was necessary to have 7 or 8 children in order to ensure that three or four survive to adulthood.

The large family ideal has been conformed by a number of Knowledge, Attitude and Practice Surveys (K.A.P.) taking place in different areas of the U.A.R. (1) This is especially true of rural areas amongst the less educated lower income groups. A small minority of the population practice birth control with a view of having small families. A large percentage of those, using contraceptives, go to Family Planning Clinics after having a large number of children (2). The small minority who believe in the small family ideal are amongst the more educated upper class people, with a high income and high social status.

The high birth rate and the declining death rate causes an unprecedented growth of population. At present, the growth rate is 2.7% If the present fertility rate continues, the annual growth rate will reach 3% by 1980, and 3.5% in thirty-five years (See Population Projection 18 & 19).

Such a growth rate is bound to affect the economy in an adverse way. We have attempted in this study to compare the economic consequences of two projections. Both these

-
- (1) a. Marzouk R. Aref. Research in Lower Income districts, 1964, North Demographic Centre (unpublished).
b. Maher Abdel Wahid. "Fertility roles in some socio-economic areas of Cairo", North Demographic Centre, (Arabic, unpublished reports).
c. M.S. Foda, S. Zaki, N. Saleh. "Attitudes of people towards Birth Control in Hanania Village (unpublished) National Centre of Criminological Present at Third Family Planning Conference, May 5th, 1968, Cairo.
d) F.M. Labib, "Factors Influencing Practices of Birth Control in Manshiet El Bakry" (unpublished report).
e) K.E. Shawky "Birth and Birth Control in U.A.R. A Study of the Assessment of Attitudes" The Journal of The Egyptian Public Health Association, "Vol. XL, No. 30, 1965, p.18.
f. K.M. Bedwani. "Some Characteristics of Women Seeding Contraceptive Advice, 1960-1963", Unpublished Report, North Demographic Centre.
- (2) K.M. Bedwani, Ibid. Also Haifaa Shanawany. "U.A.R. Quality Not Quantity", E.F.P.A., A Middle East North African Review, Sept./October 1968, p.4.

projections assume a typical declining mortality trend which reaches an expectation of life at birth of 67.5 years for females (63.6 years for males) by the period 2010-2015 and holds constant thereafter. The projections differ in their assumption on fertility. The first assumes that there will be a constant fertility, while the second assumes a fertility declining by 50% in a period of 20 years starting from 1970-75 and that fertility is constant both before and after that period.

Assuming that in both projections consumption and savings form the same proportion of the national income, we find that income per capita will be higher for the low fertility population, due to the fact that the "pie" of national income is divided by a smaller number of people. In fact, we find that the income per capita tends to be higher in the low fertility projection due to a number of factors in the high fertility projection which help to depress the amount of savings and hence the national income.

The result of our study may be summarized as follows:

A decline in fertility has the immediate effect of reducing the burden of child dependency. After twenty-five years of decline in fertility, there is a reduction in the rate of growth of the labour force. In the more remote future, beginning about fifty years, reduced fertility produces a population of lower density with a smaller labour force relative to the available resources.

In the short-run, reduced fertility will produce a more favourable age distribution, with a lower ratio of dependency. This favourable, age distribution has the effect of producing a larger national product. This is due to the fact that the same number of persons in labour force ages (15-64) are supporting a smaller number of consumers. The country is able to consume a smaller percentage of the national product and to save more, thus enabling it to

finance economic development. The ability of the government to raise taxes is greater in a low fertility population due to the higher income per capita. Lastly, savings will be invested in more productive ways than would be necessary if the number of children were greater. Less will be spent on primary education, housing and other overhead costs. Thus we find that the high fertility population would require L.E.393,661,100 for primary education by the end of the century, while the low fertility population would require L.E.184,720,700. This is a difference of L.E.208,940,400 or 213.1%. By the end of the year 2030 A.D., the high fertility population will require L.E.1,174,795,400 while the low fertility population will require L.E.292,187,800. This is a difference of L.E.882,607,700 or 402.1%. These figures assume no improvement in the quality of education.

When we assume a 3% growth of expenditure to make room for improvement of the quality, we find that the total expenditure is even greater. By the end of the century the total expenditure on primary education would be L.E.214,976,700 for the low fertility projection, compared to L.E.458,140,000 for high fertility projection.

It may be argued here, that education may be considered both as a consumption and an investment for future manpower resources. The point to be emphasized here is that though education may be considered as an investment, yet the high fertility population causes this investment to be put in the additional numbers rather than in an improvement in the quality of education, or in decreasing the rate of illiteracy.

An indirect effect of reduced fertility is that a larger income per capita enables a person to spend more on food. Better nourishment leads to higher labour productivity.

Starting after 25 years of a reduction in fertility, we find a reduced rate of growth of the labour force. This means that a given level of net investment can be used to add to the

per capita income rather than to provide investments to equip the greater numbers reaching labour force age.

Assuming that the present capital/labour ratio will remain constant in the future, we find that the government has to invest L.E.77,982,400 to equip the newcomers to the labour force in the high fertility projection by the end of the century, while it has to spend L.E.67,605,600 to equip the low fertility projection. This is a difference of L.E.10,276,800.

By the end of the period 2030 A.D. the high fertility population will have to invest L.E.224,692,400 for additional labour equipment, while the low fertility will be required to invest only L.E.105,638,000. This is a difference of L.E.119,054,400.

Assuming a 4% in capital intensity, the sums to be invested for employing the newcomers to the labour force will be L.E.363,306,240 and L.E.5927,490,980 respectively, in the years 2000 and 2030, while for the low fertility projection, it will be L.E.314,962,566 and L.E.1846,490,000 respectively, for years 2000 and 2030. This is a difference of L.E.48,342,680 for the year 2000 A.D. and L.E.2,083,000,800 for the year 2030 A.D.

In the long run, usually after 50 years, the low fertility will cause a much lower density of population than with the continuation of high fertility. This lower density cannot take place in the short run, "for even a 50% reduction in fertility, the population in most under-developed countries would grow very substantially during the next two or three generations".(1)

The U.A.R. is suffering from the problem of population density which has resulted in a very small per capita share of land and reduced output per man. The result is low income per head. In the past, the scarcity of land in relation to labour lead to great inequality of wealth. At present, it has lead to disguised unemployment.

(1) A.J. Coale, Population & Economic Development, op.cit., p.61.

Having summed the benefits of decreased fertility, we ask ourselves two questions. First, what is the likely future trend of fertility in the U.A.R.? Second, what are the methods by which to bring a possible decline in fertility?

The Future Fertility Trend in the U.A.R.:

Fertility trends are very difficult to predict in an accurate way. They depend on socio-economic conditions, cultural values and aspirations.

We have reviewed the socio-economic factors which tend to favour high fertility. These factors seem to cause widespread attitudes favouring large family. Since a large percentage of the population come from rural areas (60%), we should expect that, at least amongst these, the ideal family is one with a large number of children.

Education is one of the factors which tend to decrease fertility. It makes the individual less fatalistic and more able and willing to plan his future and aspire to a better standard of living. However, only 30% of the total population are literate. The result is that the majority lack the education to allow them to take the initiative to plan their future rather than to rely entirely on God's Will.

The other factor associated with high fertility is low income. It is explained by the lack of enthusiasm to take any active action to improve their conditions. This is a natural psychological effect of poverty. The whole attention of the individual is concentrated in trying to get the most essential needs of living. "All the interests of the poor are absorbed in getting their daily bread which they can only get with difficulty".⁽¹⁾ This leaves very little chance for their motives and interests to be directed to any other goals.

(1) Kamal El Din Shawky, op.cit., p.124.

The majority of people have a low income, 62.2% of the families in urban areas have an income below L.E.214 per annum, while 87.6% of rural families have an income below L.E.225.0. (1)

We conclude that the socio-economic and cultural factors of the majority of the population seem to favour large families. This is confirmed by the fact that the fertility of women seeking contraceptive advice in the Family Planning Clinics is very high. A research was undertaken by the University of Ain Shams which showed that the average number of live children of women seeking contraceptive advice for the first time was 6.6 (2). In other clinics, the number of children was at least four and sometimes it reached eight children before the women sought advice. (3) This indicates that the women seeking advice have already contributed to the population explosion.

The author believes that the family planning gap is small. The family planning gap is the gap between the number of married women who now have access to modern birth control technique and the number who would make use of it, if given the opportunity. (4)

Studies of birth control in several countries reveal the fact that people are readier to adopt family planning in areas where the mortality rate is declining, where there

(1) Mohamad F. Moustapha, R.S. Ragab and M.A. Allouba "Family Budgets of U.A.R., 1955-59", Part I, Ministry of Planning, p.9.

(2) K. Bedwani, "Some Characteristics of Women", op.cit.

(3) Haifaa Shanawany, "U.A.R. Quality Not Quantity", op.cit., p.11.

(4) R.N. Gardner "Towards a World Population Program, The Global Partnership, edited by R.N. Gardner and M.F. Mellikai, Prague, 1963, p.335-336.

are socio-economic changes and where people are more educated.⁽¹⁾

In the U.A.R. mortality is declining and since the Revolution of 1952, tremendous socio-economic changes have taken place in all walks of life. They have uprooted many of the long-held customs and traditions. In addition, the government has an efficient method of mass media and control over the people through the socialist union and other organizations. It is an excellent position to be able to use all the mass media under its disposal, in order to promote a large scale birth control campaign. To be effective, these campaigns must be sustained over a long period of time. In addition, the government could give generous bonuses to participants of birth control, especially to the longer acting method, such as I.U.D. for females or vasectomy for males, causing sterility. However, attitudes change only very slowly and we have seen that inspite of urbanisation taking place in the U.A.R. there is no fertility differential between rural and urban areas. According to Ansely Coale² for countries that are as yet in the early stages of modernisation, having very low per capita incomes, it might take at least 30 to 60 years to attain a state of industrialisation that would by itself cause a rapid decline in fertility. In fact, the adverse effects of continued high fertility in the interim might in itself postpone the attainment of the needed state of advanced industrialisation".⁽²⁾

The solution of population problem is rather found in widespread education, especially of women - and widespread family planning movements, backed by the Government.

(1) "Family Planning Program Today", International Conference on Family Planning held in 1965 in Geneva under the Sponsorship of the Ford Foundation and Population Council and Rockefeller Foundation. Studies in Family Planning, October 1965.

(2) Ansly Coale, Population and Economic Development and Society, the Dynamics of Economic Change (ed. David E. Novack and Robert Lekadnan) New York. St. Martin's Press, 1964.)

An educated woman is more likely to be independent and to seek employment. A recent study has shown that female participation in the labour force is associated with increasing influence by the wife in family decision making, particularly with respect to having additional children⁽¹⁾.

At present, the illiteracy rate is exceptionally high amongst women reaching 83% in 1960 and is much higher in rural areas. The result is that women have a subordinate position and bear as many children as their husbands desire and as custom dictates. The result is at the expense of her health and welfare. As women become more educated, they will realise that they are entitled to a better life and they will no longer be content to be merely a wife and mother.

The government must give a top priority to the question of family planning. The first family planning programme adopted by the U.A.R. Government was in May 1962. The evaluation of the first two years of the First Five-Year Plan made it clear that economic development alone cannot help raise the standard of living and that demographic situation was necessary. However, there was no budget for family planning until November 1965, when the Supreme Council for Family Planning was formed. By the end of 1968, there were 2673 clinics operating throughout the country. Total number of contraceptive users is estimated at approximately half a million.⁽²⁾ To be effective, the programme must reach at least two-thirds of the women of child-bearing age which are six million. "Assuming no change in the number of married fertile women, if the programme proceeds at the same slow pace, this means that it will take us twenty-four years to promote service to all these women."⁽³⁾

Greater effort is hence required by the Government to promote the use of modern contraceptive methods.

-
- (1) Robert H. Weller. "The Employment of Wives, Dominance and Fertility" - Journal of Marriage and the Family. August 1968, Vol.III, No.3
- (2) Haifaa El Shanawany. On Population Explosion", op.cit.,p.7
- (3) Ibid.

The hope of the future lies with the new scientific discoveries. At present, the scientists have discovered a long acting contraceptive method whose effects lasts for a year. It is still in the experimental stage, however. Experiments are being carried out to produce contraceptives whose effect may last for five years, and may even stretch for a longer period. If this is the case, it would make family planning a much easier task. High financial incentive may be offered to those who accept to use them. The low per capita income of the population may drive many to accept these methods. At the same time, the government offering the incentive is sure that, at least, for five years, the women will not have children. If \$5 spent on birth control are worth \$100 spent on economic development, then the Government will benefit by this method.

A P P E N D I X

APPENDIX I

U.A.R.'S TWO PROBLEMS - HIGH POPULATION
DENSITY AND RAPID POPULATION GROWTH

1882 - 1966

Census	Pop.in 1000	Rate of Increase Between Census (2)	Pop.Density Per Square Km. (1)
1882	6,804	--	216
1897	9,715	2.40	213
1907	11,287	1.57	362
1917	12,751	1.28	368
1927	14,218	1.12	406
1937	15,933	1.14	463
1947	19,022	1.78	540
1960	26,089	2.38	724
1966	30,083	2.54	845.5 ⁽³⁾

SOURCE: Population Trends in the U.A.R. Central
Statistical Committee, 1962, p.3 (Table 1)

(1) For Inhabited Area Only (Desert Excluded).

(2) Population Increase in the U.A.R. and Its Impact On
Development. Memo. 2006/66, November 1966. Central
Agency for Public Mobilisation & Statistics (Arabic)
Table 2, p.7.

(3) Population Increase, op.cit., Table 61, p.142.

APPENDIX II

DISTRIBUTION OF BEDS, DOCTORS AND PIPED PURE WATER IN THE U.A.R.

Region	Persons Per Bed		Persons Per Doctor	Percentage Of Population Supplied With Pure Piped Water, 1960
	1954	1962	1961	
<u>Urban Governorates:</u>				
Cairo and Alexandria	234	229	474	100
All Urban Governorates	248	236	531	100
<u>Non-Urban Governorates:</u>				
Lower Egypt	1103	616	6904	84
Lower-Upper Egypt [*]	1331	635	6028	78
Upper Upper-Egypt ^{**}	1405	911	10523	62
All Non-Urban Governorates	1212	682	7228	77
Whole Country ^{***}	704	479	1948	82

* The Governorates of Giza, Fayoum, Beni Suef and Menya.

** The Governorates of Asyut, Sohag, Kena and Aswan.

*** Excluding border districts.

SOURCE: These persons per bed in 1954 were calculated from figures given in: Atlas of Social Services, Permanent Council of Social Services, Cairo, 1955, Table 1. The distribution by governorate of the members of the medical syndicate in 1961 was obtained from "Basic Statistics", op.cit., page 206. Estimated rural population supplied with piped pure water was obtained from "Basic Statistics", page 198.

Taken from El Badry, op.cit., Table 4.

APPENDIX III

INFANT MORTALITY RATES BY TYPE OF LOCALITY - UNITED ARAB REPUBLIC, 1934 - 1961.

Year	Urban Areas			Rural Areas		The Whole Country
	Cairo	Alexandria	All Urban Areas	With Health Bureaus	Without Health Bureaus	
1934	200	213	210	208	147	166
5	191	215	203	204	142	161
6	199	189	205	203	146	164
7	192	222	206	192	148	165
8	204	202	206	201	144	163
9	190	197	200	195	142	161
1940	197	188	199	199	143	162
1	198	193	200	181	127	150
2	248	204	228	197	137	168
3	237	251	225	176	125	160
4	215	217	208	172	118	152
5	207	242	212	180	116	153
6	200	187	190	172	107	141
7	172	192	171	153	97	127
8	199	175	180	153	110	139
9	184	184	179	156	104	135
1950	181	174	176	149	96	130
1	173	168	171	144	97	129
2	170	165	166	143	98	127
3	183	176	180	173	115	146
4	178	166	174	160	105	138
5	170	157	165	155	105	136
6	154	153	154	153	94	124
7	183	158	169	145	98	131
8	151	153	147	136	81	112
9	156	151	146	131	78	109
1960	151	141	---	---	---	110
1	151	136	---	---	---	---

SOURCE: The data up to 1958 were obtained from the annual report entitled "Vital Statistics" published in two volumes by The Department of Statistics. The 1959 through 1961 rates were prepared from unpublished data.

Taken from El Badry, op.cit., Table 5.

APPENDIX IV

ADJUSTED CRUDE DEATH RATES BY TYPE OF LOCALITY
UNITED ARAB REPUBLIC - 1934-1960

Year	Urban Areas			Rural Areas		The Whole Country		
	Cairo	Alexandria	All Urban Areas	With Health Bureaus	Without Health Bureaus	Reported	Corrected(A) [*]	Corrected(B)
34	27.9	27.0	29.5	36.0	26.7	27.8	34.5	
35	25.1	26.3	27.7	34.1	24.7	26.4	32.5	
36	29.0	23.4	29.9	37.5	27.7	28.8	33.6	
37	25.2	27.6	29.8	32.6	26.0	27.1	31.1	
38	26.6	24.1	28.9	31.5	25.0	26.3	30.9	
39	23.8	23.4	27.8	31.6	24.6	25.9	30.7	
40	24.1	21.6	27.4	33.7	25.2	26.3	32.1	
41	25.1	21.9	28.1	32.7	24.0	25.7	31.5	32.1
42	31.1	23.1	33.2	34.7	25.6	28.5	34.3	36.1
43	30.8	29.5	33.2	33.1	24.7	27.7	33.2	35.1
44	29.1	26.5	31.2	31.3	28.2	26.0	31.5	32.7
45	26.2	30.7	31.2	34.1	25.3	27.7	33.3	34.2
46	26.0	22.8	27.1	29.9	23.4	25.0	29.1	30.1
47	21.0	24.1	23.5	27.0	19.8	21.4	26.0	26.6
48	24.2	21.2	23.9	23.1	18.4	20.4	23.3	25.0
49	22.3	22.9	24.1	24.1	18.4	20.6	24.1	24.9
50	21.0	21.1	22.8	22.2	16.7	19.1	22.4	23.3
51	21.1	20.8	23.2	22.1	16.8	19.3	22.5	23.4
52	19.2	19.0	20.7	20.3	15.8	17.7	20.5	21.2
53	21.5	20.4	22.6	23.3	17.2	19.5	25.1	23.4
54	19.8	19.1	20.8	20.8	15.6	17.8	20.7	21.3
55	19.7	17.8	20.9	21.9	14.8	17.6	21.6	22.1
56	17.3	17.1	18.1	18.8	14.6	16.7	18.6	18.6
57	19.3	17.4	19.2	20.0	16.5	17.8	19.7	20.0
58	16.9	17.2	18.0	19.7	15.0	16.6	19.1	19.3
59	17.8	16.2	17.8	19.4	14.6	16.2	18.8	19.0
60	16.9	15.7	---	---	---	16.8	---	---

SOURCE: The data up to 1958 were obtained from the annual report entitled "Vital Statistics" published in two volumes by the Department of Statistics. The 1959 and 1960 rates were prepared from unpublished data. The official rates were adjusted by using, for estimating annual mid-year populations, the "Geometric Growth" method rather than the "Natural Increase" method (see footnote 9 in the text).

* For the correction procedure see the section on vital statistics in the text.

APPENDIX VI

METHOD OF POPULATION PROJECTION

The usual method of population projection is the component projection method. The population is projected by time intervals equal to the age interval. Here the population is subdivided by five years group of age taking 1960 census as the starting point.

The projection is made for five years' intervals. At the end of five years' period, all surviving members of one age group will have moved to the next subsequent age.

The number of survivors from one date to another is calculated separately for each sex, age group by specific mortality rates, and the derivation of survival ratio is obtained for each sex and age.

An additional procedure is required to estimate the future number of children to be born during successive future periods. These estimates are derived from the estimates of surviving females in the child-bearing age at each future date, with the assumption as to the fertility. Where statistics of birth age of mother are available (like in the U.A.R.), calculation with respect to fertility of population projections are made in terms of specific birth rates for various age groups of the female population (See. Fig.5). These rates are calculated for a past period (1960) and in Projection I are assumed to remain constant in the future, while in Projection II, they are assumed to decline. The future rates are then multiplied by the estimate number of female survivors in the corresponding age group to obtain the estimate numbers of birth.

We have projected the population from 1960 - 2030. The beginning population was taken from 1960 U.A.R. population

APPENDIX V

ADJUSTED CRUDE BIRTH RATES BY TYPE OF LOCALITY
UNITED ARAB REPUBLIC - 1934-1961

Year	Urban Areas			Rural Areas		The Whole Country	
	Cairo	Alexandria	All Urban Areas	With Health Bureaus	Without Health Bureaus	Reported	★ Corrected
34	43.6	43.5	44.4	49.1	41.0	42.2	48.0
5	41.6	39.9	42.5	47.0	40.5	41.3	45.9
6	43.6	44.2	45.1	50.9	43.4	44.2	49.4
7	43.7	43.1	46.9	47.2	42.1	43.4	47.0
8	40.0	41.3	44.7	46.3	42.4	43.2	46.0
9	41.6	40.5	44.4	47.0	40.6	42.0	46.4
40	38.9	36.2	42.5	47.5	40.2	41.5	46.2
1	39.2	26.3	40.0	46.8	39.9	40.4	45.1
2	38.9	31.5	40.7	41.1	36.0	37.6	41.0
3	43.4	40.0	44.5	41.5	36.1	38.7	42.2
4	46.5	47.0	48.0	42.6	36.0	39.8	42.3
5	46.9	49.0	49.8	47.1	39.0	42.7	47.9
6	47.0	49.9	49.1	43.9	37.3	41.2	45.5
7	47.5	49.8	49.9	48.7	40.2	43.8	49.1
8	45.9	50.3	49.5	45.0	39.2	42.7	46.3
9	46.1	49.2	49.0	43.6	37.9	41.8	45.3
950	48.4	51.3	51.0	45.2	40.6	44.4	47.1
1	48.4	51.8	51.8	46.1	40.8	44.8	48.0
2	48.2	50.0	51.2	46.7	41.6	45.1	48.2
3	49.8	50.5	50.9	43.4	37.5	42.5	45.9
4	50.9	50.3	50.7	43.4	37.6	42.4	45.7
5	49.4	48.3	50.0	43.7	33.5	40.2	45.9
6	49.9	47.4	48.1	39.2	36.0	40.6	42.3
7	41.8	43.0	41.1	39.4	35.4	37.8	40.0
8	44.9	40.6	43.9	42.2	39.0	41.1	42.8
9	44.2	40.8	44.1	45.2	41.1	42.6	44.8
960	44.3	40.3	---	---	---	42.6	---
1	---	---	---	---	---	43.7	---

SOURCE: The data up to 1958 were obtained from the annual report entitled "Vital Statistics" published in two volumes by the Department of Statistics. The 1959 and 1960 rates were prepared from unpublished data. The official rates were corrected by using for estimating annual mid-year populations, the "Geometric Growth" method rather than the "Natural Increase" method (see footnote 9 in the text)

* The corrected rates for the whole country were obtained by assuming that the birth rates of rural areas without health bureaus are equal to those of rural areas with health bureaus.

enumeration by sex and age. Figures were formed into five year age groups. The figures were compared with U.N.O. Demographic Yearbook 1966⁽¹⁾. After seeing the discrepancies, U.N.O. Demographic Yearbook were accepted.

Then adjustments were made for this beginning population. Adjustments were made in two ways:

- (1) Distributing age unknown,
- (2) Corrections of age misreporting.

We may find age misreporting in various ages even though the average five-year age group, taken as a whole, may have the correct number. It is known that misreporting especially under enumeration is specially marked in the younger age group. When the under-reporting is very great in one or two of the ages, it may affect the total number found in the whole five-year interval age group.

Corrections for age misreporting was made by comparing $P(x, x+5)$ and $C(x)$ of stable model⁽²⁾ at female ($e \text{ } \begin{smallmatrix} 0 \\ 0 \end{smallmatrix} \text{ } 50$ years) level - 13, South Model⁽³⁾.

$P(x, x+5)$ is the actual population as enumerated in the census. P stands for age group, $x+5$, in a five-year interval of age. In other words, $P(x, x+5)$ is the actual population in age group x to $x+5$.

(1) p.142-143.

(2) Stable model is one in which there is a stable age distribution caused by constantly high fertility.

(3) U.N.O. has divided the areas of the world into four main sections having the same demographic characteristics relating to fertility, mortality, etc. These four sections or models are called North, South, East, West. South model has a high mortality similar to U.A.R. figures.

$C(x)$ is the proportion of the population in age group x , according to the south model, level 13 of a stable population, where the life expectancy of females at birth is fifty years, i.e. (e_0^0 50 years). e stands for life expectancy.

The reason for choosing south model is that south fits the relatively high mortality pattern of U.A.R. in South Model 13. There are several models which depend on rate of increase of population, the gross reproduction rate, etc. The one chosen was the one in which the proportion of population in age group 35 in the model, i.e. $C(35)$ was identical to the enumerated population both for females and males.

The deviation of the actual population from the theoretic model was due to mis-reporting.

Total number of persons below age 15 and above age 15 was assumed to be correct. So it was assumed that the age misreporting results in approximately zero transfer across the boundary of 15. Then from the south model mortality level 13 (female e_0^0 50 years) was chosen and it has the same proportion under age of 35 as the enumerated population. The population was redistributed in each age group in the same proportion as the stable(model) treating under 15 and over 15 as correct, the same procedure was followed for males and females separately. The results are shown in Fig.i of Appendix

Mortality and fertility assumption for the two projections were done on the following basis:

The birth rate was assumed to be 44 per thousand, and the death rate about 18 per thousand in the year 1960. These assumptions were based on health centre records.

The mortality levels that were to be used were found by experimenting and child mortality, which is far greater than adult, was chosen to be two levels below adult in 1960-65, using "East" Model levels.

For fertility, \bar{n} was found and an appropriate standard schedule was chosen.

The \bar{n} means fertility was 30.7 years of age.

The standard Egyptian schedule was calculated from data of age specific fertility, Fig.5. Then a level of total fertility which yields a birth rate in 1960-65 of 44 was found and it was 6.7.

For the projections, two alternative courses of fertility were assumed. First, with constant total fertility of all future intervals; and second, constant fertility for 1960-65 and 1965-70, but declining linearly 50% in 20 years after 1970, remaining constant after that (Fig.19).

The two sets of assumptions were transferred on cards and there were two runs of projection; the first run to go from 1960 and the second from 1995.

We notice that the overall difference is shown by the year 2000 where the constant fertility projection gives a population of 87 millions, whereas the declining fertility projection gives 62 million. By 2030, the difference is 260 million versus 98 million (See Fig.18 and 19).

FIGURE i
POPULATION BY AGE AND SEX FOR THE U.A.R.
1960 CENSUS
 (Thousands of Population)

Age Group	M A L E S			F E M A L E S		
	(a) Enumerated	(b) Stable	(c) Corrected	(a) Enumerated	(b) Stable	(c) Corrected
0-4	2,111.5	.153	2,236.6	2,020.7	.150	2,096.3
5-9	1,972.0	.127	1,858.1	1,827.1	.125	1,741.5
10-14	1,651.4	.112	1,640.2	1,527.3	.110	1,537.3
15-19	1,114.2	.090	1,196.0	1,040.3	.098	1,207.5
20-24	921.1	.087	1,051.0	874.3	.086	1,059.7
25-29	859.8	.076	918.1	1,054.3	.075	924.1
30-34	806.9	.067	808.8	844.1	.066	813.2
35-39	847.5	.058	700.3	879.2	.057	702.3
40-44	660.7	.050	604.2	614.2	.050	616.0
45-49	567.2	.043	519.2	577.2	.043	529.8
50-54	493.8	.036	434.9	503.6	.037	455.9
55-59	322.9	.030	362.3	315.4	.031	382.0
60-64	320.8	.023	277.9	353.9	.025	308.0
65-69	163.9	.017	205.3	169.5	.019	234.1
70-74	133.5	.011	132.7	167.8	.013	160.2
75+	120.8	.010	122.4	147.2	.012	148.2
Total	13,068.0	1.000	13,068.0	12,916.1	1.000	12,916.1

Note: Failures to add to totals are due to rounding.

- a. Age unknown distributed in proportion to age known.
- b. The stable age distribution is from the "South family at mortality level 13 (female 0-50 years), with the same proportion under age 35 as in the enumerated population.
- c. The population was redistributed according to the proportion given by the stable age distribution. The total population enumerated under age 15 and the total over 15 were accepted as correct.

FIGURE ii

FERTILITY SCHEDULE - U.A.R.

The standard Egyptian schedule is as follows (TF-1):

15-19	.001	
20-24	.036	
25-29	.057	
30-34	.061	n - 30.7 years of age.
35-39	.032	
40-44	.010	
45-49	.003	

Source: Calculated from data on age-specific fertility furnished by Mrs. Safia Boulos Hanna. (Minor adjustments were made in the third digit to avoid zero in 15-19 and to cause the series to exactly add to TF-1).

Procedure: Substitute this schedule for the Turkish Schedule in the prepared computer program for option 5 and then use option 5 for projections for the U.A.R.

FIGURE iii

MORTALITY AND FERTILITY ASSUMPTIONS

Projection Intervals	<u>Mortality Assumptions</u>		<u>Fertility Assumption(TF)</u>		
	<u>"East" Model Levels</u>	<u>Expectation of life at birth (both sexes)</u>	<u>Constant Fertility</u>	<u>Decline 50% line- arly in 20 yrs. from 1970-75</u>	
	<u>Child</u>	<u>Adult</u>			
1960-65	13	15	50.730	6.7	6.7
1965-70	14	15	52.312	6.7	6.7
1970-75	15	16	54.560	6.7	5.9
1975-80	16	16	55.778	6.7	5.1
1980-85	17	17	58.194	6.7	4.2
1985-90	17	17	58.194	6.7	3.3
1990-95	18	18	59.405	6.7	3.3
1995-2000	18	18	59.405	6.7	3.3
2000-2005	19	19	63.066	6.7	3.3
2005-2010	19	19	63.066	6.7	3.3
2010-2015	20	20	65.520	6.7	3.3
2015-2020	20	20	65.520	6.7	3.3
2020-2025	20	20	65.520	6.7	3.3
2025-2030	20	20	65.520	6.7	3.3

APPENDIX VII

PER CAPITA CONSUMPTION OF VARIOUS FOOD ITEMS
IN SELECTED COUNTRIES PER ANNUM IN KILOGRAMS

Countries	Years	Grains	Starches	Beans	Sugar	Vegetables	Meat	Eggs	Fish	Vegetable	
										Oil	Total
A.R.	1963/64	212.8	11.5	10.3	18.1	68.6	10.4	1.3	5.0	7.3	460.2
S.A.	1963/64	65.4	47.9	8.0	42.0	96.8	99.6	18.0	4.8	21.3	347.5
Sweden	1963/64	70.8	79.9	3.2	40.6	33.3	50.7	11.9	20.9	23.0	317.7
K.	1963/64	80.4	98.9	6.6	48.0	59.9	74.8	15.6	9.3	24.0	302.9
India	1962/63	134.2	10.5	21.3	17.1	2.8	1.4	0.2	1.0	3.8	192.3

SOURCE: Population Increase, op.cit., 1966, p.209.

APPENDIX VIII

PER CAPITA INTAKE OF CALORIES, PROTEINS AND
FATS PER DAY IN SELECTED COUNTRIES

Countries	Years	Calories	Fat Per Gram	Protein		Index No.	
				Animal	Total	Calories	Fats
A.R.	1963/64	2931	48.0	12.6	83.7	100	100
Sweden	1963/64	2980	133.1	55.2	83.5	102	277
K.	1963/64	3300	147.5	53.5	89.3	113	307
S.A.	1963/64	3120	145.5	63.9	90.6	106	303
India	1962/63	1940	26.0	5.9	49.7	66	54

SOURCE: Population Increase, op.cit., Table 92, p.210

APPENDIX IX

ESTIMATED TOTAL CONSUMPTION DURING FIRST FIVE-YEAR PLAN

Expressed in Millions of Pounds

	Personal Consumption Current Prices	% Increase Per Annum	Collective Consumption Current Prices	% Increase Per Annum	Total Domestic Consumption	Gross Domestic Product	Ratio Of Consumption to GDP %
/60	971.6		228.1		1199.7	1375.6	87.2
/61	993.3	2.2	255.9	12.2	1249.7	1459.3	85.6
/62	1101.5	10.9	247.1	3.4	1348.6	1513.3	89.1
/63	1170.8	6.3	318.2	28.8	1489.0	1684.6	88.4
/64	1249.3	6.7	401.8	26.3	1651.1	1887.9	87.5
/65	1330.9	6.5	431.3	7.3	1762.2	2050.6	85.9

SOURCE: Population Increase, op.cit. p.240, Table 102

APPENDIX XI

ADDITIONAL INFORMATION ON EDUCATION

The table below shows us the increase in the Ministry of Education budget and the percentage of the education budget to the total budget of the U.A.R.:

FIGURE i

BUDGET OF THE MINISTRY OF EDUCATION

Year	Budget of U.A.R. L.E.	Budget of Ministry Of Education-L.E.	% of Education Budget to Total Budget
1953-54	197,516,000	26,434,900	13.4
1954-55	227,850,000	28,731,100	12.6
1955-56	238,300,000	33,353,700	14.0
1956-57	280,500,000	36,173,000	12.9
1957-58	281,770,000	38,550,000	13.7
1958-59	357,615,000	39,326,000	11.0
1959-60	318,270,000	41,423,000	13.0
1960-61	370,880,000	57,881,026	15.6

Based on Ministry of Education, Department of Statistics.
Comparative Statistics of Education: Public Relations
Dept., from 1953/54 to 1960/61. Table 2

The overall expenditure of the government on education in the estimated budget of 1969/70 is L.E.245.0 million. This accounts for 22% of total current expenditure of the government administration among various economic sectors. (1)

Rate of Illiteracy:

The rate of illiteracy is still very high inspite of the large expenditure spent by the government on education. The illiteracy rate may be seen in the figure below:

FIGURE ii

PERCENTAGE OF ILLITERACY (ABOVE AGE 10)
IN THE U.A.R.

Census Year	Males	Females	Total
1937 ⁽²⁾	76%	94%	85%
1947	65%	84%	75%
1960	56%	83%	71%

(2) Source: Population Increase, op.cit., p.189 (1966).

(1) Economic Bulletin. National Bank of Egypt, Vol.No.3,1969.

The percentage of female illiteracy is far greater than those of men. This may be explained by the fact that customs and traditions, especially in rural areas, are oriented towards the belief that the place of a woman is home. This has a large impact on family planning. When a woman is educated, she becomes more independent and has wider interests. She is no longer satisfied by merely being a wife and mother.

Primary Education (Ages 6-12):

Introduction:

The First Five-Year Plan aimed at a 100% enrolment ratio amongst compulsory school education ages (6-12) by the year 1970. However, a number of difficulties have prevented the education system from reaching this target. Amongst the problems encountered was the difficulty of providing school building and the increase in costs of erecting new buildings. These factors have made it necessary to have a higher percentage of pupil/teacher and pupil per class. A new plan is being formulated which aims at a 100% enrolment of primary school ages by the year 1980.

Students Per Class:

Between the year 1961/62 and 1965/66, the average number of students per class was about 43.7 pupils⁽¹⁾. In a recent speech⁽²⁾ the Minister of Education stated that in order to accept all newcomers reaching the compulsory school age (minimum age being 5 years and 9 months), it would be necessary to increase the number of students per class to 50. This would be in conformity with the 100% enrolment required by the First Five-Year Plan.

(1) Mamdouh Farid Abdel-Messih. "Full Enrolment in Primary Education in U.A.R." U.A.R. and U.N.O. North African Demographic Center, Sept. 1966, (unpublished research in Arabic) Table 11, p.21.

(2) Al Ahram, January 28th, 1969.

Government Expenditure on Primary Education:

The government has spent a great deal of money on primary education. Until 1960, it was possible to separate the budget into different levels of education, primary, preparatory and secondary. However, since that date, the government has followed a policy of decentralisation. The Governors in each governorate are granted a certain lump sum for education. They are free to allocate it to whatever level of education they chose.

Figures of the past were as follows:

FIGURE i

<u>Year</u>	<u>Ministry of Education Budget</u>	<u>Primary Education Budget</u>
1952-53	L.E. 25,840,330	L.E. 10,536,500
1957-58	L.E. 38,550,000	L.E. 17,000,000
1962-63*	L.E. 63,276,953	L.E. 22,000,000

SOURCE: Ministry of Education, op.cit.

* Cited by Osman Farrag. Education in the U.A.R.

During the same period, the total number of pupils in primary education increased as follows:

FIGURE ii

<u>Year</u>	<u>Total Pupils</u>
1952-53	1,540,202
1955-56	1,860,942
1959-60	2,452,371
1963-64	3,129,692

SOURCE: Same as above.

APPENDIX XII

After the Agrarian Reform Laws of 1952 and 1961, the situation was improved, and we find that 94.1% of owners with less than 5 feddans owned 52.1% of the total land area, while 0.4% of owners who possessed over 50 feddans now counted for only 15.2% of the total land area.

FIGURE i

DISTRIBUTION OF LAND OWNERSHIP IN THE U.A.R. BEFORE THE PROMULGATION OF 1952 LAND REFORM LAW.

	Landowners 000	Area Owned Feddans 000	% Landowners	Area Owned %
Less than 5 feddans	2642	2122	94.3	35.4
5 feddans	79	526	2.8	8.8
10 feddans	47	638	1.7	10.7
20 feddans	22	654	0.8	10.9
50 feddans	6	430	0.2	7.2
100 feddans	3	437	0.1	7.3
200 feddans	2	1177	0.1	19.7
Total	2801	5984	100.0%	100.0%

SOURCE: Statistical Handbook, U.A.R., op.cit., p.42.

FIGURE ii

DISTRIBUTION OF LAND OWNERSHIP AFTER THE PROMULGATION OF 1961 LAND REFORM LAW *

	Landowners 000	Areas Owned Fed. 000	Landowners %	Area Owned %
Less than 5 feddans	2919	3172	94.1	52.1
5 feddans	80	526	22.6	8.6
10 feddans	65	638	2.1	107.7
20 feddans	26	818	0.8	13.4
50 feddans	6	430	0.2	7.0
100 feddans	5	500	0.2	8.2
Total	3101	6084	100.0	100.0

SOURCE: Statistical Handbook, op.cit., 1944, p.44

* Limiting landholding to 100 feddans per family.

B I B L I O G R A P H Y

B I B L I O G R A P H Y

B O O K S

- Amin, Galal. Food Supply and Economic Development With Reference to Egypt. Frank Cass & Co. London:1966.
- Cleland, Wendell. The Population Problem in Egypt: A Study of Population Trends and Conditions in Modern Egypt. Lancaster Science Press Co.,1936.
- Coale, A.J. and Hoover, E.M. Population Growth and Economic Development in Low Income Countries. Princeton University Press, 1958.
- El Abd, Djehane, Planning Towards Full Employment in the Newly Industrialized Economies with Special Reference to U.A.R. M.A. Thesis (unpublished) American University, Cairo, June 1968.
- Gadallah, S.A. Land Reform in Relation to Egypt. University Missouri Press, Colombia: 1962.
- Gardner, R.N. and Millekan, M.F. (co-editors). The Global Partnership. International Agencies and Economic Development. Frederick A. Praeger, 1968.
- ✓ Egyptian Association of Population Studies. Population Policies in U.A.R., July 1960.
- Hansen, Bent and Marzouk, Girgis. Development and Economic Policy in U.A.R. North Holland Publication Co., Amsterdam, 1965.
- Harbison, Frederick and Ibrahim, Abdel Kader Ibrahim. Human Resources for Egyptian Enterprise. McGraw Hill, New York, 1958.
- ✓ Hashem, Ismail Mohamed. Population Problems. Dar El Maaref, Cairo, 1966 (Arabic).
- Issawi, Charles. Egypt at Mid Century. London, 1953.
- Issawi, Charles. Egypt in Revolution. London, 1963.
- ✓ Larry, K.Y. Ng. and Mudd, Stuart (co-editors). The Population Crisis. Midland Book. Indiana University Press, 1965.
- ✓ Lewis, Arthur. The Theory of Economic Growth. Urwin University Book, 1963.

- Mead, Donald. Growth and Structural Change in the Egyptian Egyptian Economy. A publication of the Economic Growth Center, Yale University, Richard Irwin, 1967.
- Meier, G.M. Leading Issues in Development Economies. Oxford University Press, 1964.
- Namek, Salah El Din. Population and Economic Development in U.A.R. Dar El Maaref, 1966 (Arabic).
- Said, A.M. The Growth and Development of Urbanisation in Egypt. Paper written for the U.N.E.S.C.O. and presented to the U.N. Mission on Problems of Urbanisation a Mediterranean Region, Cairo, Nov. 1959 (offset-printing). Social Research Center, A.U.C., 1960.
- ✓Shanawany, Haifaa. Family Planning, An Equilibrium Response to Demographic Conditions in U.A.R. (Unpublished) Ph.D. Thesis, Cornell University, 1967.
- Society for International Development. International Development 1968. Tenth Anniversary World Conference, Oceana Publication, New York, 1969.
- Tunger, Baran. The Impact of Population Growth on Turkish Economy. Hacettepe University Publication No.3. Institute of Population Studies, Ankara, 1968.
- Warriner, Doreen. Land Reform and Development in The Middle East. Oxford University Press, 1962.

A R T I C L E S

- ✓Abdel-Azim, Lotfy. "The Burden of Population Explosion in the Long Term". Al Ahram El Eqtisadi No.302. March 15th, 1968 (Arabic).
- ✓Abdel-Azim, Lotfy. "External Finance Through Foreign Loans Versus Foreign Capital". Al Ahram El Eqtisadi, No.301, March 15th, 1968 (Arabic).
- Abdel-Azim, Lotfy. "Foreign Loans Versus Foreign Capital as a Method of Development". Al Ahram El Eqtisadi, No.331, August 1st, 1968 (Arabic).
- Abu Lughod, J.L. "Urbanisation in Egypt. Present State and Future Prospect". Economic Development and Cultural Change. Vol.XIII, No.2, April 1965.
- Berelson, Bernard. "Beyond Family Planning". Studies in Family Planning. Published by the Population Council. No.38, February 1969.

- Davis, Kingsley and Golden, Hilda. "Urbanisation and Development of Pre-Industrial Areas". Economic Development and Cultural Changes, October 1954.
- El Badry, M.A. "Some Aspects of Fertility in Egypt". The Milbank Memorial Fund Quarterly. Vol. XXXIV, No.1, January 1956.
- El Badry, M.A. "Systematic Bases Census Age Reporting". The Egyptian Statistical Journal. Vol. II, 1958.
- El Bawab, Sayed. "Consumption and Investment in a War and Development Economy", Al Ahram El Eqtisadi. April 1st, 1958, No. 303 (Arabic).
- Enke, Stephen. "The Economic Aspect of Slowing Population Growth", Economic Journal. Vol. LXXVI, No. 301, March 1966.
- Enke, Stephen. "Growth and Economic Development". Quarterly Journal of Economics. Vol. LXXI, No. 1, February 1957.
- El Attar, A. El Dessouki and Malahi, A.S. "Etude Analytique de Probleme de L'Utilisation des Elements de Travail Dans Une Unite Agricole a Shebin El Kom". L'Egypte Contemporaine. LXX annee, No. 33, Juillet 1968 (Arabic).
- El Badry, M.A. "Some Demographic Measurements for Egypt Based on the Stability of Age Distribution". Milbank Memorial Fund Quarterly. XXXIII, No. 3, July 1955.
- El Badry, M.A. "Census Regional Fertility Data in Egypt Appraisal and Mapping." The Egyptian Statistical Journal, Vol. IV, 1960.
- El Badry, M.A. "Trends in the Components of Population Growth in the Arab Countries in the Middle East: A Survey of Present Information". Report to the Conference on Demographic and Economic Trends in Developing Countries, Oct. 10-12, 1963, also printed in Demography, 1965.
- Foda, M.S. Zaki, S. and Saleh, M. "Attitudes of People Towards Birth Control in Harrania Village". National Centre of Criminology. Presented to the Third Family Planning Conference. May 5th, 1968, Cairo (unpublished).
- Hansen, Bent. "Marginal Productivity Wage Theory and Subsistence Wage Theory in Egyptian Agriculture". Journal of Development Studies. Vol. 2, No. 4, July 1966.
- Hassan, Abdel Razzek. "Expose Sur L'evolution de L'economie Egyptienne". L'Egypte Contemporaine. LIX annee, No. 338, October 1969 (Arabic).

- International Conference on Family Planning. "Family Planning Program Today: Major Themes of the Geneva Conference". Studies in Family Planning. Publication of the Population Council, October 1965.
- Kirt, Dudley and Nortman, Dorothy. "Population Policies in Developing Countries". Economic Development and Cultural Change. Vol.15, No.2, Part 1, January 1967.
- Labib, Ferdos-M. "Factors Influencing Practices of Birth Control in Manshiet El Bakry". Unpublished Report of a Research Carried out by the Faculty of Medicine, Cairo University.
- Lewis, A. "Economic Development with Unlimited Supply of Labour". Published in Agarwala, M.N. and Singh, S.P. (editors) The Economics of Underdevelopment, Oxford, 1961.
- Mabro, R. "Industrial Growth, Agriculture, Underemployment and the Lewis Model. The Egyptian Case, 1937-1965". Journal of Development Studies. Vol.3, No.4 July 1967.
- Makramallah, Maurice. "Consommation et Planification en R.A.U." L'Egypte Contemporaine. LIX annee, No.331, January 1968 (French).
- Meade, J.E. "Population Explosion, the Standard of Living and Social Conflict". Economic Journal. Vol.LXXVII, No.306, June 1967.
- O'Brien, P.K. "Industrial Development and the Employment Problems in Egypt, 1945-65". Middle East Economic Papers. Economic Research Institute, American University, Cairo, 1962.
- Pettergill, Robert. "Population Control to Accelerate Economic Progress in the Middle East. Middle East Economic Paper, Economic Research Institute, American University of Beirut, 1961.
- Proceeding of the Joint U.N.O. and U.N.E.S.C.O. Seminar and Industrialisation in Southern Asia, 1957 "Urbanisation in Asia and the Far East", cited by Sovani, N.M. "The Analysis of Overurbanisation", Economic Development and Cultural Change. Vol.XII, No.2, January 1964.
- Rifaat, Azem. "An Increase of Savings or a Change in its Composition". Al Ahram El Eqtisadi. No.325, March 1st, 1958 (Arabic)
- M.Z. Shafei. "Le Developement Economique en R.A.U.". L'Egypte Contemporaine. LIXeme annee, No.334 (Arabic).
- Shanawany, Haifaa. "Some Aspects of Urbanisation in U.A.R." The Egyptian Population and Family Planning Journal. Vol.I, No.1, May 1968.

- Shanawany, Haifaa. "U.A.R. Quality, Not Quantity", Egyptian Family Planning Association and Middle East North African Review, Sept./Oct. 1968.
- Shawky, K.E. "Birth and Birth Control in U.A.R. A study of The Assessment of Attitudes". The Journal of Egyptian Public Health Association. Vol.XL, No.3, 1965.
- Sen, A.R. "Some Notes on the Choice of Capital Indensity in Development Planning". Quarterly Journal of Economics. Vol.LXXXI, No.3, No.1957.
- Stycos, J. Mayone. "The Outlook for World Population". Science. Vol.146, No.3650, December 11th, 1964.
- Weller, Robert H. "Employment of Wives, Dominance and Fertility". Journal of Marriage and the Family. Vol.III, August 1968.

U.A.R. GOVERNMENT AND GOVERNMENT DEPARTMENTS PUBLICATIONS

- Aziz, Alphonse. Survey of International Trade 1954/60 to 1965/66. National Institute of Planning. Memo.24,1968.
- Central Agency for Public Mobilisation and Statistics. Population Increase in U.A.R. and Its Impact on Development. Memo. 2006/66, Nov.1966 (Arabic).
- Central Agency for Public Mobilisation and Statistics. Population Increase in U.A.R. and its Impact on Development. Ref. 05-100, 1969.
- Central Agency for Public Mobilisation and Statistics. Sample Survey of Labour Statistics - May 1964. Memo.22201, May 1968. (Arabic).
- Central Agency for Public Mobilisation and Statistics, Statistical Handbook, U.A.R. 1952-1966. Cairo, June 1957.
- Central Agency for Public Mobilisation and Statistics. Statistics of the National Economy in Personal Savings. Memo.712, No.1, Sept. 1968 (Arabic).
- Handy, Mostafa and Khalil, M. Estimates of Manpower Requirements by Economic Sectors for the U.A.R. for the Period 1960-85. The Institute of National Planning, Memo. 271, March 1963.
- Handy, Mostafa. Manpower Requirements for the U.A.R. For The Period 1960-1985. The Institute of National Planning. Memo. 431, March 1964.

- Mahmoud, W.M. and Bishai, R.S. A Long Term Policy for Primary Education. The Institute of National Planning. Memo. 850.
- Ministry of Education, Department of Statistics. Comparative Statistics on Education from 1951/52 to 1965/66.
- Ministry of Education, Department of Statistics. Statistical Research and Studies. 1965. (Arabic).
- Ministry of Education, Department of Statistics. Average Per Capita Expenditure of Students and Classes in Primary Education 1966/67. April 1968. (Unpublished report in Arabic).
- Mustafa, M. Ragab, R.S. and Aliouba, M.A. Family Budget of U.A.R. 1958-59. Part 2. Ministry of Planning. Consumption Section. Memo.27. (Unpublished typewritten report in Arabic).
- National Bank of Egypt. Economic Bulletin. Several issues from 1955-1970.
- Ragab, R.S. The Evolution of Consumption Between 1960-1966 at Constant Prices. Ministry of Planning. Consumption Section. (Unpublished typewritten report in Arabic.)
- Ragab, R.S. and Mustafa, M.F. The Projected Population in U.A.R. During the Second Five-Year Plan (1965-1970) and the Estimated Future Consumption Units. Ministry of Planning, Consumption Section. Memo.24 (unpublished Report (typewritten) in Arabic).
- Ragab, R.S. Survery On the Family Budget, U.A.R. of 1958/59. Part 1, Ministry of Planning, Consumption Section. Memo.20 (Unpublished typewritten report in Arabic).
- Ragab, R.S. Comparison Between Family Budgets of 1958/59 and those of 1965/66 in the U.A.R. Ministry of Planning-Consumption Section. (Unpublished typewritten report in Arabic) August 1968.
- Zikry, Abdel Khalek. Population Structure and Manpower Resources in U.A.R. The National Institute of Planning Memo. 744, March 1967 (Arabic).

U.N.O. PUBLICATIONS

- Agency of International Development. Population Program Assistance. The Office of war on Hunger. Population Service, Washington D.C., 1968.

Department of Economics and Social Affairs. Method of Analyzing Census Data on Economic Activity of the Population. ST/SOA/Series A. New York, 1968.

Department of Economics and Social Affairs. Demographic Aspect of Manpower, Part 1, Sex and Age Pattern of Participation in Economic Activity. Population Studies No. 3 New York, 1962.

Department of Economics and Social Affairs. Method of Population Projection by Sex and Age Manual III. Method of Estimating Population ST/SOA/Series A. Population Studies No. 25, New York, 1956.

Department of Social Affairs. The Determinants and Consequences of Population Trends. Population Division. New York, 1953.

Secretariat: Statistical Office. Demographic Year Book - several issues.

U.N. and U.N.E.S.C.O. Estimating Future School Enrolment in Developing Countries. A manual on Methodology. Population Studies, No. 46 ST/SOA/Series A 40 New York, May 1966.

NORTH AFRICAN DEMOGRAPHIC CENTER, U.N.O. and U.A.R.

Abdel Messih, M.F. Full Enrolment in Primary Education. Sept. 1966 (Unpublished Report in Arabic).

Aref, Marzouk, R. Fertility in Three Districts of Cairo. (unpublished), 1964.

Bedwani, K.M. Some Characteristics of Women Seeking Contraceptive Advice. 1960-63 (unpublished).

Danohry, Rifat Abdel Hamid. "Some Elements Affecting Fertility in U.A.R. (Unpublished Report in Arabic).

Seyam, Hilmy Abdel-Rahman. "Urbanisation and Population Growth in U.A.R. (unpublished report).

Wakid, M.W. Fertility Rates in Some High Socio-Economic Areas of Cairo. 1964 (unpublished).

THE AMERICAN UNIVERSITY IN CAIRO
3 8534 00606 6165