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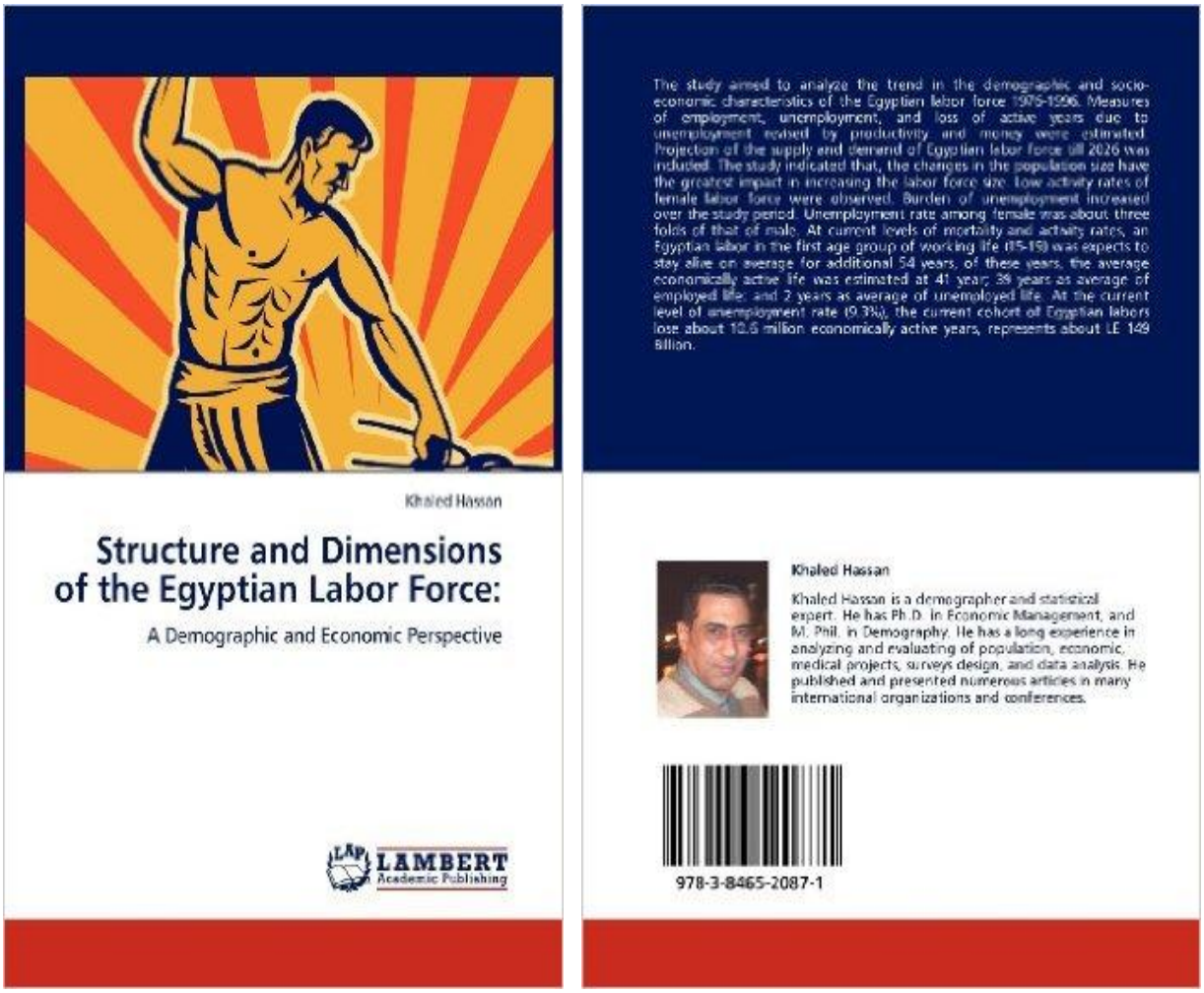


STRUCTURE AND DIMENSIONS OF THE EGYPTIAN LABOR FORCE:

A Demographic and Economic Perspective

By

Khaled El-Sayed Hassan

Dedication

To
My son Omar
and
My daughter Nourhan

Table of contents

CHAPTER ONE
INTRODUCTION

1.1 Justification

Experience in the developing countries has shown large changes in labor force structure and sectorial composition during the economic growth process. Some of the major components of this structural change include the gradual shift from agricultural to nonagricultural activities; and more recently from industry to services, a significant change in the scale or average size of reproductive units (from small personal and family enterprises to the huge national and multinational corporations); and finally a corresponding shift in the spatial location and occupational status of the labor rural and agricultural activities to urban-oriented manufacturing and services pursuits (Todaro, 1984, P. 431).

However, growth is not achieved merely by shifting manpower from one sector to another. Shifts within each sector from less productive to more productive lines of activity are also important features of the growth process.

There is no doubt that size and structure of manpower (population in the age group of work, 15-60 years) is considered to be the backbone of any society, since they represent the defense power, production power, and on them fall the hope and burden of their societies in development and their pursue for a good future. So, it is one of the priorities of any government is to achieve a high level of qualification, employment and performance for it's manpower to be able to carry the responsibilities of defense, production, and development of the nation.

The Egyptian population is always described as a young population; where the percentage of population less than 15 years of age about 38 (1996 census). This usually ensures an enough size of man power in the present and future, currently, the size of man power represents 56% of the total population. The quick view of the changes in the Egyptian labor force during the past twenty years (1976-1996) indicated an increase in the size of labor force by about 84% (from about 9 million in the base year, 1976 to about 16.5 million in the comparable year, 1996). The changes have not ristricted only on the size of labor force but it

extended to its structure. The population of workers in agriculture has declined, and accordingly the population of workers in services sector has expanded during the same period. Of course, these changes in the size and structure of labor force, have been associated with parallel changes in the structure of labor market, in the governmental policies and strategies regarding employment of graduations, in the educational system, and lastly in the behavior and views of the individuals towards the kinds and types of works.

During the past ten years, Egypt has achieved an observed success in limiting the increase in unemployment rate, where it flactuated around 10% during the period from 1986 to 1995. The main factors behind limitting the unemployment rate are establishing many of the new industrial cities, national projects, and expanding the process of distributing the agriculture and cultivating lands on the graduates. Despite the efforts that occurred in this fields, the problem of unemployment is still existing.

From the previous introduction, one can easily realize the essentiality and the importance of a detailed analytical study of the differentials in structure and dimensions of the Egyptian labor force and the problem of unemployment, in addition to estimating the future supply of, and demand for the labor force.

The suggested study is the main concern of the present dissertation. The study will investigate the aforementioned topics, in addition to other related phenomena, for a period of twenty years (1976-1996). Also Labor force aged 15 to less than 60 years will be the main concern of the study. The selection of age 15 to 60 years is attributable to the official age of participation in work and of retirement.

1.2 Objectives of the Study

In view of the previous introduction, the following objectives are worth considering:

1. To analyze the differentials, that occurred during the study period (1976-1996), in the trend of Egyptian labor force, according to some selected socioeconomic characteristics (employment status, educational level, industrial classification, and occupational structure).

2. To introduce some of the standardized labor measures for the Egyptian labor force such as Crude Activity Rate (CAR), Refined Activity Rate (RAR), unemployment Rates, and Age Specific Activity Rates (ASARs), aiming to facilitate further comparative studies between Egypt and other countries.

3. To analyze the recent structure of Egyptian employment and unemployment according to some selected socioeconomic characteristics (age, educational level, industrial classifications, and occupational structure).

4. To produce quantitative measures highlighting the impacts of unemployment in Egypt. This will be done through estimating the economically active years of life, and the loss of economically active years due to unemployment in terms of time (years) and money.

5. To project the supply of and the demand for Egyptian labor force for the future years, on the basis of the most recent demographic and economic measures.

1.3 Data Sources

The main sources of data, on which the study will mainly depend, are:

1. The final results of Egypt Census of Population, Housing and Establishments, 1976.
2. The final results of Egypt Census of Population, Housing and Establishments, 1986.
3. The final results of Egypt Census of Population, Housing and Establishments, 1996.

In addition, the study will depend on some other sources of data, such as:

- Different rounds of the Labor Force Sample Survey (LFSS).
- Different issues of the Human Development Report (HDR).
- Data Sets of the Ministry of planning.

- Labor Statistics Database (LABORSTA) of the International Labor Organization (ILO).

1.4 Methodology of the Study

The methodology to be adopted in this study comprises the following:

1. In some parts of the study, illustrative analysis of the differentials in the Egyptian labor force and unemployment according to selected socioeconomic variables will be adopted.

2. Utilization of the "Working Life Tables Technique " for the purpose of estimating the economically active years of life, and the loss of the economically active years due to unemployment. Based on these estimates, the study provides two models to convert the impact of recent level of unemployment into time (measured by total of economically active years lose due to unemployment) and money (measured in view of the current level of productivity).

3. For the purpose of projecting the supply of and the demand for Egyptian labor force. The Cohort Component Method for Population Projection will be utilized to project the supply of labor force for the next twenty-five years. Investigative and time series analysis will also be utilized to project the demand for Egyptian labor force.

The application of these procedures will require the use of some computer software packages such as:

- Microsoft Excel (to facilitate the huge calculations of working life table technique, and the claculations of the study tables from different sources).
- Microsoft Power Point (to present some of the study results in graphs).
- Dem_Proj (for the purpose of Projection).

1.5 Literature Review

1.5.1 Egyptian Literature Review

Based on data of Labor Force Sample Survy (LFSS), a study by ***Elwy and Radwan (1998)*** showed that, the size of the Egyptian labor force has increased from 16.4 million in 1990 to 17.8 million in 1995. The average rate of growth over the period is about 1% per annum. However, the pattern of growth in the size of labor force is reported to differ significantly in the last years from the average of the entire period. Growth averaged 2.7% between 1993 and 1995. By comparison, the labor force is reported to have been declining growth rate during the period 1990-1992.

A steady, but slow, rise in the overall level of unemployment is indicated in the period 1990-1992. Unemployment topped 10% in 1993 and fluctuated around this level since then.

Unemployment among urban women has been consistency higher either than men or rural women, and rose at a faster rate than that of men. The faster rise in the level of unemployment is reported to have taken place in the case of rural women, the unemployment rate almost tripled in the five years considered.

Unemployment rates exhibit a striking age pattern that interacts with sex and rural/urban residence. Unemployment is heaviest in the late teens and early twenties of age. More than 70% of urban females in the (15-19) age group are reported unemployed. Unemployment rate among male in the succeeding five-year age group (20-24) reaches 30%.

Concerning the classification of the unemployed persons, the study showed that, those with intermediate education suffer an unemployment rate of 32% compared to less than 1% for illiterates. University graduates suffer the next higher unemployment rate (19%). The study indicates to the flagrant lack of co-ordination between education and the labor market.

All most all (95%) of the unemployed are first-time job seekers. The ratio of first-time job seekers is higher than average for females and rural areas. Only in greater Cairo and other major urban centers does the ratio of first-time job seekers go down to about 85%. Urban males show the lowest proportion of first-time job seekers in all categories.

Duration of unemployment (length of last spell of unemployment to the time of the survey) is quite long, average 44 months. Duration of unemployment is longer in rural areas and among women. Indeed, rural women suffer the longest duration (51 months) while urban males enjoy the shortest (38 months). Average duration of unemployment rises with age to peak in the late twenties and thirties of age.

Agriculture is the major employer accommodating a third of employed persons, followed by services with more than a quarter of the employed. The share of manufacturing is limited to about 14%. The services sector is the primary employer in the cities, accommodating more than 70% of females employed, compared to less than 30% of males. By comparison, manufacturing accounts for about a quarter of employed men and less than 10% of women.

The private sector, with almost two thirds of the employed, is the main employer. A little more than a quarter of the employed is in government service and the public sector accommodates an additional 9%. Almost 70% of urban women are government employees, compared to only a quarter of men.

A study by ***Zayyan, E. (1992),*** showed that the Egyptian labor force was not only suffering from high level and increasing trend of unemployment, but also from the expansion of informal sector and marginal activities. It also found that the female participation in labor force is very low and the educational attainment of the labor force was unsatisfactory. Farmers and production workers dominated the occupational structure. They constituted together two-thirds of the labor force size in 1976 and more than one-half in 1986.

Basing on the data of 1988 Labor Force Sample Survey (LFSS), a study conducted by ***Abel-Tawab, S. (1993)*** concluded that the burden of dependency in Egypt was high and largely arise from the aggregated high fertility that increased the number of children in the population. The age specific activity rate followed the conventional pattern. A close similarity was observed between the economic structure and the occupational structure of labor force in Egypt. The services sector ranked second after agriculture in terms of the size of labor force it employs, then comes the manufacturing sector. The analysis of the educational level of the employed persons (10 years and over) revealed an inferior

educational structure of the labor force; where about one half of the total labor force size were illiterates.

Abdel-Sattar, N. (1987) attempt to assess the trends in the labor force structure in Egypt during the period 1968-1982 by investigating the relationships among industrialization school enrolment, and the labor force participation rates in this period. These relationships were analyzed using ordinary least squares estimation. The main source of data used in this study is the annual Labor Force Sample Survey. The size, sex composition, and occupational structure of the labor force during the period are described.

Zohry, A., (1992) examines the level, structure and quality of the labor force in rural Upper Egypt versus rural Lower Egypt. He found that labor force participation is higher in rural Lower Egypt than rural Upper Egypt. Crude and refined activity rates were higher in the former for males and females than the later. The majority of the labor forces are concentrated in the agriculture sector. This applies to both sexes in the two regions. The services sector ranked second for males and females in rural Lower Egypt while it ranked second for males and fourth for females in rural Upper Egypt. The educational structure of the labor force showed that the proportion of illiterates was higher in rural Upper Egypt (68.3%) than rural Lower Egypt (59.8%). Generally, it is noticed that labor force profile in rural Lower Egypt is better than in rural Upper Egypt.

A study conducted by ***International labor Organization (ILO, 1998)*** revealed that unemployment has emerged as Egypt's major problem of the 1990s. With a rapidly growing population (2.2 per cent a year), and a labor force increasing at an even faster rate (2.6 per cent a year), the economy, growing at only 2 per cent a year, was unable to generate sufficient demand to absorb the 500,000 new entrants to the labor market every year. The study also showed that the private sector is the largest employer (38.2 per cent) followed by the public sector (30 per cent) and then ranks the governmental sector (22.3 per cent).

Other study by the ***World Bank (WB, 1995)*** on the privet sector development in Egypt showed a striking notice. The agriculture sector still provides most private employment and one-third of the over all economy's implying that the state continues to be the main provider of non-agriculture employment, especially in government services.

Anker, R. & Anker, M. (1988). This paper is concerned with female labor force data for Egypt; with the tendency for women's participation in the labor force to be underreported in labor force surveys and population censuses and thus in official government statistics; and with identifying the reasons for this underreporting. They employ the results of the survey *"*Improving the measurement of women's participation in the Egyptian labor force: results of a methodological study". They explained how various questionnaire types and fieldwork techniques affect the reporting and thus the measurement of female labor force activity. These surveys were based on a sample size of about 1,000 households. It was conducted in late 1984 in rural areas of Egypt by Central Agency for Public Mobilization and Statistics, (CAPMAS) in collaboration with the International Labor Organization (ILO). Included in the study are comparisons of questionnaires, sex of interviewer and respondent, characteristics of households and interview environment, marital and educational status of women, and interviewer's assessment of quality of data.

1.5.2 International Literature Review

Smith, P. (1984) provides working-life and unemployment tables for Canadian males and females for 1981. The modified method used in calculating the labor force participation rates is based on the number of weeks worked per person and aimed to capture all persons who participate in the production of goods and services. Compared to the conventional approach, the modified rates are higher and appear to capture the demographic groups--mainly the older age groups and females of all ages who tend to work periodically or for portions of the year, but nevertheless contribute to the national economy.

Abeykoon, A. (1998), in this study an attempt is made to review and analyze the historical, current and likely changes in the future with regard to population and manpower resources of Sri Lanka with a view to bringing into focus some of the challenges and emerging issues in the field of human resource development. Sections are included on population growth and its components; population density and distribution; population projections; labor supply, demand, and projected supply; manpower projections; implications for the social welfare sectors; and family health and family planning services.

Borjas, G., et. all (1997) in This paper they provide new estimates of the impact of immigration and trade on the U.S. labor market. They examine the relation between

economic outcomes for native workers and immigrant flows to regional labor markets. They use the factor proportions approach to examine the contributions of immigration and trade to recent changes in U.S. educational wage differentials and attempt to provide a broader assessment of the impact of Immigration on the incomes of U.S. natives.

Morris, M., et. all (1998), This paper reports on a subset of findings from a larger study of the changes in USA job and wage mobility over the past 30 years. In this study, they compare two cohorts of young white men, from the National Longitudinal Surveys. The key finding reported in this paper is that the transition to the labor market has become longer and more volatile. Young workers who do not go on to college are more likely to be intermittently unemployed and to rely on part-time jobs for a greater number of years. Those who do go on to college are more likely to work while enrolled and to significantly draw out the period of enrollment.

Goldin, C. (1994), Claudia explained that labor force participation rate of married women first declines and then rises as countries develop. Its U-shape is revealed both across the process of economic development and through the histories of currently advanced economies. This paper explores why the change takes place and why the U-shape is traced out. Data for more than one hundred countries and for United States history used to explore the hypothesis of the U-shaped female labor force function.

1.6 Study Organization

The study is designed in six chapters. After the introductory chapter, chapter two deals with the differentials in the trend of labor force during the period 1976-1996. Analysis of the recent situation of employment and unemployment in Egypt is presented in chapter three. The quantitative measures of the impact of unemployment through applying the economically active life tables techniques and estimating the loss of economically active years due to unemployment in terms of time and money, will take place in chapter four. Chapter five encompasses our view to the future of Egyptian labor force, through projecting the supply of and the demand for labor force. Lastly, chapter six will provide a summary and conclusion of the main results obtained by the study, in addition to some of the suggest policies and recommendations in this field.

CHAPTER TWO
DEMOGRAPHIC AND ECONOMIC TRENDS OF EGYPTIAN MANPOWER AND LABOR FORCE, 1976-1996

2.1 Introduction

The purpose of the analytical study of the changes in structure and socio-economic characteristics of labor force is not merely to measure its size, composition and growth but also to explore the demographic and socio-economic circumstances behind these changes, and enable forecasting the future prospective of these characteristics, which is the main concern of this study.

In this chapter we start with an attempt to follow up the trend of manpower size and classification according to the employment status over the past twenty years 1976-1996. The rest of the chapter investigates the main differentials in the demographic and socioeconomic characteristics of the Egyptian labor force. In addition, this chapter introduces some of the standardized measures for the Egyptian labor force, application of the Standardized Forward Approach to decompose the changes in the absolute size of labor force to its components, and lastly a comparison of the last Egyptian unemployment rate (of year 1996) with a collection of some international unemployment rates at the same year will take place. This analysis depends namely on data derived from the Egyptian censuses, for the years 1976, 1986, and 1996. The analysis is carried out on the national level, rural-urban level, and by sex.

Manpower is defined as all persons of both sexes, aged 15 to 60 years, who are able to work. So, manpower is all Egyptian population in the age group 15-59 excluding those who are physically unable to work. Due to the difficulties of determining the work disability degrees, and due to the limited prevalence of disability incidences, the study assumes that population aged 15 to 60 is the Egyptian manpower.

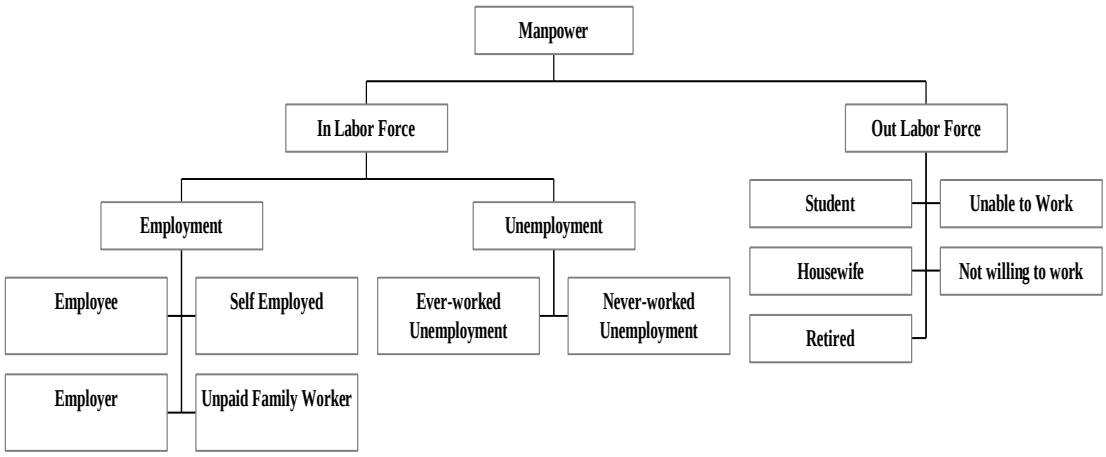
Labor force is defined in this analysis as, all persons of both sexes aged 15 to 60 years who are able, willing, and desire to participate in the production of economic goods and services. The selection of age 15 to 60 years is attributable to the official age of participation in work and age of retirement. Also the selection of age 15 as the entry age to labor force is

based on the United Nations (UN) recommendations regarding the tabulation of economically active population by age (UN, 1958).

Labor force is also defined as the active part of the manpower and it is classified to employment and unemployment. The classification of manpower according to their employment status appears in the following illustrative chart.

Figure 2.1

Classification of manpower by employment status



It is clear that manpower of any society is divided into two broad categories:

- The first is "In Labor Force" category (i.e. the active part of manpower) and it includes all persons who are able, willing, and desires to work. The "In Labor Force" category in return consists of two sub-categories, Employment and Unemployment.

The Employment category includes all persons who are currently participating in economic activity to produce goods and services. The Employment Category includes the Self Employer, Employer, Employee, and Unpaid Family Workers.

The Unemployment category includes all persons who are able, willing, and have the desire for work but currently they are not participating in any economic activity to produce

goods and services. The Unemployment category includes the "Never-Worked Unemployment" (those who didn't had any previous work experience) and they are mostly from the new graduates and new entrants to the labor market, in addition to the Ever-Worked Unemployment (those who had a previous work experience but currently they are out of work).

- The second is "Out Labor Force" category, it includes all persons who are not currently participating in any economic activity, and they are out of the scope of this study.

2.2 Trend in the Age Structure of Egyptian Manpower

Manpower size is defined as all persons, of both sexes, aged 15 to 60, who represent the supply of labor available to the production of goods and services. The trend analysis of the size of manpower represents in Table (2.1) and Figure (2.2) indicates that:

1. Stability of the size of Egyptian manpower during the period 1976 –1986, at 53.8% of total population, with an annual growth rate about 2.4%.

2. Manpower size increased from about 25.9 million in 1986 (53.8% of the total population) to about 33.5 million in 1996 (56.5% of the population). The annual growth rate in the size of manpower during the period was about 2.3%. Population growth rate and the growth in activity rates were the two components of this rapid growth rate of manpower.

3. The increase of the percentage of manpower size to the total population during the period 1986-1996 may be attributed to the family planning programs that attained considerable success along the last years. Increasing the practice of family planning has had an impact on the population age structure. Thus, the percentage of population under age 15 decreased from about 40.5% of total population to about 37.7% during the same period (1986-1996). Accordingly, the percentage of the population aged 15-60 (age bracket of manpower) has increased.

Table 2.1

Trend in the size of the Egyptian manpower, 1976-1996.

Age Groups	Census Years					
	1976		1986		1996	
	No.	%	No.	%	No.	%
Less than 15	14599095	40.0	19453727	40.5	22320101	37.7
15 – 60	**19637193**	**53.8**	**25871778**	**53.8**	**33472350**	**56.5**
60 +	2274561	6.2	2750763	5.7	3404769	5.8
Total	**36510849**	**100**	**48076268**	**100**	**59197220**	**100**

Sources: Central Agency for Public Mobilization and Statistics (CAPMAS), Censuses of Population, Housing and Establishments, 1976 (Table 1), 1986 (Table 13), and 1996 (Table 2).

4. The size of Egyptian manpower increased by an annul average of 623 thousands during the period 1976-1986 and 760 thousands during the period 1986-1996.

Unfortunately, no classification of manpower by place of residence is available in the 1976 census, so the analysis in this regard covers 1986-1996 period. The analysis of the size of manpower by sex and place of residence represents in Tables (2.1.1) and (2.1.2) and Figure (2.2). It reveals that:

1. The size of Egyptian male manpower increased from about 9.9 million in 1976 (53.1% of the total male population) to about 17.0 million in 1996 (56.2% of total male population). This represents an increase of 72% during study period.

Figure (2.2) Percentage of the size of Egyptian manpower to all population at the national level, by sex, and place of residence, 1976 – 1996

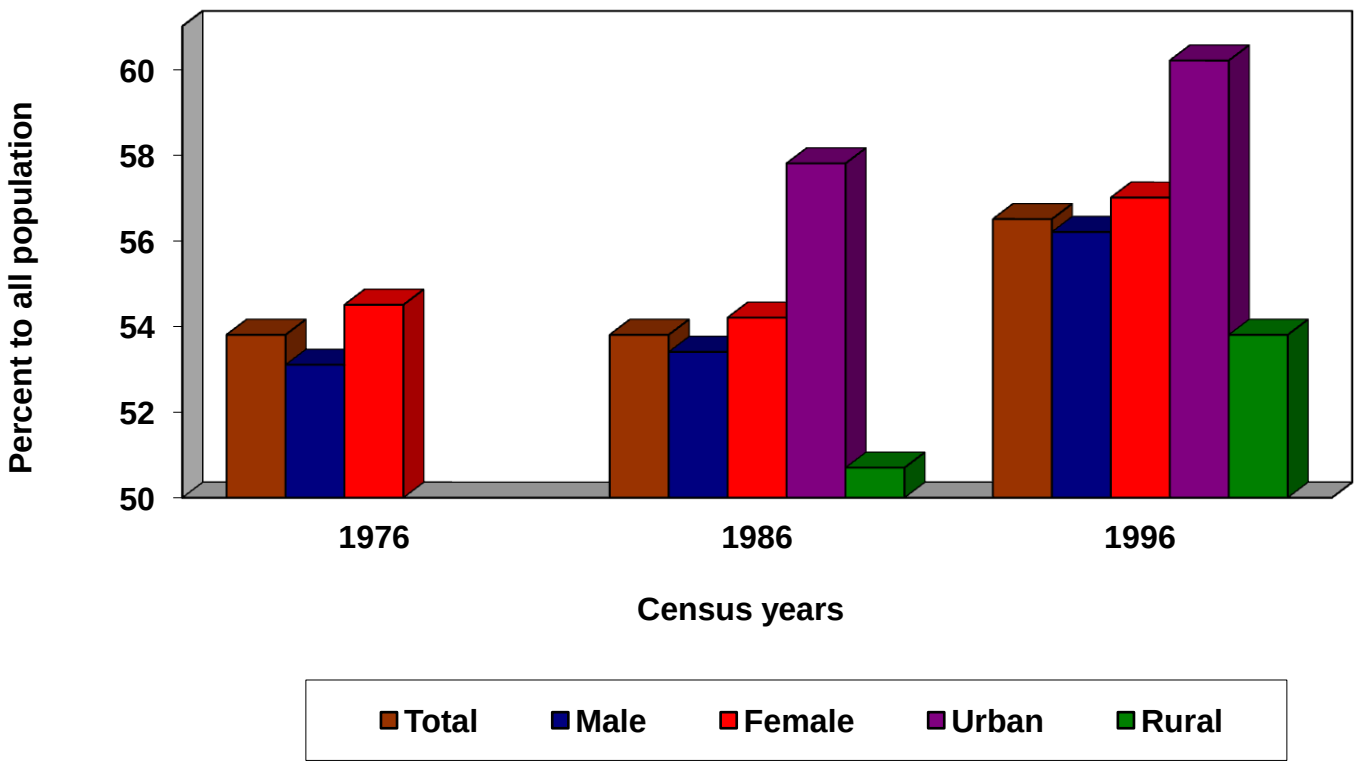


Table 2.1.1

Trend in the size of Egyptian manpower by sex, 1976-1996.

Age Groups	Sex	Census Years					
		1976		1986		1996	
		No.	%	No.	%	No.	%
Less than 15	**Male**	7536103	40.6	10054838	40.8	11514292	38.0
15 – 60		**9864989**	**53.1**	**13153067**	**53.4**	**17007442**	**56.2**
60 +		1178559	6.3	1407339	5.8	1765288	5.8
Total		**18579651**	**100**	**24615244**	**100**	**30287022**	**100**
Less than 15	**Female**	7062992	39.4	9398889	40.1	10805809	37.3
15 – 60		**9772204**	**54.5**	**12718711**	**54.2**	**16464908**	**57.0**
60 +		1096002	6.1	1343424	5.7	1639481	5.7
Total		**17931198**	**100**	**23461024**	**100**	**28910198**	**100**

Sources: Central Agency for Public Mobilization and Statistics (CAPMAS), Censuses of Population, Housing and Establishments, 1976 (Table 1), 1986 (Table 13), and 1996 (Table 2).

2. In the same period (1976-1996), the size of female manpower increased from 9.8 million in 1976 (54.5% of the total female population) to 16.5 million in 1996 (57.0% of the total female population), which means an increase of 68% during the period of study.

3. As for the size of urban manpower, it has increased during the period 1986-1996 by annual average of 304 thousands. The size of urban manpower in 1996 represents about 60.2% of the total urban population, compared to 57.8% in 1986, with an annual increase of about 2% during the period 1986-1996.

Table 2.1.2

Trend in the size of Egyptian manpower by place of residence, 1986-1996.

Age Groups	Place of residence	Census Years			
		1986		1996	
		No.	%	No.	%
Less than 15	**Urban**	7731637	36.7	8519547	33.7
15 – 60		**12173199**	**57.8**	**15216653**	**60.2**
60 +		1168964	5.5	1550128	6.1
Total		**21073800**	**100**	**25286328**	**100**
Less than 15	**Rural**	11722090	43.4	13800554	40.7
15 – 60		**13698579**	**50.7**	**18255697**	**53.8**
60 +		1581799	5.9	1854641	5.5
Total		**27002468**	**100**	**33910892**	**100**

Sources: Central Agency for Public Mobilization and Statistics (CAPMAS), Censuses of Population, Housing and Establishments, 1976 (Table 1), 1986 (Table 13), and 1996 (Table 2).

4. The size of rural manpower increased by an average of 456 thousands annually during the period 1986-1996. The size of rural manpower in1996 represents about 53.8% of the total rural population, compared to 50.7% in 1986.

In addition to the demographic functions, the increase of the manpower size during the period 1986-1996 may be attributed to the returned streams of Egyptian immigrant workers from Gulf area, after the second Gulf War in 1990.

2.3 Labor Force in Egypt

2.3.1 Trend in the Employment Status of Egyptian Labor Force

Classifying the manpower by employment status determines the actual size of labor force (i.e. it portrays the person-work relationship). In addition, it enables us to estimate the bulk and burden of unemployment.

The Unemployment rate is an important economic indicator. The study definition of unemployment rate is "the percentage of unemployed persons in the labor force"(UN, 1973). While unemployed is defined as "persons who are not at work and are seeking work for pay or profit during the period of reference" (UN. 1968, P.58).

The cause of the unemployment problem is the unbalanced growth between labor force supply on the one hand and job opportunities on the other hand.

Employment and unemployment has been Egypt's primary economic concern in the 1990s. With population growing at 2.2% a year, and labor force increasing rate about 2.4% a year, the economy, growing at only 2% a year is unable to generate sufficient demand to absorb about 500 thousands of new entrants to the labor market annually (Korayem, 1997, P. 35).

Data in Table (2.2) and Figures (2.3) and (2.4) explain trends in employment status of the Egyptian manpower, and measures of the relative size of labor force, in addition to the unemployment rates, during the period 1976-1996. The data show that:

1. The size of "In Labor Force" category increased from about 8.9 million in 1976 to about 16.4 million in 1996. The overall percentage of increase was about 85.2%, with an annual rate of increase of about 2.7% during the period 1976-1986 and 2.6% for the period 1986-1996.

The trend of employment status obtained from 1996 census data is in a great consistency with that obtained from other sources. For example, the Labor Force Sample Survey (LFSS), 1995 estimates the size of labor force (6 years and above) by about 17.7 million, of which 15.8 million were employed (89.2%) and 1.9 million were unemployment (10.8%). The equivalent percentages from 1996 census were 90.7% for employment and 9.3% for unemployment. The differences in the size and rates return to the differences in

working age groups determination, in addition to the reference period for asking about the current work situation.

2. Increasing the bulk of unemployment over the previous twenty years of study. It represents in increasing the unemployment rate (refers to the percentage of unemployment to the size of In Labor Force) from about 4.6% in 1976 to about 11.6% in 1986 and it reduced to about 9.3% in 1996. The size of unemployment increased more than treble (3.8 times) during the same period 1976-1996.

Increasing the unemployment rate during the 1980s may be attributed to stopping of graduation employee policies. The reduction in the unemployment rate during the 1990s (comparing with the 1980s) may be attributed to the foundation of many great national projects, new industrial areas and cities, in addition to the attention and encouragement that given to small industries and services projects. The efforts of many organizations in supporting youth and new graduation towards establishing and managing many of the small industries and services projects, through the finance and the vocational training, such as Social Development Fund (SDF) and Ministry of Labor Force (MLF) may have some effects on unemployment among youth.

1. The average annual increase in the size of "In Labor Force" during the period 1976-1996 was about 378 thousands. Some 85% of this increase is absorbed yearly by the new opportunities of production of goods and services while the rest (about 57 thousands), represents the average size of labor force added annually to the unemployment.

Analysis of employment status by sex and place of residence is represented in Tables (2.2.1) and (2.2.2) and figures (2.3) and (2.4). It shows that:

1. Unemployment rate among female labor force in 1996 is almost three times higher than that of male labor force (20.6% and 7.2% respectively).

Table 2.2

Trend in the employment status of the Egyptian labor force, and measures of the relative size of labor force, and unemployment rates, 1976-1996.

Employment Status	Census Years					
	1976		1986		1996	
	No.	%	No.	%	No.	%
Employment	8476496	43.2	10730485	41.5	14918473	44.6
Unemployment	407439	2.1	1413219	5.4	1535071	4.6
In Labor Force	**8883935**	**45.3**	**12143704**	**46.9**	**16453544**	**49.2**
Out Labor Force	10753258	54.7	13728074	53.1	17018806	50.8
Total Manpower	**19637193**	**100**	**25871778**	**100**	**33472350**	**100**
Total Population	**36510849**		**48076268**		**59197220**	
CAR (1)	24.3		25.3		27.8	
RAR (2)	40.5		42.4		44.6	
Unemployment Rate	4.6		11.6		9.3	

Sources: Central Agency for Public Mobilization and Statistics (CAPMAS), Censuses of Population, Housing and Establishments, 1976 (Table 8), 1986 (Table 14), and 1996 (Table 15).

(1) CAR: Crude Activity Rate.

(2) RAR: Refined Activity Rate

Figure (2.3) Trend in Egyptian employment rates at the national level, by sex, and by place of residence, 1976 – 1996.

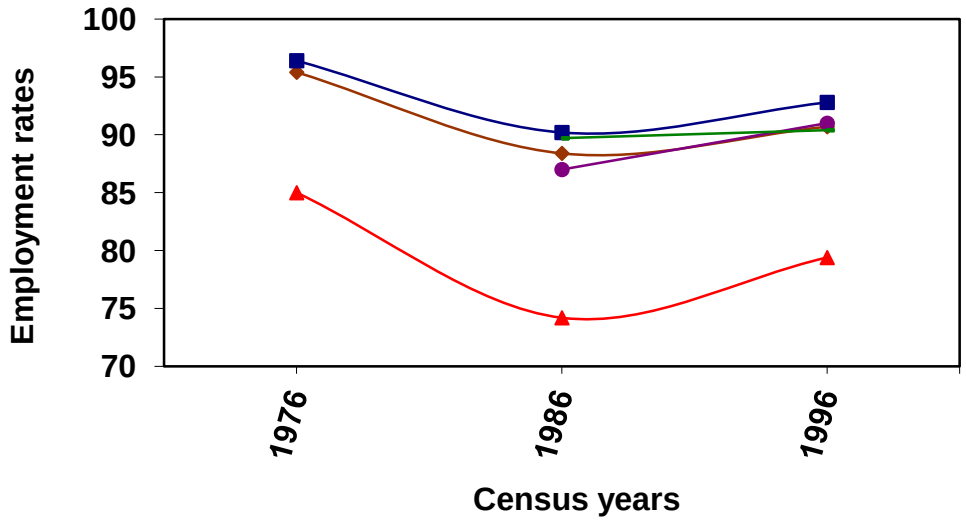


Figure (2.4) Trend in Egyptian unemployment rates at the national level, by sex, and by place of residence, 1976 – 1996.

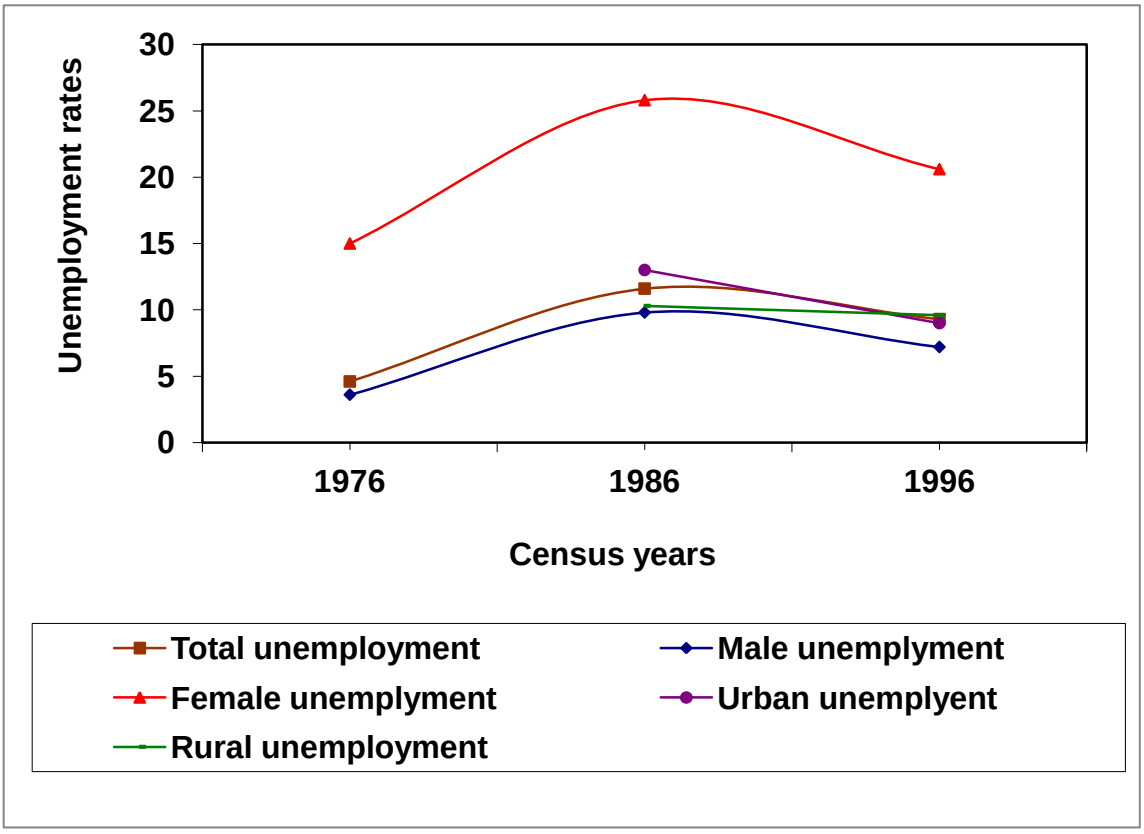


Table 2.2.1

Trend in the employment status of the Egyptian labor force by sex, and measures of the relative size of labor force, and unemployment rates, 1976-1996.

Employment status	Sex	Census Years					
		1976		1986		1996	
		No.	%	No.	%	No.	%
Employment	**Male**	7856148	79.6	9710345	73.8	12856632	75.6
Unemployment		297419	3.1	1058836	8.1	1001025	5.9
In Labor Force		**8153567**	**82.7**	**10769181**	**81.9**	**13857657**	**81.5**
Out Labor Force		1711422	17.3	2383886	18.1	3149785	18.5
Total Manpower		**9864989**	**100**	**13153067**	**100**	**17007442**	**100**
Total Population		**18579651**		**24615244**		**30287022**	
CAR (1)		43.9		43.8		45.8	
RAR (2)		73.8		74.0		73.8	
Unemployment Rate		3.6		9.8		7.2	
Employment	**Female**	632917	6.5	1020140	8.0	2061841	12.5
Unemployment		111669	1.1	354383	2.8	534046	3.3
In Labor Force		**744586**	**7.6**	**1374523**	**10.8**	**2595887**	**15.8**
Out Labor Force		9027618	92.4	11344188	89.2	13869021	84.2
Total Manpower		**9772204**	**100**	**12718711**	**100**	**16464908**	**100**
Total Population		**17931198**		**23461024**		**28910198**	
CAR (1)		4.2		5.9		9.0	
RAR (2)		6.9		9.8		14.3	
Unemployment Rate		15.0		25.8		20.6	

Sources: Central Agency for Public Mobilization and Statistics (CAPMAS), Censuses of Population, Housing and Establishments, 1976 (Table 8), 1986 (Table 14), and 1996 (Table 15).

(1) CAR: Crude Activity Rate.

(2) RAR: Refined Activity Rate

Although the Egyptian population has a young age structure, the low level of participation in the labor force (49.2% in 1996) is a result of low rate of female participation in the labor

force. It is, in turn affected by the classical social norms that looks to the proper role of females is considered to be in domestic work at home. It is true that the liberalization of attitudes toward the role of females promoted by women's movements and by the rising educational level of females. Yet their influence can hardly be seen in increasing the rate of female's participation in labor force. It is likely that underreporting of females in the labor force is an important factor in the low level of their recorded participation rate. In fact, any observer may see wives and daughters, particularly in rural areas, helping their husbands and fathers in various kinds of agricultural works. This work is not adequately reported may be due to the traditional line of thinking about women's role and/or ignoring the importance of their part in the farm work. On this view an old trial to modifying the female's participation rate in rural areas of Egypt has been estimated as 23% instead of 4.8% depending on 1960 census year (El-Tawil, B. 1965, P.84).

2. Although the higher unemployment rate among females, but we should note to the effort of encouraging and supporting women to gain their rights and to participate positively in all activities of society which lead to increasing the participation of females in the economic production of good and services. It is clear from reducing the percentage of female out of the labor force from about 9 million in 1976 represents 92% of the size of female labor force to about 13.9 million represents about 84% in 1996. On contrary the percentage of male out of labor force increased from about 17.3% in 1976 to 18.3% in 1996.

3. Unemployment rate among rural labor force in 1996 is slightly higher than urban labor force (9.6% and 9.0% respectively).

A higher participation rate in economic production of goods and services is observed among rural labor force during the period of 1986 to 1996. It is clear from increasing the percentage of "In Labor Force" (7.4% compared to only 2% among urban labor force).

Table 2.2.2

Trend in the employment status of Egyptian labor force by place of residence, and measures of the relative size of labor force, and unemployment rates, 1976-1996.

Employment status	Place of Residence	Census Years			
		1986		1996	
		No.	%	No.	%
Employment	**Urban**	5243059	43.1	6998563	46.0
Unemployment		781655	6.4	690763	4.5
In labor force		**6024714**	**49.5**	**7689326**	**50.5**
Out labor force		6148485	50.5	7527327	49.5
Total Manpower		**12173199**	**100**	**15216653**	**100**
Total Population		**21073800**		**25286328**	
CAR (1)		28.6		30.4	
RAR (2)		45.2		45.9	
Unemployment rate		13.0		9.0	
Employment	**Rural**	5489708	40.1	7919910	43.5
Unemployment		632935	4.6	844308	4.5
In labor force		**6122643**	**44.7**	**8764218**	**48.0**
Out labor force		7575936	55.3	9491479	52.0
Total Manpower		**13698579**	**100**	**18255697**	**100**
Total Population		**27002468**		**33910892**	
CAR (1)		22.7		25.8	
RAR (2)		40.1		43.6	
Unemployment rate		10.3		9.6	

Sources: Central Agency for Public Mobilization and Statistics (CAPMAS), Censuses of Population, Housing and Establishments, 1976 (Table 8), 1986 (Table 14), and 1996 (Table 15).

(1) CAR: Crude Activity Rate.

(3) RAR: Refined Activity Rate

The interpretation of this phenomenon may attribute to two reasons; the efforts that occurred from the early 1980s to improve the Egyptian villages in two dimensions, personally

and services, which required establishing new services or improving the level of obtainable services, accordingly many opportunities of work existing in rural areas. The second reason may be returns to the streams of daily migrants from rural areas to the nearest urban areas for work (i.e. those whose residence is in rural places but their works is in urban places).

2.3.2 Measures of the Relative Size of Labor Force

Data of the previous tables help in estimating a set of standardized measures of the relative size of labor force such as, Crude Activity Rate (CAR), and Refined Activity Rate (RAR). The United Nations definitions and calculations methods of these two measures (UN, 1968) as follows:

The Crude Activity Rate (CAR) is a measure that reflects the percentage of labor force to the total population (i.e. the percentage of the total population classified in the census as economically active).

$$CAR = \left[\frac{L.F.(15-59)}{(Total\_Pop.)} \right] \times 100$$

The Refined Activity Rate (RAR) is a measure that represents the percentage of labor force to the total population excluding those who are less than the minimum age to entry in the labor force. In other words RAR relating the labor force totals to the population above the specified minimal age. The ideal rates of RAR when it approaches 100%

$$RAR = \left[\frac{L.F.(15-59)}{Pop.(15+)} \right] \times 100$$

The results of the estimations indicated the following facts:

1. Slight increase in the Crude Activity Rate (CAR) and Refined Activity Rate (RAR) during the study period 1976-1996. The increase ranged from about 14.4% for the CAR (from 24.3 in 1976 to 27.8 in 1996) and 10% for RAR (from 40.5 in 1976 to 44.6 in the 1996).

2. The highest increase in the values of Crude Activity Rate (CAR) and Refined Activity Rate (RAR) occurred among female labor force. The Crude Activity Rate (CAR) of female labor force increases during the study period by about 114% (from 4.2 in year 1976 to reach about 9.0 in year 1996). The corresponding increase in the female Refined Activity Rate (RAR) reaches about 107%.

3. Crude Activity Rate (CAR) and Refined Activity Rate (RAR) of rural labor force achieved a higher percent of increase than the corresponding rates at national level. This increase reflects the effort that occurred during the past two decade to develop the rural areas of Egypt.

2.3.3 Factorial Analysis of the Changes in Labor Force Size

Changes in the size of a country's labor force are brought by changes in size of the population interacting with changes in the activity rate (i.e. percentage of economically active persons in the total); and it is interesting to calculate how much of the labor force change is attributable to each of the two factors.

The literature indicates many methods (Forward, Backward, and Average method) for evaluating the changes in the absolute size of labor force through two points of time (UN. 1968). The main idea of these methods is a standardized decomposing of the change in the absolute size of labor force to its components and subtracting it from the actual (unstandardized) change during the same period. The components of change in the absolute size of labor force are:

1. Change in the absolute size of labor force due the change in population size, indicated by **Δ LF (P).**

2. Change in the absolute size of labor force due the change in Refined Activity Rate (RAR), indicated by **Δ LF (W)**.

3. Change in the absolute size of labor force due the interaction between the change in population size and the change in RAR, indicated by **Δ LF (P, W)**.

The following equations explain the method.

Δ LF (P) = (P2 – P1) W2

Δ LF (W) = (W2 – W1) P2

Δ LF (P, W) = (P2 – P1) (W2 – W1)

Δ LF = Δ LF (P) + Δ LF (W) - Δ LF (P, W)

Where:

P1= population size at the first point of time

P2= population size at the second point of time

W1= Refined Activity rate (RAR) at the first point of time

W2= Refined Activity rate (RAR) at the second point of time

It should be noted that, the results of such calculations do not represent exactly the pure effect of the corresponding factors on labor force growth. Because of possible interrelations between population growth and activity rates, operating directly or through other intermediate variables, the magnitudes of such effects are strictly indeterminate. Nevertheless, the measures obtained represent relative degrees of influence of the two factors.

The results of applying the forward method during the inter-censual period 1976-1986 and 1986-1996 are represented in Table (2.3). It indicates that:

The changes in the population size had a great impact in increasing the labor force sizes during the two inter-censual periods (1976-1986, and 1986-1996). The impact of the changes in the population size exceeds the impact of the changes in Refined Activity Rate (RAR). This is valid for total labor force, its classification by place of residence, and for male labor force. The situation among female labor force is the reverse, where the impact of increasing Refined Activity Rate (RAR) was higher than the impact of increasing female population size.

Table 2.3
Components* of change in the size of labor force, by sex and place of residence, during the inter-censual periods of 1976-1986 and 1986-1996.

Components of Change in Labor Force Size	Inter-Censual Periods	
	1976-1986	1986-1996
	% of Change in Labor Force Size due to the Change in Each Component	% of Change in Labor Force Size due to the Change in Each Component
Total Labor Force		
Due to Changing in Population Size	87.6	82.4
Due to Changing in RAR	16.3	21.6
Due to the Interaction (1)	-3.9	-4.1
Male Labor Force		
Due to Changing in Population Size	99.2	101.2
Due to Changing in RAR	1.1	-1.5
Due to the Interaction (1)	-0.3	0.3
Female Labor Force		
Due to Changing in Population Size	51.0	42.5
Due to Changing in RAR	64.1	70.9
Due to the Interaction (1)	-15.1	-13.4
Urban Labor Force		
Due to Changing in Population Size		92.9
Due to Changing in RAR		8.5
Due to the Interaction (1)		-1.4
Rural Labor Force		
Due to Changing in Population Size		76.1
Due to Changing in RAR		30.0
Due to the Interaction (1)		-6.1

* Using the forward method of decomposing the change in the absolute size of labor force

(1) Changing in the size of labor force due to the interaction between the changing in population size and the changing in Refined Activity Rates.

Sources: Calculated from data of tables 2.2, 2.2.1, and 2.2.2.

The highest contribution to the changes in the population size is observed among male labor force during the two inter-censual periods, approximately all the increases in male labor force size were due the increase in male population size, since no change in (RAR) is observed during the two inter-censual periods.

The changes in the Refined Activity Rate (RAR) had higher impact on increasing the size of rural labor force than its impact in increasing the size of urban labor force.

2.3.4 International Comparisons of Unemployment Rates

The labor Statistics Database (LABORSTA) of the International Labor Organization (ILO) provides a collection of year 1996 unemployment rates of the worldwide countries by sex and for all population. Table (2.4) represents a collection of the unemployment rates of some selected countries from all over the world. This table enables us to compare the situation of unemployment in Egypt with other countries. It shows that:

1. Unemployment is more influential in other African countries than Egypt and the other countries including in the comparison. Low level of development, shortage in investments, and the high population growth rate may act behind the high unemployment rates in African countries. The highest rate of unemployment is observed in Ethiopia. It is about 28.3%. It is approximately three times higher than Egypt unemployment rate of the same year 1996. The shortage in the progress of development and the low level of economic development and investment level may act behind the high unemployment rates among African countries.

2. Some of the developed countries are in a phase of high unemployment rate than Egypt. Spain is the most one of the developed countries that suffer of the burden of unemployment (22.2%) followed by Finland and France (14.4% and 12.1% respectively).

3. Egypt has unemployment rate approximately close to that observed in Belgium (9.6%), Russia (9.7%), and Canada (9.7%). It is clear that all these countries from the developed countries. This may lead to one interpretation that unemployment rate is less related to the development level of the country; it is more related to the applied policies for full employment of the production factors including labor.

4. Most of the countries of South and East Asia have a rate of employment less than 6%. The lowest unemployment rate among the countries in the comparison process is observed in Thailand (1.1%), Korea (2%), Malaysia and Bangladesh (2.5%), China (3.0%), and Japan (3.4%). These rates are considered as the lowest unemployment rate in the world, and it is clear that most of these countries has strong economic situations and high levels of investment, production and worker productivity.

5. Philippines, Denmark, Germany, Netherlands, Sweden, and United Kingdom have a rate of unemployment ranged from 6% to less than 9%.

6. Most of data in Table 2.4 emerge a higher rate of unemployment among female than male. The strength of this phenomenon (the gab between male unemployment rate and female unemployment rate) decreases as the level of development of the country increases.

2.3.5 Trend in the Educational Level of Egyptian Labor Force

Universal literacy and basic education is one of the major goals of any society. On the other hand, preparing the person with the skills needed for successfully implementation of the national development progress is the major goals of the educational system in any society. Therefore governments pay a great attention to education because it is a right for each person and it helps in achieving the socio-economic development. Education has more than a one-side effect on the extent of participation in the labor force. On one hand, it has a negative effect on the activity rate of young persons of educational ages. Later on life, on the other hand, education may add to tendency to be in labor force, particularly in case of females. Education helps overcome traditional obstacles against female employment. In developing countries, families are more likely to permit their females to work outside the home if they have sufficient education enables to find jobs of a certain quality with respect to earnings, interest, prestige, etc.

Tables (2.5), (2.5.1) and (2.5.2) represent trends in the educational level of Egyptian labor force at the national level, by sex and place of residence. It notices that:

Table (2.4)

International collection of unemployment rates, by sex and total population, 1996.

Country	Unemployment Rates			Country	Unemployment Rates		
	Male	Female	Total		Male	Female	Total
Africa				**Europe (Cont.)**			
Algeria	26.9	24.0	26.4	Greece	6.3	16.6	10.3
Angola	15.5	3.5	19.0	Hungary	10.7	8.8	9.9
Ethiopia	16.6	12.4	28.3	Italy	8.9	15.3	11.4
Morocco	16.1	23.6	18.1	Malta	5.0	2.9	4.4
Asia				Netherlands	5.3	8.4	6.6
Bahrain	8.6	14.7	11.5	Norway	4.8	4.9	4.8
Bangladesh	2.7	2.3	2.5	Poland	11.0	13.9	12.3
China	NA	NA	3.0	Portugal	6.4	8.2	7.2
Indonesia	3.3	5.1	4.4	Russian Federation	10.0	9.3	9.7
Israel	5.8	7.8	6.7	Spain	17.6	29.6	22.2
Japan	3.4	3.3	3.4	Sweden	8.5	7.5	8.0
Korea	2.3	1.6	2.0	Switzerland	3.4	4.1	3.7
Malaysia	NA	NA	2.5	Turkey	5.9	5.5	5.8
Pakistan	4.1	13.7	5.4	Ukraine	8.0	7.3	7.6
Philippines	7.0	8.2	7.4	United Kingdom	9.6	6.3	8.2
Singapore	2.0	8.8	5.1	**North America**			
Thailand	1.0	1.1	1.1	Canada	9.9	9.4	9.7
Europe				United States	5.4	5.4	5.4
Austria	3.9	4.5	4.1	**South America**			
Belgium	7.4	12.8	9.6	Argentina	15.8	19.4	17.2
Bulgaria	14.2	14.1	14.2	Brazil	5.7	8.8	7.0
Denmark	5.7	8.3	6.9	Chile	4.8	6.7	5.4
Finland	14.0	14.8	14.4	Mexico	3.5	4.1	3.7
France	10.3	14.2	12.1	**Australia**			
Germany	8.2	9.6	8.8	Australia	8.8	8.3	8.5

Source: International Labor Organization (ILO) Geneva, (LABORSTA) Labor Statistics database.

NA: Not assigned.

1. Illiteracy is the great challenge facing the Egyptian human development in general and improving the skills and qualities of Egyptian labor force in particular. A great effort that done during the past twenty years and still implements in the field of illiteracy elimination. These efforts leads to decreasing illiteracy among Egyptian labor force by about 20-percentage point during the study period (from 53% in 1976 to about 33% in 1996) (See Figure 2.5). Although these are acknowledged efforts, but the current level of illiteracy among Egyptian labor force is still high, especially among rural labor force (its around 44% of the total rural labor force size).

2. Although the illiteracy and low educational level is more prevalence among female population, but Female labor force is characterized by low illiteracy rate and high level of education. They have higher educational levels than males and labors at the national level. Only one-eight of female labors are illiterate; 20% with educational level less than intermediate; 59% with intermediate level; and 22% of female labor force with university and above educational level.

3. Under the assumption that any educational level less than intermediate will face with difficulties in absorbing, adopting and implemented the new technologies in the process of production, maintenance, and quality control, we can conclude that more than half of Egyptian labor force (55.8%) is behind this level. The severity of the problem increases dramatically among rural labors and lessen among female labors. Two-third of rural labors are with educational level less than intermediate, while the same percentage among female labor force is less than 20%.

Table 2.5

Trend in the educational level of Egyptian labor force, 1976-1996.

Educational Level	Census Years					
	1976		1986		1996	
	No.	%	No.	%	No.	%
Illiterate	4725889	53.2	5539719	45.6	5375368	32.7
Read & write	2244397	25.3	2156890	17.8	2859817	17.4
Primary	369055	4.2	207347	1.7	406818	2.5
Preparatory	203299	2.2	377852	3.1	519148	3.1
Intermediate	891810	10.0	2953731	24.3	5223907	31.7
High education (1)	449485	5.1	908165	7.5	2068486	12.6
Total Labor Force	8883935	100	12143704	100	16453544	100

(1): University and above.

Sources: Central Agency for Public Mobilization and Statistics (CAPMAS), Censuses of Population, Housing and Establishments, 1976 (Table 10), 1986 (Table 15), and 1996 (Table 18).

Figure (2.5) Trend in illiteracy rates among Egyptian labor force at the national level, by sex, and by place of residence, 1976 – 1996.

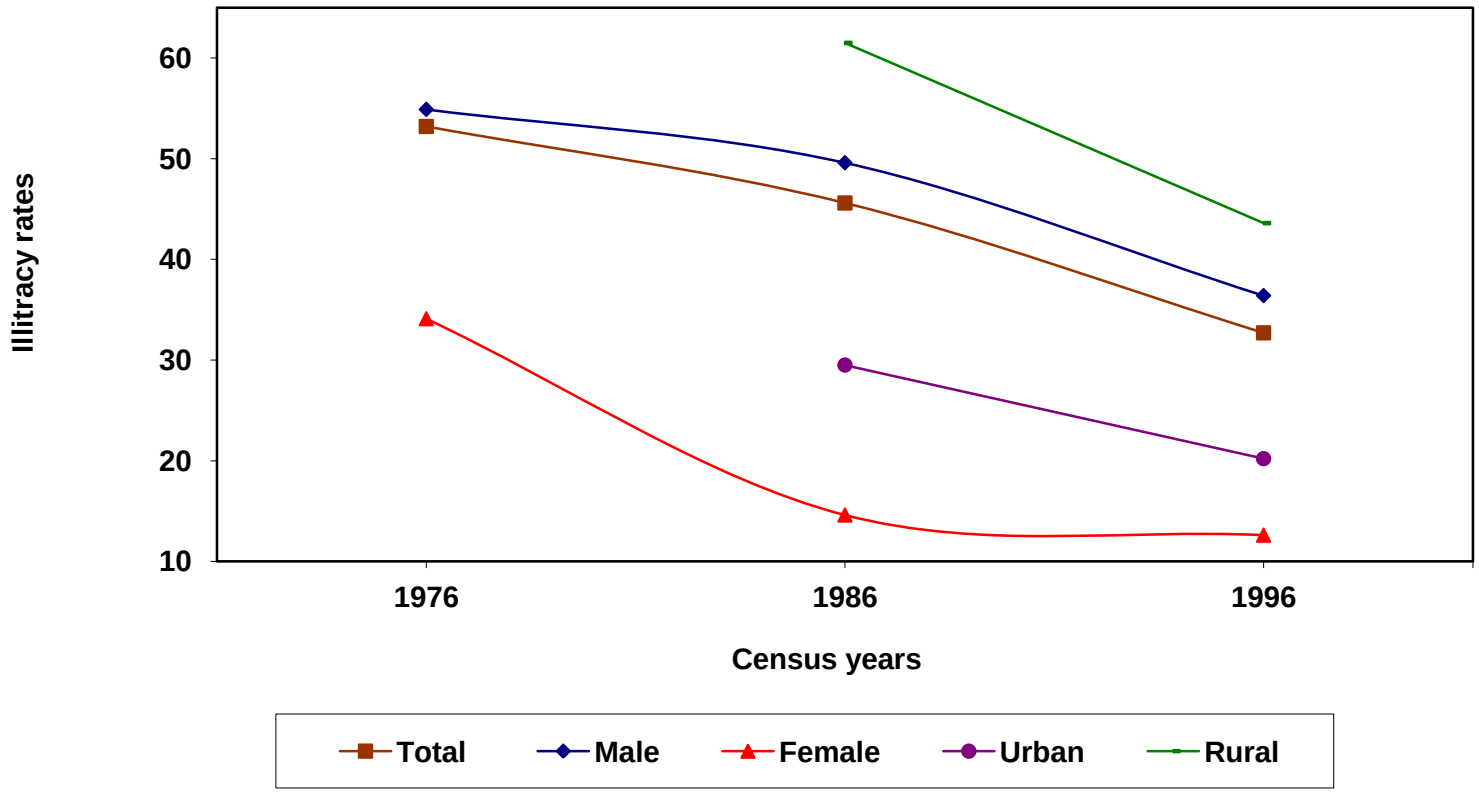


Table 2.5.1

Trend in the educational level of Egyptian labor force by sex, 1976-1996.

Educational level	Sex	Census Years					
		1976		1986		1996	
		No.	%	No.	%	No.	%
Illiterate	**Male**	4477134	54.9	5338840	49.6	5049217	36.4
Read and Write		2167358	26.6	2097656	19.5	2755450	19.9
Primary		346643	4.3	196977	1.8	379287	2.7
Preparatory		179425	2.1	349674	3.2	485541	3.6
Intermediate		633446	7.8	2084747	19.4	3691604	26.6
High Education (1)		349651	4.3	701287	6.5	1496558	10.8
Total Labor Force		8153567	100	10769181	100	13857657	100
Illiterate	**Female**	253398	34.1	200879	14.6	326151	12.6
Read and Write		78538	10.5	59234	4.3	104367	4.0
Primary		22848	3.1	10370	0.8	27531	1.1
Preparatory		24339	3.2	28178	2.0	33607	1.3
Intermediate		263394	35.4	868984	63.2	1532303	59.0
High Education (1)		101869	13.7	206878	15.1	571928	22.0
Total Labor Force		744586	100	1374523	100	2595887	100

(1): University and above.

Sources: Central Agency for Public Mobilization and Statistics (CAPMAS), Censuses of Population, Housing and Establishments, 1976 (Table 10), 1986 (Table 15), and 1996 (Table 18).

4. The most advantage and improvement that occurred in the Egyptian labor force during the study period represents in increasing the percentage of labors with intermediate and above level of education. It increased from about 16% only in year 1976 to reach about 44% in year 1996.

Table 2.5.2

Trend in the educational level of Egyptian labor force by place of residence, 1976-1996.

Educational level	Place of residence	Census Years			
		1986		1996	
		No.	%	No.	%
Illiterate	**Urban**	1776691	29.5	1551495	20.2
Read and Write		1096848	18.2	1294026	16.8
Primary		153030	2.5	220975	2.9
Preparatory		260415	4.4	298062	3.9
Intermediate		1964413	32.6	2739803	35.6
High Education (1)		773317	12.8	1584965	20.6
Total Labor Force		6024714	100	7689326	100
Illiterate	**Rural**	3765275	61.5	3823873	43.6
Read and Write		1060675	17.3	1565791	17.9
Primary		54349	0.9	185843	2.1
Preparatory		117507	1.9	221086	2.6
Intermediate		989908	16.2	2484104	28.3
High Education (1)		134929	2.2	483521	5.5
Total labor Force		6122643	100	8764218	100

(1): University and above.

Sources: Central Agency for Public Mobilization and Statistics (CAPMAS), Censuses of Population, Housing and Establishments, 1976 (Table 10), 1986 (Table 15), and 1996 (Table 18).

5. The major increase in the educational level occurred among those who have intermediate level of education, where their percentage increased from 10% in year 1976 to reach about 32% in year 1996.

2.3.6 Trend in the Industrial Classifications of Egyptian Labor Force

The industrial classification is one of the main classifications of labor force. It refers to the principal economic activity to which an establishment belongs, considering that the person is presently worker or used to be as such but currently unemployed (UN. 1968, P.72). The international industrial classification of labor force consists of ten categories. The ten categories can be collapsed in three broad sectors as follows:

- The primary sector: it consists of two categories, Agriculture, hunting and fishing, and Mining and quarrying.

- The Secondary sector: it consists of two categories, Manufacturing, and Electricity, gas, and water.

- The services sector: it consists of six categories, Construction, Commerce, restaurants and hotels, Transportation storage and communications, Financing, insurance, real estate and business services, Community, social and personnel services, and Activities not adequately described.

Studying the industrial classification of Egyptian labor force reflects the process of development in the society. The theoretical arguments indicted that as the process of development raise the percentage of workers in primary sector decreases and the percentage of workers in services sector increases. In addition, it has a linkage with some of economic concepts such as level of earning (from self-employment as well as wage-employment), family income and the volume and composition of employment opportunities (Mincer, 1966, P.145).

Regarding the relationship between the changes in real wages and the changes in the industrial classification of labor force, some writer (Douglas, 1964) contend that it is positive because an increase in real earning attracts additional workers and induces employed persons

to work for longer period in that sector. On the contrary, according to another theory, labor supply is negatively associated with real wages. This theory is supported by the argument that during periods of rising real wages, the families can maintain its desired level of living through employment of a smaller number of its members, therefore children can stay longer in schools and wives and old persons can leave the labor force. It is clear that there is an apparent contradiction between the two theories, each has its logical grounds and the major difficulty is to determine the net effect of rising real wages.

Table (2.6) and Figure (2.6) represent trends in the industrial classification of Egyptian labor force. It noticed from the data that:

1. Although the increase in the size of Egyptian workers in primary sector by about 1.1 million during the study period, but a great decline was observed in the percentage of workers in primary sector industries. The percentage of workers in primary sector industries decreased from about 43.2% in year 1976 to about 29.9% in year 1996. The entire decline occurred among worker in agriculture, hunting and fishing category. This reduction may supports the previous argument of decreasing the percentage of workers in primary sector as the process of development raise. From our point of few, many reason act behind this reduction such as; the technological and mechanical transformation that occurred in agriculture; increasing the value of children's education in rural areas; streams of migration from rural to urban areas; in addition to the alternative and good opportunities of work outside the agricultural sector.

2. Stability of the proportion of workers in industries of secondary sector (it was about 15.2% during the study period). On average, 94% of workers in secondary sector were engaged in manufacturing industries., while the remaining proportion was engaged in electricity, gas and water enterprises.

3. Industries of services sector had a great change in its bulk of absorption and in its entire composition. The proportion of Egyptian workers participated in services sector industries increased by about 13 percentage points during the study period (from 41.5% in 1976 to about 54.9% in 1996). All the

industries of services sector achieved an increase on its worker's size. The highest participation rate was observed among those who work in community, social and personnel services followed by workers in commerce, restaurants and hotels.

Table 2.6

Trend in the industrial classifications of Egyptian labor force, 1976 -1996.

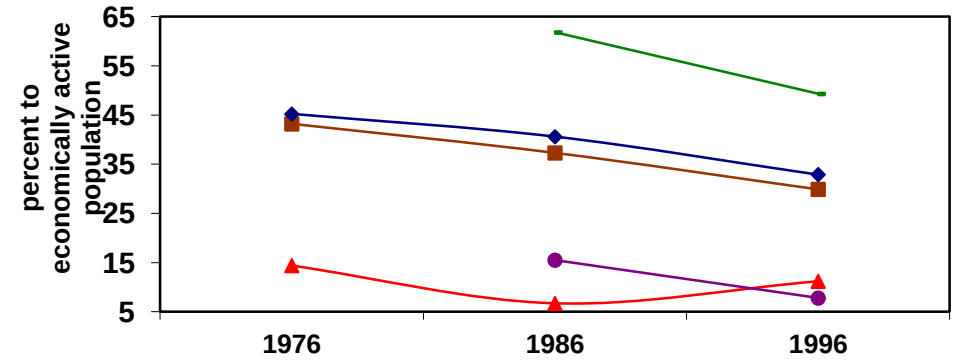
Industrial classifications	Census Years					
	1976		1986		1996	
	No.	%	No.	%	No.	%
Primary Sectors	3835276	43.2	4534945	37.3	4923950	29.9
Secondary Sectors	1355435	15.3	1742862	14.4	2507406	15.2
Services Sectors	3693124	41.5	5865897	48.3	9022188	54.9
Total Labor Force	8883935	100	12143704	100	16453544	100

Sources: Central Agency for Public Mobilization and Statistics (CAPMAS), Censuses of Population, Housing and Establishments, 1976 (Table 14), 1986 (Table 20), and 1996 (Table 17).

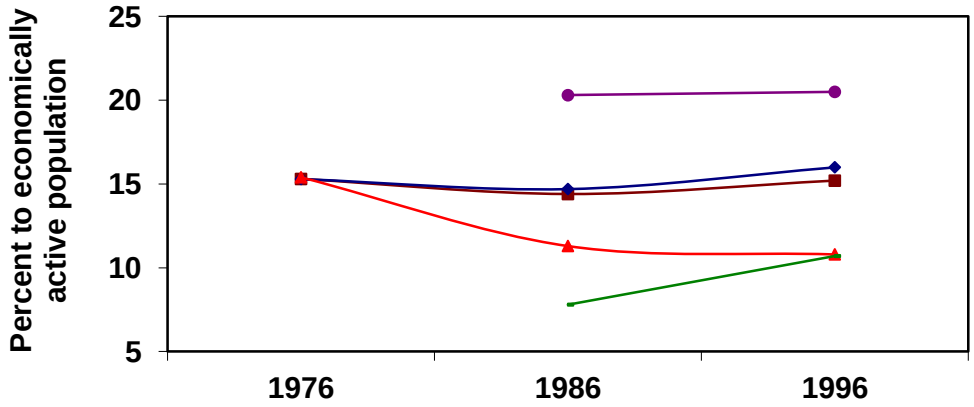
It is clear that increasing the percent of workers in services sector was associated with applying the Open Door economic policies, which started in 1974, and Economic Reform Policies, which applied later. In addition, to the great importance that given to tourism and its related services as an alternative sources of national income.

Figure (2.6) Trend in industrial classifications of Egyptian labor force at the national level, by sex, and place of residence, 1976 – 1996

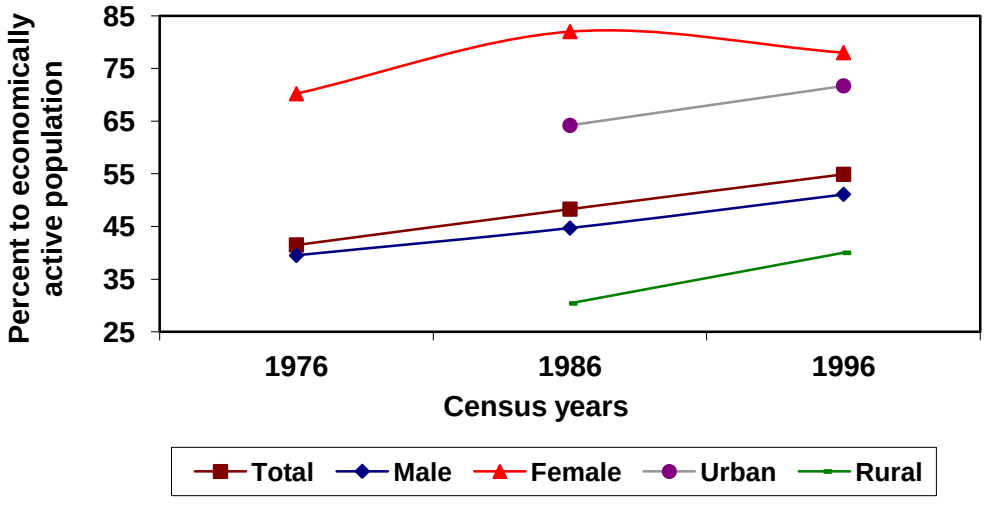
(Primary sector)



(Secondary sector)



(Services sector)



Trends in Egyptian labor force according to their industrial classification by sex shown in Table (2.6.1) and Figure (2.6). From the data we may observe the following:

1. Economically active male population is higher (more than five times) than economically active female population.

Table 2.6.1

Trends in the industrial classification of Egyptian labor force by sex, 1976-1996.

Industrial Classifications	Sex	Census Years					
		1976		1986		1996	
		No.	%	No.	%	No.	%
Primary Sector	**Male**	3689261	45.2	4368090	40.6	4572887	32.9
Secondary Sector		1244543	15.3	1580116	14.7	2216394	16.0
Services Sector		3219763	39.5	4820975	44.7	7105063	51.1
Total Labor Force		8153567	100	10769181	100	13894344	100
Primary Sector	**Female**	106986	14.4	92398	6.7	290671	11.2
Secondary Sector		114296	15.4	155326	11.3	279571	10.8
Services Sector		523304	70.2	1126799	82.0	2025645	78.0
Total Labor Force		744586	100	1374523	100	2595887	100

Sources: Central Agency for Public Mobilization and Statistics (CAPMAS), Censuses of Population, Housing and Establishments, 1976 (Table 14), 1986 (Table 20), and 1996 (Table 17).

2. One-third of male workers are engaged in primary sector industries, namely agriculture and related works. In contrast more than three-forth of female workers are engaged in the services activities.

3. Secondary sector absorbs about 16% of male labor force size and 10.8% of female labor force size. More than 90% of male and female workers of secondary sector industries were engaged in manufacturing activities.

4. Inside the services sector, community, social and personnel services activities are more likely to attract males and females.

Another trend in the Egyptian labor force according to their industrial classification and place of residence is shown in Table (2.4.2) and Figure (2.6). The data revealed that:

1. Economically active rural population is quiet higher than economically active urban population; the corresponding sizes were about 8.8 million, and 7.7million respectively.

2. According to the nature of rural areas as grass roots, about one-half (49%) of rural workers are engaged in primary sector activities, mainly in agriculture activities. While more than 70% of urban workers are participated to services activities.

3. The percentages of urban workers in secondary sector approximately double its percentage in rural areas (20.5% and 10.7% of all economically active persons respectively).

It is clear that the industrial classification of rural labor force reflects the level of development in these areas (according to the theory of development process and its relation with the industrial classification of labor force, which was discussed early in this section). Although all the plans and strategies which were applied during the past three decades to reduce the developmental gab between urban and rural, but the differences are still present in a way or another. One of these ways is that level of services in rural areas. Services level in rural areas are still suffering from the far-distance of their providers (centralization of these services in the capitals of districts) in one hand, in addition to the low level, and the traditional ways of their offering from the other hand. This situation appears in many services such as post mail offices, births, deaths, and vital events registration offices, fire stations, and cleaning services and many other civilian services. So, we look to the possibility of shifting these services from centralization to locality as a good opportunity to achieve better and fast performance for these services, in addition we look to it as an existing opportunity to create a valuable amount of new jobs in services sector especially for educated persons and women in rural areas.

Table 2.6.2

Trends in the Industrial classification of Egyptian labor force by place of residence, 1976 –1996

Industrial Classification	Place of Residence	1986		1996	
		No.	%	No.	%
Primary Sector	**Urban**	932842	15.5	602747	7.8
Secondary Sector		1224151	20.3	1572476	20.5
Services Sector		3867721	64.2	5513833	71.7
Total Labor Force		6024714	100	7689326	100
Primary Sector	**Rural**	3780759	61.8	4321203	49.3
Secondary Sector		478360	7.8	934660	10.7
Services Sector		1863524	30.4	3508355	40.0
Total Labor Force		6122643	100	8764218	100

Sources: Central Agency for Public Mobilization and Statistics (CAPMAS), Censuses of Population, Housing and Establishments, 1976 (Table 14), 1986 (Table 20), and 1996 (Table 17).

2.3.7 Trend in the Occupational Structure of Egyptian Labor Force

Occupational structure is one of the main classifications of labor force. It refers to the type of work participate now by the person, or used to be participated by an unemployed ever-worked person (UN. 1968, P.78). Occupational structure of a person may have no connection with the industrial classification of the establishment.

The international occupational structure of labor force consists of eight categories and may be collapsed in two groups as follows:

- White-collar group: it consists of four categories of occupations, Professional, technical and related workers, Administrative and managerial workers, Clerical workers and related, and Sales and services workers.

- Blue-collar group: it consists of the remaining four categories, Farmers, fishermen, breeding animals and hunting, Production workers and related, Workers in transport and laborers. In addition to worker not reporting any occupation.

Regarding the relationship between the occupational structure of labor force and the economic development of the society, it is noticed that during the process of economic development the percentage of agriculture workers decreases, while the percentage of professional, technical, administrative, managerial, clerical, and production workers increases.

Tables (2.7) and (2.7.1) represent trends in occupational structure of the Egyptian labor force at the national level and by sex. It is noticed that:

1. A decreasing trend in blue-collar occupations from about 69% of all Egyptian labor force in year 1976 to about 54% in year 1996. Farmers, fishermen, breeding animals and hunting workers represent about 52% of all blue-collar workers.

Many factors were behind this reduction in the percentage of Farmer workers. It may attribute to the process of development as we mentioned early. The free market policy and the possibilities of shifting from one economic sector to the other according to the level of wages may also act in this regard. In addition, adopting the new technologies in most of the agricultural works may reduce the required size of workers in this sector.

2. An increasing trend is observed among white-collar occupations from about 31% of all Egyptian labor force in 1976 to about 46% in 1996. The highest increase occurred among professional, technical and related workers.

3. The same trends of decreasing the percentage of farmer workers and increasing the percentage of professional and technical workers were observed among male and female labor force with some variations. The strength of the reduction in farmer's occupations was higher among male than female. Despite this

reduction in the Farmers and related works, it is still the main occupation for Egyptian male labor force (about 43% of all male labor force).

Table 2.7

Trend in the occupational structure of Egyptian labor force, 1976- 1996.

Main Occupations	Census Years					
	1976		1986		1996	
	No.	%	No.	%	No.	%
White collar Occupations	2746539	30.9	4356144	35.9	7508558	45.6
Blue Collar Occupations	6137396	69.1	7787560	64.1	8944986	54.4
Total Labor Force	8883935	100	12143704	100	16453544	100

Sources: Central Agency for Public Mobilization and Statistics (CAPMAS), Censuses of Population, Housing and Establishments, 1976 (Table 19), 1986 (Table 23), and 1996 (Table 20).

4. Clerical works is the second main occupation among female labor force while production works is the second main occupation for male labor force.

5. The same trends of decreasing the percentage of farmer workers and increasing the percentage of professional and technical workers were observed among male and female labor force with some variations. The strength of the reduction in farmer's occupations was higher among male than female. Despite this reduction in the Farmers and related works, it is still the main occupation for Egyptian male labor force (about 43% of all male labor force).

Table 2.7.1
Trend in the occupational structure of Egyptian labor force by sex, 1976-1996.

Main Occupations	Sex	Census Years					
		1976		1986		1996	
		No.	%	No.	%	No.	%
White Collar Occupations	Male	2319753	28.5	3332717	30.9	5504880	39.6
Blue Collar Occupations		5833814	71.5	7436464	69.1	8389464	60.4
Total Labor Force		9153567	100	10769181	100	13894344	100
White Collar Occupations	Female	452654	60.8	1137409	82.7	2158312	83.1
Blue Collar Occupations		291932	39.2	237114	17.3	437575	16.9
Total Labor Force		744586	100	1374523	100	2595887	100

Sources: Central agency for Public Mobilization and Statistics (CAPMAS), Census of Population, Housing, and establishments, 1976 (Table 19), 1986 (Table 23), and 1996 (Table 20).

Regarding the Trends of Egyptian labor force according to their occupational structure and place of residence during the period 1986-1996, Table (2.7.2) shows that:

1. Production and related works and professional, technical, and related works are the main two occupations of urban labor force. The percentage of urban workers participated in these two categories was about two-third of all urban labor force.

2. Although agriculture is considered to be the main economic activity in rural areas, but the percentage of farmers and related workers has declined dramatically during the period 1986-1996. The percentage of farmers and related workers declined from about 61% of all rural labor force in 1986 to about 48% in 1996. This reduction may be attributed to many reason such as, expanding the use of mechanical methods in doing many agriculture works instead of the manual work, appearing of other economic activities beside the agriculture activity such as commerce and

trading, environmental and small manufacturing industries, and community and personnel services activities.

Table 2.7.2
Trend in the occupational structure of Egyptian labor force by place of residence, 1976-1996.

Main Occupations	Place of Residence	Census Years			
		1986		1996	
		No.	%	No.	%
White Collar Occupations	**Urban**	3102724	51.5	4638241	60.3
Blue Collar Occupations		2921990	48.5	3051085	39.7
Total Labor Force		6024714	100	7689326	100
White Collar Occupations	**Rural**	1293156	21.1	2862194	32.7
Blue Collar Occupations		4829487	78.9	5902024	67.3
Total Labor Force		6122643	100	8764218	100

Sources: Central agency for Public Mobilization and Statistics (CAPMAS), Census of Population, Housing, and establishments, 1976 (Table 19), 1986 (Table 23), and 1996 (Table 20).

3. Increasing the percentage of white-collar workers (professional, technical, administrative, managerial, and clerical workers) in rural areas from about 21% of all rural labor force in 1986 to reach about one-third of rural labor force in 1996.

CHAPTER THREE

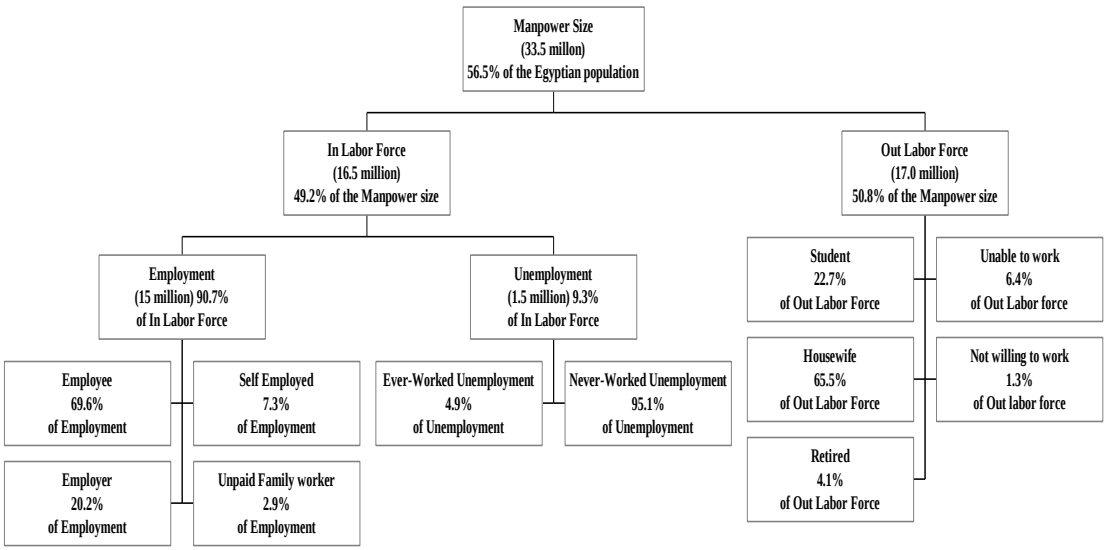
EMPLOYMENT AND UNEMPLYMENT IN EGYPT:

ANALYSIS OF THE RECENT SITUATION

3.1 Introduction

In the preceding chapter, we utilized data from 1976, 1986, and 1996 censuses to analyze the changes in the levels and trend of Egyptian labor force according to the some socioeconomic characteristics. It has been noted that the size of Egyptian manpower reached about 33.5 million in 1996. The classification of the Egyptian manpower according to their employment status is represented in the following figure (figure 3.1).

Figure (3.1) Classification of labor force according to employment status



The figure explains that, the classification of manpower according to the employment status comprises two broad groups, in labor force and out labor force. The second group (out labor force) includes five categories, namely Students, Housewife, Not willing to work, Retired persons, and Unable to work, these categories are out the scope of the study.

The first group (In labor force) absorbs about 49.2% of the size of Egyptian manpower and it consists of two categories, employment and unemployment. The employment category includes four subcategories, namely Self-employed (7.3% of employment size), Employer (20.2%), Employee (69.6%), and Unpaid family worker (2.9% of employment size). The unemployment category includes two subcategories, namely Ever-Worked Unemployment (4.9% of unemployment size), and Never-worked Unemployment (95.1% of unemployment size). Analysis of the recent situation of employment and unemployment according to their socioeconomic characteristics is our main concern in this chapter. Data from 1996 census will be utilize in this analysis and supported with some indicator from other recent studies and surveys.

3.2 Historical Background of Unemployment Problem in Egypt

We can divide the past 35 years (from 1960 to 1995) into three sub-periods:

The 1960's decade (The period of labor surplus economy): In this era unemployment was negligible and declined to levels around the natural rate of 3 to 4 percent. The state was the major actor in economic life, and jobs were created through massive investment in agriculture, infrastructure and import-substituting industries, as well as the rapidly expanding government and public sector. Graduates and men completing military services were assured of jobs under the employment guarantee scheme, and the state became the primary employer in the country after agriculture. The problem during this period was underemployment with the majority of workers relying on low-productivity jobs in agriculture or the informal sector. Arthur Lewis cites Egypt during this period as a textbook example of surplus labor waiting to be shifted to more productive sectors (Lewis 1974, P.43). The state pursued a full employment policy at a low level of both wages and productivity, until the early 1970's when it became clear that such policies were not tenable and the whole system was caught in, what may be called a low-level productivity trap.

1975 – 1985 (the beginning of open unemployment): During this decade, the government launched its Open Door Policies, and the economy grew at exceptional rate of 8 percent per year, fueled by a steady flow of resources from Suez Canal, oil

exports, tourism, workers remittances and borrowing. The employment problem became more complex than ever before. The employment-creating sectors, agriculture and public services, were saturated and construction and services were not creating sufficient jobs. The employment problem was lessening through the increased demand in the Gulf States for migrant labor following the increase in oil prices in 1974. Some 10 to 15 percent of the Egyptian labor force emigrated. The labor market became tight, labor shortages began, and real wages went up.

1985 – 1995 (slow growth, high unemployment): This period may be described best as one of retrenchment. The major factors that supported the high-growth performance of the previous decade (massive resource flows abroad and a domestic boom based on construction, services and remittances) exhausted their impact. Emigration peaked in the early 1990s, and net return migration became a reality particularly after the gulf war. This was reflected in the slowing growth that continued until 1993 (the economy grew at rates ranging from 0.3 percent to 2.5 percent per year, and per capita income registered zero or negative growth rates). The major source of growth during this period was the active governmental-led investment in infrastructure. Given this rate and pattern of growth, it is not surprising that unemployment climbed to new heights, reaching 10 percent in 1993, and fluctuating at this level since. If the data are corrected for underestimating of female participation and under reporting employment of individuals less than 15 and above 60 years, unemployment may be as high as 13 percent (Fergany 1995, P.21).

3.3 Socioeconomic characteristics of Employment and Unemployment in Egypt

In this part, an attempt will be made to investigate the most important socioeconomic characteristics of the recent trend of employment and unemployment in Egypt. The analysis will give attention to the variations on employment and unemployment by age groups of working life, educational level, industrial classifications, and the occupational structure. Also the analysis will be at the national level, sex variation (male versus female), and place of residence (urban versus rural). Unfortunately, an attempt to investigate the variation on employment and unemployment by region of residence (urban governorates, urban lower Egypt, urban

upper Egypt, rural lower Egypt, and rural upper Egypt) has been failed due to the unavailability of required data from the published 1996 census results. For this reason, we concentrate our analysis in this regard on place of residence (urban versus rural).

3.3.1 Variation in Employment and Unemployment by Age Structure

Analyzing of the age structure of employment and unemployment explains in which age groups the employment or unemployment are mostly concentrated. Also it enables us to calculate the Age Specific Activity Rates (ASARs) where we relate the total number of Labor Force (employment and unemployment) in each age group to the total number of population in the same age group, according to the following equation.

$$R = \frac{Pe}{Pt} \times 100$$

Where:

R : Age Specific Activity Rate.

P_e : Number of economically active persons in the specified category of the population.

P_t : Total number of persons in the same category.

Table (3.1) and figures (3.2) and (3.3) represent the distribution of Egyptian employment and unemployment at the national level, by sex, and place of residence, according to their current age groups. It demonstrates that:

1. The size of Egyptian employment reached about 14.9 million in 1996. There distribution according to sex explains that 14% are females and 86% are males. Their distribution according to place of residence indicates that 53% located in rural areas, 47% are in urban areas.

2. In general, 9.7 % of the Egyptian employments are young (below twenty years of age) with slight variation over sex and place of residence, where the highest

percentage of young employment is observed in rural areas (12.2%), while the lowest percentage of young employment is observed among males (9.5%).

3. Employment between age twenty to less than forty-five years (20-44) represents about two-third of all Egyptian employment (68.6%). The highest variation in the percentage of employment in this age group is observed among females 76.4% (more than three-forth of female employments fall in this age group). This phenomenon may explain a tendency among females to return and participate in the economic activities after marriage and achieving their desired family size. The economic pressures of the modern live may play role in this regard.

4. At the national level, older employment (those aged from forty-five to less than sixty years) represent about 21.7% of all Egyptian employment. The same percentage is slightly higher among males and urban employment (23.2% and 23.0% respectively). This phenomenon may have a direct association with the type and sector of employment in urban areas. The majority of economic activities in urban areas are in the governmental, public, and formal private sectors (67.8%) (LFSS, 1995), and the preference type of employment in these sectors are employee under the authority of Egyptian labor forces laws, which mostly determine the age of 60 years as the retirement age.

The analysis of unemployment classified by age groups (Table 3.1) and figure (3.3) reveals that:

1. The size of Egyptian unemployment is about 1.5 million in 1996, their classifications by sex and place of residence implying that 65% are males, 35% are females, 55 % are residence in rural areas, and 45% are in urban areas.

   The majority of unemployment problem is concentrated among persons less than thirty-five years of age. At the national level, the percentage of unemployment among persons aged forty to less than sixty years did not exceed 1.1% of all reported unemployed. The corresponding percentage in urban areas is double the national level (2.1%) and it's about 0.6% in rural areas. All of those persons are ever-worked unemployment. The available explanations of increasing the percent of unemployment among person aged 40-59 in urban areas than the national level may

be due to applying the policies that encourage early retirement, the cases of retirements due to privatization policies, in addition to the returned stream of immigrants after the Gulf War. The nature of economic activity in rural areas may act behind the low percentage of unemployment among persons aged 40-59 years compared to the national level, where agriculture is the basic economic activity that mostly depends on private and small farms, and it always has the capacity to absorb the efforts of all family persons.

2. At the national level, one-fifth of the unemployment problem is concentrated among persons who are less than twenty years of age (22% of all unemployment). It exceeds one-fourth of all unemployment among females in the same age groups (26.4) and it reaches about 23.2% in rural areas. It is easy to expect that the majority of unemployment in this age group is never-worked unemployment (96%) and they are less experienced, new graduates with intermediate, low, or no educational level.

3. The highest percent of unemployment is observed among persons aged twenty to less than thirty years. At the national level, the percent of unemployment in this age group was about 67.8% with slight variation by sex and place of residence. It is easy to expect that the majority of those persons are never-worked unemployment (97%), university educated with less or no previous work experience.

Table (3.1) Distributions of Egyptian employment and unemployment at the national level, by sex and by place of residence, according to their current age groups.1996

Age Group	Employment									
	Total	%	Male	%	Female	%	Urban	%	Rural	%
15 – 19	1443670	9.7	1222023	9.5	221647	10.7	479766	6.9	963904	12.2
20 – 24	2033571	13.6	1691968	13.2	341603	16.6	851633	12.2	1181938	14.9
25 – 29	1984627	13.3	1683771	13.0	300856	14.6	930941	13.3	1053686	13.3
30 – 34	2211539	14.8	1849347	14.4	362192	17.6	1086211	15.5	1125328	14.2
35 – 39	2210338	14.8	1873230	14.6	337108	16.3	1087256	15.5	1123082	14.2
40 – 44	1795382	12.0	1563044	12.2	232338	11.3	952288	13.6	843094	10.6
45 – 49	1489498	10.0	1346554	10.5	142944	6.9	752902	10.8	736596	9.3
50 – 54	1006526	6.7	925387	7.1	81139	3.9	511725	7.3	494801	6.2
55 –59	743322	5.1	701308	5.5	42014	2.1	345841	4.9	397481	5.1
Total	**14918473**	**100.0**	**12856632**	**100.0**	**2061841**	**100.0**	**6998563**	**100.0**	**7919910**	**100.0**
	Unemployment									
	Total	**%**	**Male**	**%**	**Female**	**%**	**Urban**	**%**	**Rural**	**%**
15 – 19	338161	22.0	196914	19.7	141247	26.4	142389	20.6	195772	23.2
20 – 24	571816	37.3	358670	35.8	213146	39.9	268005	38.8	303811	36.0
25 – 29	468448	30.5	326914	32.7	141534	26.5	207056	30.0	261392	31.0
30 – 34	137986	9.0	100746	10.1	37240	7.0	59450	8.6	78536	9.2
35 – 39	6266	0.4	5885	0.6	381	0.2	4512	0.7	1754	0.2
40 – 44	4681	0.3	4452	0.4	229	0.0	3510	0.5	1171	0.1
45 – 49	3806	0.2	3658	0.4	148	0.0	2877	0.4	929	0.1
50 – 54	2279	0.1	2201	0.2	78	0.0	1769	0.3	510	0.1
55 –59	1628	0.2	1585	0.1	43	0.0	1195	0.1	433	0.1
Total	**1535071**	**100.0**	**1001025**	**100.0**	**534046**	**100.0**	**690763**	**100.0**	**844308**	**100.0**

Source: Central Agency for Public Mobilization and Statistics (CAPMAS), Census of Population, Housing and Establishments, 1996, (Table 15).

Figure (3.2) Percentage distribution of Egyptian employment by age groups, 1996

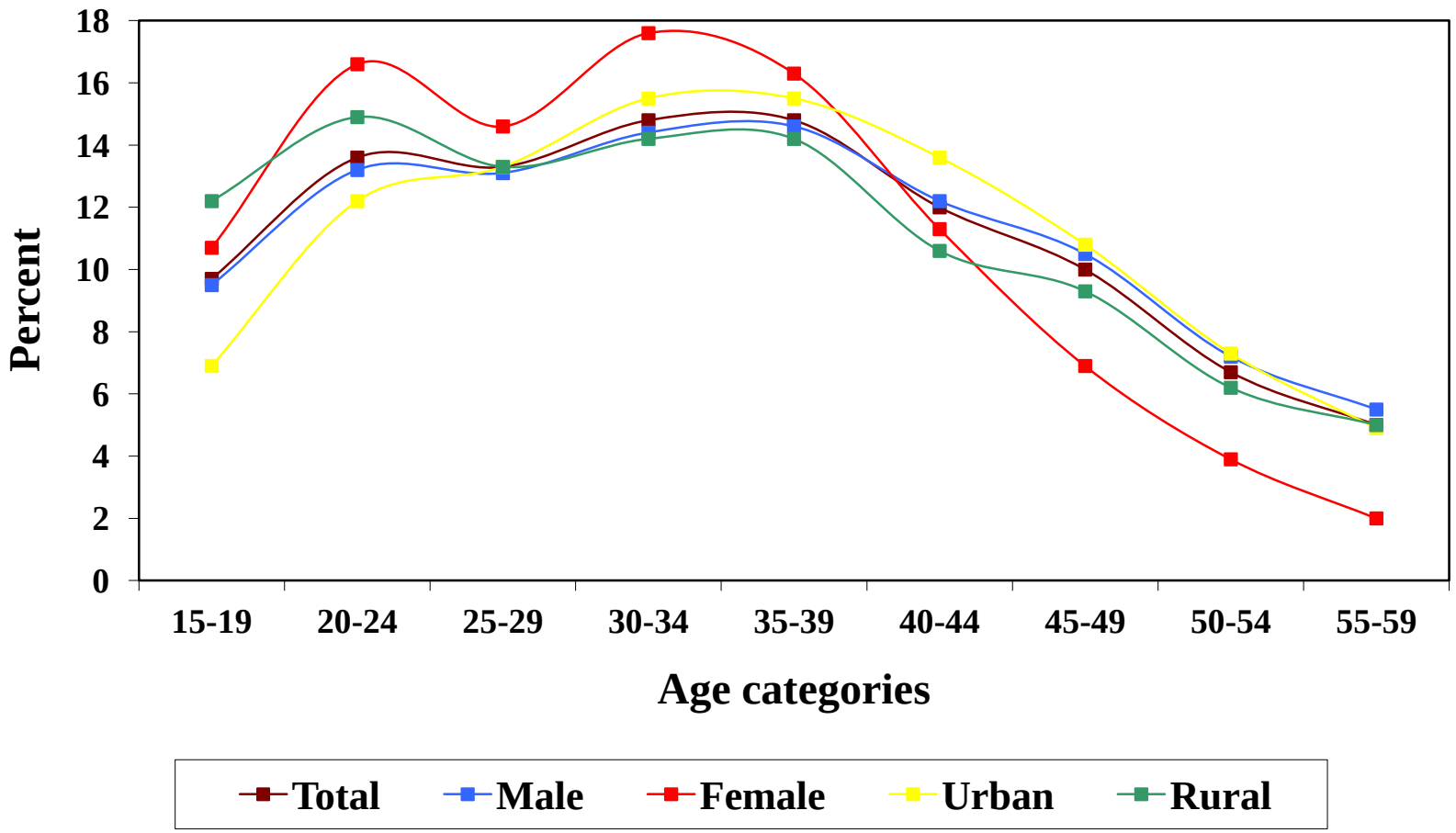
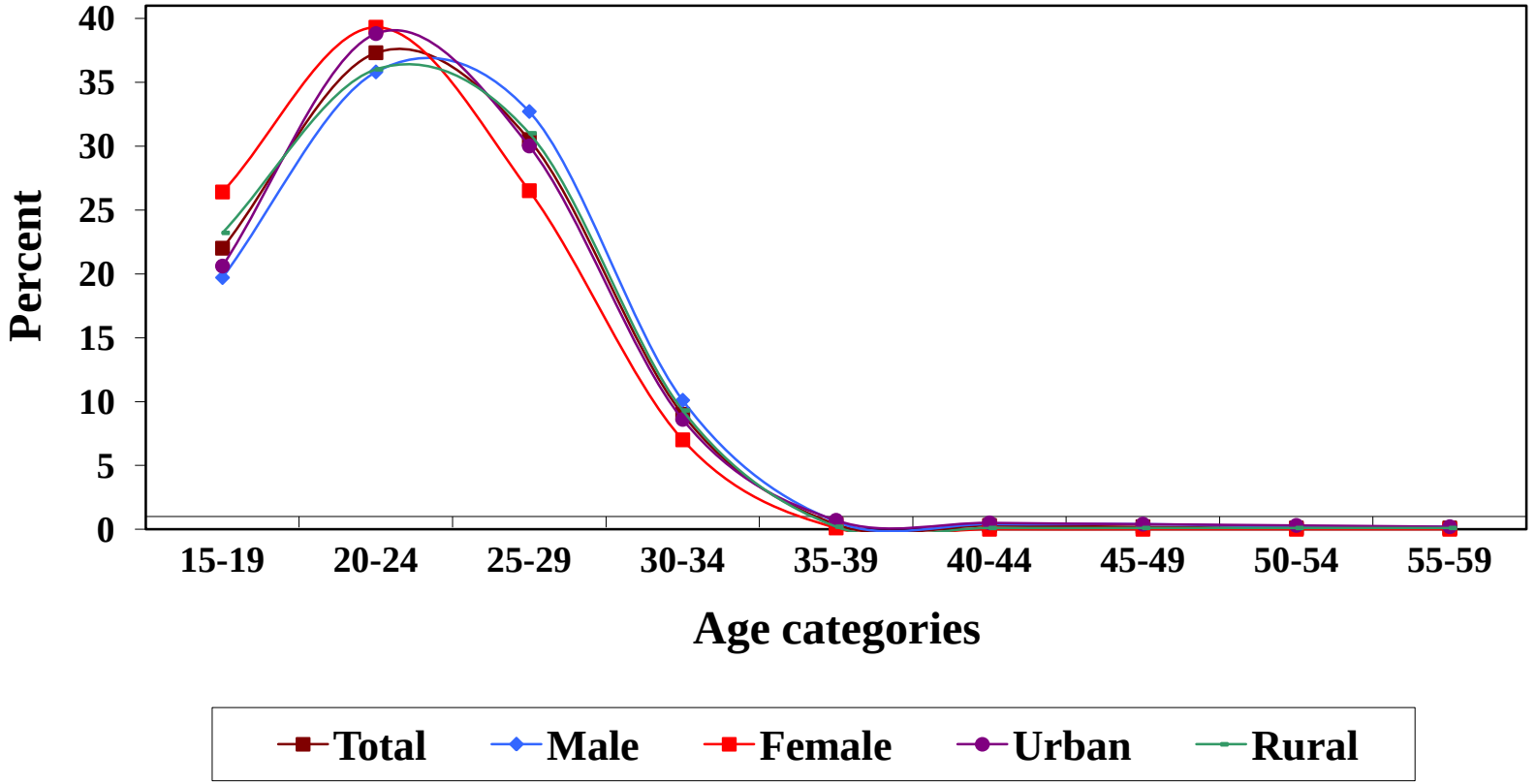


Figure (3.3) Percentage distribution of Egyptian unemployment by age groups, 1996



4. Unemployment among persons aged thirty to the less the thirty-five years is the lowest. It reached about 9.0% at the national level. The highest percent of unemployment in this age category (30-34) is observed among males (10.1% of all male unemployment), while the lowest percent of unemployment is observed among female (7.0% of all female unemployment). Most of these persons are never-worked unemployment (93%).

Analyzing the age-structure of labor force helps in investigating the Age specific Activity Rates (ASARs). The proportion of economically active person differs in different age categories of the population, ranging from near to 100 percent in some categories down to zero in others. These variations are measured by specific activity rates as they are sometimes called Age specific activity rate (ASAR). The equation is specified early in the introduction of this chapter.

Table (3.2) and figure (3.4) represent age specific activity rates (ASARs) for population aged 15–59 years, at the national level, by sex, and by place of residence. It shows that:

1. For the total population, ASARs start with low level at the age group 15-19 (25.9%) and goes up to reach its maximum value at the age group 30-34 (59.2%), after that it goes slowly down until the last age group of the labor force age span 55-59 by a value of 50.6%.

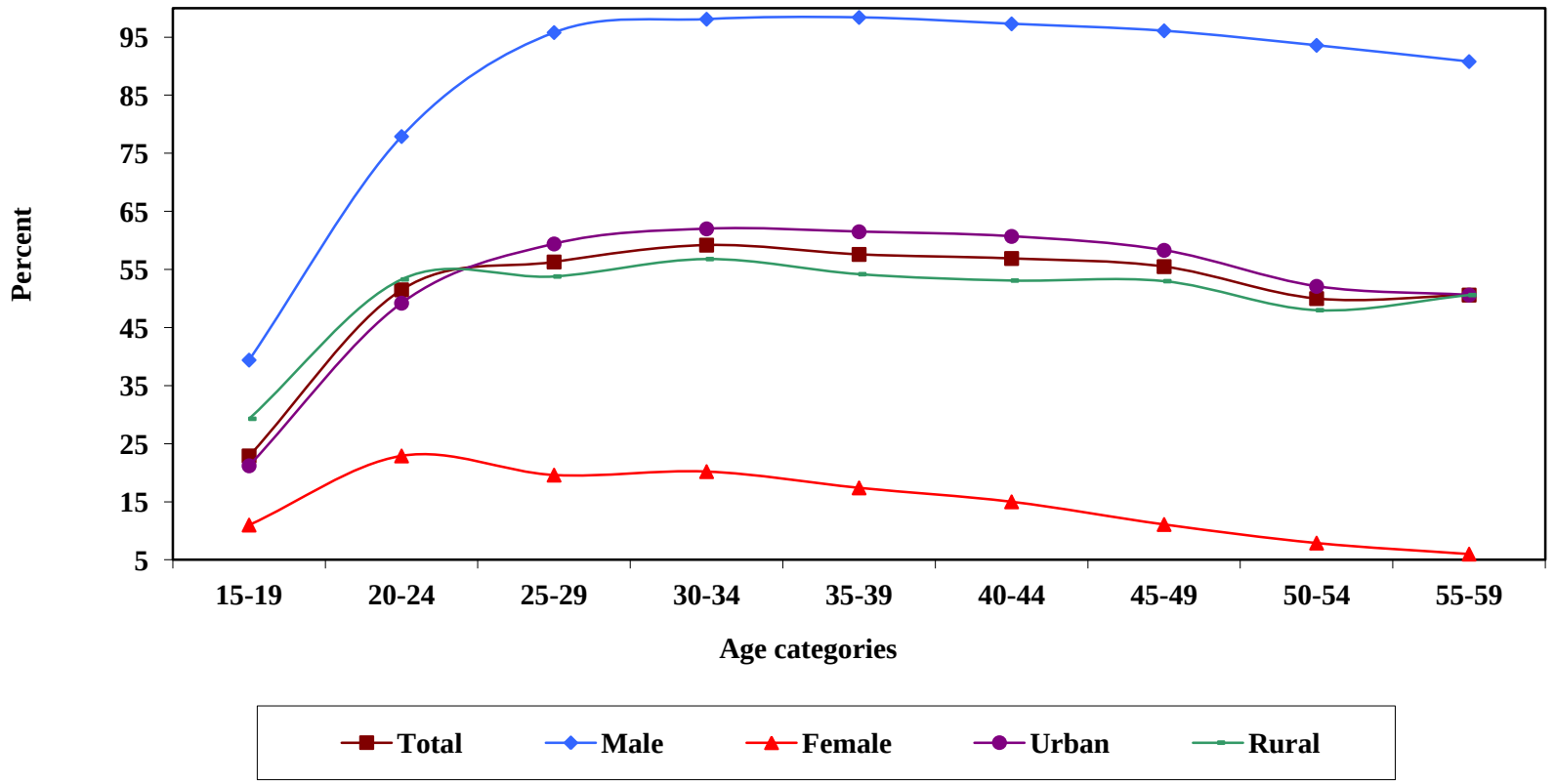
2. Comparison of ASARs between males and females shows that, at the beginning of working life, ASAR for males is more than three times that of females (39.4% and 11.0% respectively). The gab increases when we shift from one category to the higher. The maximum participation rate among females was at age 30-34 (20.2%) while the maximum participation rate among male was at age 35-39 (98.4%). Participation rate among males in the last labor force age groups (55-59) is fifteen times higher than the comparable rate of female.

Table (3.2) Age Specific Activity Rates (ASAR) for population aged 15 - 59 years, at the national level, by sex and by place of residence, 1996.

	Population					Labor Force					*ASARs*				
Age Groups	**Total**	**Male**	**Female**	**Urban**	**Rural**	**Total**	**Male**	**Female**	**Urban**	**Rural**	**Total**	**Male**	**Female**	**Urban**	**Rural**
15 - 19	6891112	3597098	3294014	2930311	3960801	1781831	1418937	362894	622155	1159676	25.9	39.4	11.0	21.2	29.3
20 - 24	5060015	2633642	2426373	2273551	2786464	2605387	2050638	554749	1119638	1485749	51.5	77.9	22.9	49.2	53.3
25 - 29	4358668	2098546	2260122	1916234	2442434	2453075	2010685	442390	1137997	1315078	56.3	95.8	19.6	59.4	53.8
30 - 34	3968151	1986994	1981157	1847108	2121043	2349525	1950093	399432	1145661	1203864	59.2	98.1	20.2	62.0	56.8
35 - 39	3850900	1909337	1941563	1776094	2074806	2216604	1879115	337489	1091768	1124836	57.6	98.4	17.4	61.5	54.2
40 - 44	3164728	1611553	1553175	1573960	1590768	1800063	1567496	232567	955798	844265	56.9	97.3	15.0	60.7	53.1
45 - 49	2689647	1404688	1284959	1296912	1392735	1493304	1350212	143092	755779	737525	55.5	96.1	11.1	58.3	53.0
50 - 54	2016273	991369	1024904	984817	1031456	1008805	927588	81217	513494	495311	50.0	93.6	7.9	52.1	48.0
55 - 59	1472856	774215	698641	686141	786715	744950	702893	42057	347036	397914	50.6	90.8	6.0	50.6	50.6
Total	**33472350**	**17007442**	**16464908**	**15285128**	**18187222**	**16453544**	**13857657**	**2595887**	**7689326**	**8764218**	**49.2**	**81.5**	**15.8**	**50.3**	**48.2**

Source: Calculated from the results of the Census of Population, Housing and Establishments, 1996.

Figure (3.4) Age Specific Activity Rates (ASARs) at the national level, by sex and by place of residence, 1996.



3. Another comparison of ASARs between urban and rural areas demonstrated that, ASARs are higher in rural areas in the first two age groups; the reverse is true after age 24. Starting from age group 45-49 the gab in participating rates between urban and rural areas lessens, but with a slight higher rate in urban areas than rural areas.

3.3.2 Variation in Employment and Unemployment by Educational Level

In the previous chapter, we explained the importance of analyzing labor force by educational level and reviewed the effect of educational level on the extent of participation in the labor force. In this section, a trial will be made to investigate the differentials in employment and unemployment according to educational level.

Table (3.3) and figures (3.5) and (3.6) represent the distributions of Egyptian employment and unemployment at the national level, by sex, and by place of residence, according to their educational level. It shows that:

1. Illiteracy is one of the major challenges towards employment development. At the national level, more than one-third of employments (35.6%) are illiterate workers. The strength of illiteracy problem among males (38.8%) exceeds the national level. Approximately one-half of employments in rural areas are illiterates (47.9%). The lowest level of illiteracy was observed among female employment (15.5%). The problem of illiteracy is limited among unemployment; it ranges from 5.5% as the highest level observed among male unemployment, to 1.2% as the lowest level observed among female unemployment, with average of 4% at the national level.

2. Illiteracy problem among employment is highly revealed when we add the quasi-illiterates (those who are able to read and write only without certificates) the percent rises to about 54.5% on the aggregate level with some variation by sex and by place of residence. The highest percent is observed in rural areas (67.5%) and the lowest one is observed among females (only 20.4%).

Table (3.3) Distributions of Egyptian employment and unemployment at the national level, by sex and by place of residence, according to their educational level.1996

Educational level	Employment									
	Total	**%**	**Male**	**%**	**Female**	**%**	**Urban**	**%**	**Rural**	**%**
Illiterate	5314431	35.6	4994553	38.8	319878	15.5	1517085	21.7	3797346	47.9
Read & write	2821819	18.9	2720581	21.2	101238	4.9	1269006	18.1	1552813	19.6
Primary	387954	2.6	363950	2.8	24004	1.2	208535	3.0	179419	2.3
Preparatory	497537	3.4	467193	3.7	30344	1.5	283282	4.0	214255	2.7
Intermediate	4015705	26.9	2944270	22.9	1071435	51.9	2253355	32.2	1762350	22.3
High education (1)	1881027	12.6	1366085	10.6	514942	25.0	1467300	21.0	413727	5.2
Total	**14918473**	**100.0**	**12856632**	**100.0**	**2061841**	**100.0**	**6998563**	**100.0**	**7919910**	**100.0**
	Unemployment									
	Total	**%**	**Male**	**%**	**Female**	**%**	**Urban**	**%**	**Rural**	**%**
Illiterate	60937	4.0	54664	5.5	6273	1.2	34410	5.0	26527	3.1
Read & write	37998	2.5	34869	3.5	3129	0.6	25020	3.6	12978	1.5
Primary	18864	1.2	15337	1.5	3527	0.7	12440	1.8	6424	0.7
Preparatory	21611	1.4	18348	1.8	3263	0.5	14780	2.2	6831	0.9
Intermediate	1208202	78.7	747334	74.7	460868	86.3	486448	70.4	721754	85.5
High education (1)	187459	12.2	130473	13.0	56986	10.7	117665	17.0	69794	8.3
Total	**1535071**	**100.0**	**1001025**	**100.0**	**534046**	**100.0**	**690763**	**100.0**	**844308**	**100.0**

(1): University and above.

Source: Central Agency for Public Mobilization and Statistics (CAPMAS), Census of Population, Housing and Establishments, 1996, (Table, 21).

Figure (3.5) Percentage distribution of Egyptian employment by educational level, 1996

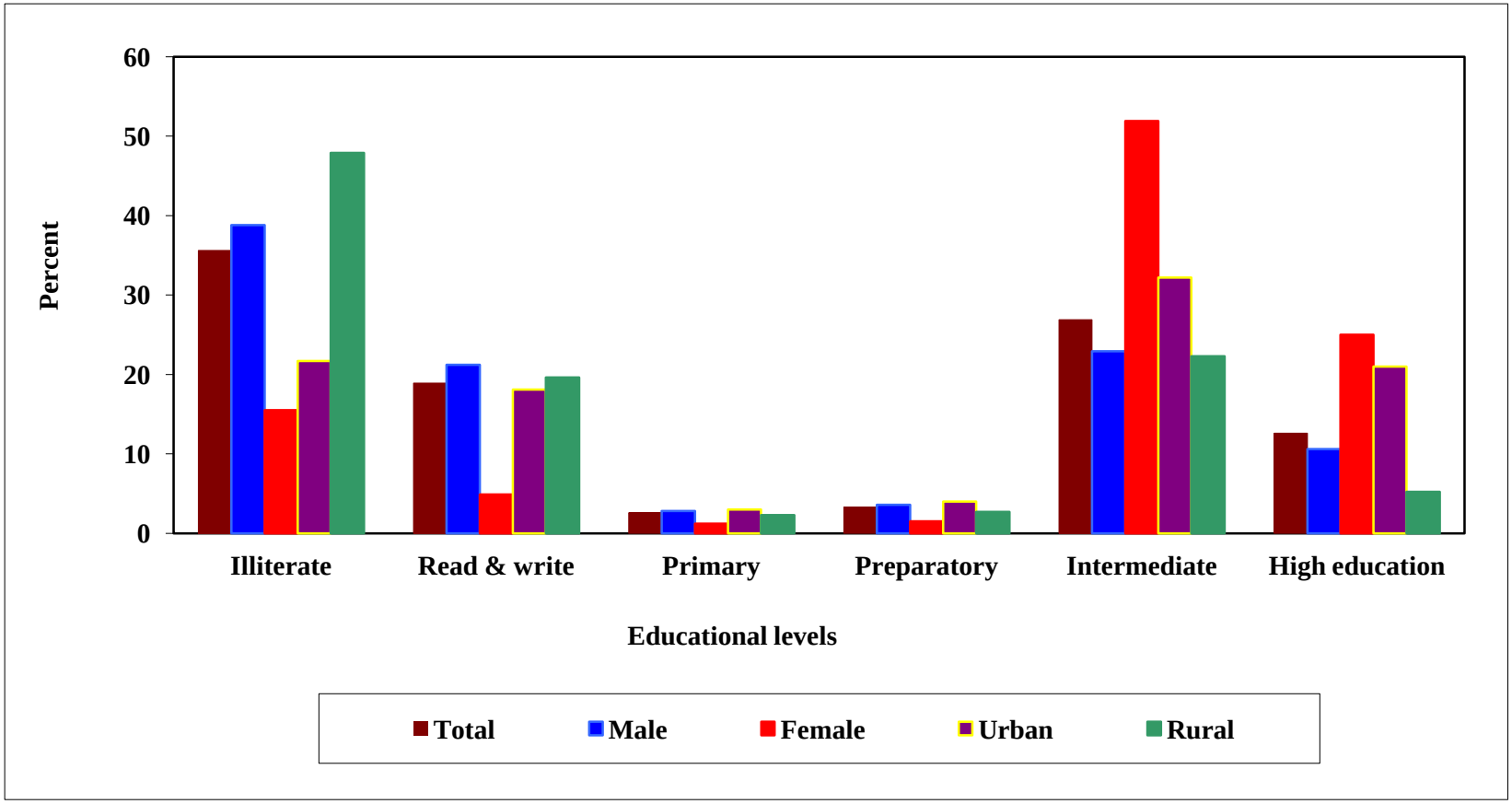
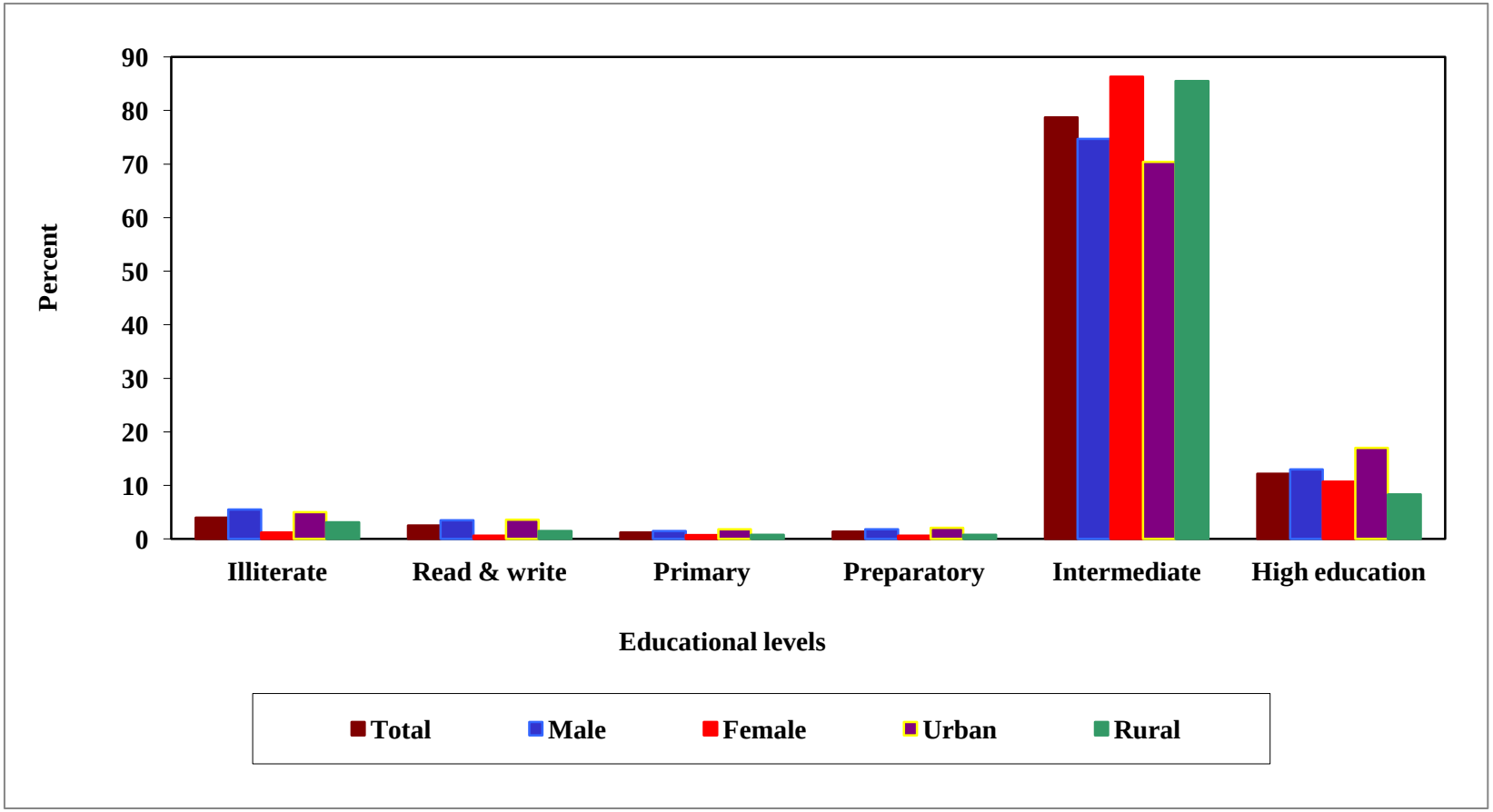


Figure (3.6) Percentage distribution of Egyptian unemployment by educational level, 1996



3. In general, employed females are better educated than males, regardless of the place of residence. More than three-forth of female's employment are with intermediate or higher level of education, and it is (as we have explained before in the previous chapter) the appropriate level of education to enable the employees to absorb and maintain the new technologies.

The analysis of unemployment's classification by educational levels (Table 3.3) and figure (3.6) indicates that:

1. Unemployment with educational level less than intermediate (illiterate, read and write, primary, and preparatory) is negligible; it does not exceed 9% of all Egyptian unemployment. Their percentage fluctuated from about 12% as a maximum among males and in urban areas to about 3.1% and 6.2% as a minimum among females and in rural areas respectively.

2. The great part of unemployment burden is concentrated among those with intermediate, university, and above level of education. 90% of Egyptian unemployment existing in this category. The problem of unemployment is more evident among females and in rural areas, where the percentage of unemployment with intermediate, university and above level of education was about 97% and 93.8% respectively. Low level of investments and services allocation may act behind the higher level of unemployment among educated persons in rural areas compared to urban areas (87.4% in urban areas).

3.3.3 Variation in Employment and Unemployment by Industrial Classifications

The Industrial classification refers to the principal economic activity of the enterprise, not to the economic activity of the person. Yet, it is an important classification in studying labor force. The importance of studying the industrial classification is attributable to the strong relationship between the economic activity of any organization and the economic activities, educational level, and occupational structure of the employee of this organization.

Table (3.4) and figures (3.7) and (3.8) represent the industrial classification of Egyptian employment and unemployment at the national level, by sex, and place of residence. It explains that:

1. Due to the nature of rural areas, nearly one-half of rural employment size participates in economic activities of primary sector, mostly in agriculture, hunting, and fishing activities (49.4%). The lowest percent of employment in agriculture and related activities observed in urban areas (7.3% of all urban employment). Female participation in agriculture and related activities was about 11.1% of all female's employment; the same percent increase to about one-third of male's employment size (32.6%).

2. Secondary sector activities (manufacturing, mining, gas, and water economic activities) absorb about 15.2% of all Egyptian employment, with some variation by sex and by place of residence. The highest percent of employment in secondary sector activities is observed in urban areas (20.5% of all urban employment) while the lowest percent is observed in rural areas (10.6% of all rural employment). Due to the nature of the economic activities of secondary sector, males are more engaged in these activities than female, the percentages were 16.0% and 10.8% respectively.

3. Services sector activities absorb about 8.1 million, represents about 54.8% of all Egyptian employment. Approximately, 80% of all services sector workers are male; 20% are female; 61% are urban employment; 39% are rural employment.

   Although the low percentage of female employment in services sector to all Egyptian employment (20%), but it represents more than three-forth of female's employment in Egypt (78%). this may due to the high percent of educated persons among female's employment (76.9% with intermediate and above educational level). The great percent of female's employment in services sector are participating in community, social and personnel services (about 73.2% of all female participating in services sector).

4. Modest level and shortage of services in rural areas in addition to the low characteristics of rural employment (especially the educational level) may act behind the low percent of services workers in rural areas.

5. The highest percent of services workers are engaged in community, social and personnel services activities, it absorb about one-fourth of Egyptian employment, represents about 45% of all services sector employments. Financing, insurance, real estate and business activities are the second highest services category among females, while commerce, Restaurants and Hotels are the second highest services category among males.

Table (3.4) Distribution of Egyptian employment and unemployment at the national level, by sex and by place of residence, according to the industrial classifications.1996.

Industrial classifications	Employment									
	Total	%	Male	%	Female	%	Urban	%	Rural	%
Agriculture, Hunting and Fishing	4417764	29.6	4188351	32.6	229413	11.1	508373	7.3	3909391	49.4
Mining and Quarrying	61910	0.4	59125	0.5	2785	0.1	41669	0.6	20241	0.3
Manufacturing	2120854	14.2	1913529	14.9	207325	10.1	1343887	19.2	776967	9.8
Electricity, Gas, and Water	156586	1.0	142365	1.1	14221	0.7	93034	1.3	63552	0.8
Construction	1233529	8.3	1212155	9.4	21374	1.0	726134	10.4	507395	6.4
Commerce, Restaurants and Hotels	1526162	10.2	1401687	10.9	124475	6.0	1098988	15.7	427174	5.4
Transport, Storage and Communications	889123	6.0	844265	6.6	44858	2.2	554524	7.9	334599	4.2
Financing, Insurance, Real State and Business Services	697095	4.7	472965	3.7	224130	10.9	449374	6.4	247721	3.1
Community, Social and Personnel Services	3692955	24.8	2516096	19.6	1176859	57.1	2119074	30.3	1573881	19.9
Activities Not Adequately Described	122495	0.8	106094	0.7	16401	0.8	63506	0.9	58989	0.8
Total	**14918473**	**100.0**	**12856632**	**100.0**	**2061841**	**100.0**	**6998563**	**100.0**	**7919910**	**100.0**
	Unemployment									
	Total	%	Male	%	Female	%	Urban	%	Rural	%
Agriculture, Hunting and Fishing	5923	7.9	5655	8.0	268	5.9	2350	4.6	3573	15.1
Mining and Quarrying	232	0.3	229	0.3	3	0.1	109	0.2	123	0.5
Manufacturing	6240	8.3	5768	8.2	472	10.3	4494	8.7	1746	7.4
Electricity, Gas, and Water	88	0.1	72	0.1	16	0.3	67	0.1	21	0.1
Construction	20915	27.8	20693	29.3	222	4.9	15232	29.6	5683	24.0
Commerce, Restaurants and Hotels	6136	8.2	5851	8.3	285	6.2	4907	9.5	1229	5.2
Transport, Storage and Communications	4377	5.8	4281	6.1	96	2.1	3247	6.3	1130	4.8
Financing, Insurance, Real State and Business Services	964	1.3	853	1.2	111	2.4	745	1.4	219	0.9
Community, Social and Personnel Services	1438	1.9	1069	1.5	369	8.1	1123	2.2	315	1.3
Activities Not Adequately Described	28803	38.4	26070	37.0	2733	59.7	19166	37.4	9637	40.7
		100		100		100		100		100
Ever Worked Unemployment	75116	4.9	70541	7.0	4575	0.9	51440	7.4	23676	2.8
Never Worked Unemployment	1459955	95.1	930484	93.0	529471	99.1	639323	92.6	820632	97.2
Total	**1535071**	**100.0**	**1001025**	**100.0**	**534046**	**100.0**	**690763**	**100.0**	**844308**	**100.0**

Source: CAPMAS, Census of Population, Housing and Establishments, 1996, (Table, 26).

Figure (3.7) Percentage distribution of Egyptian employment by industrial sectors, 1996

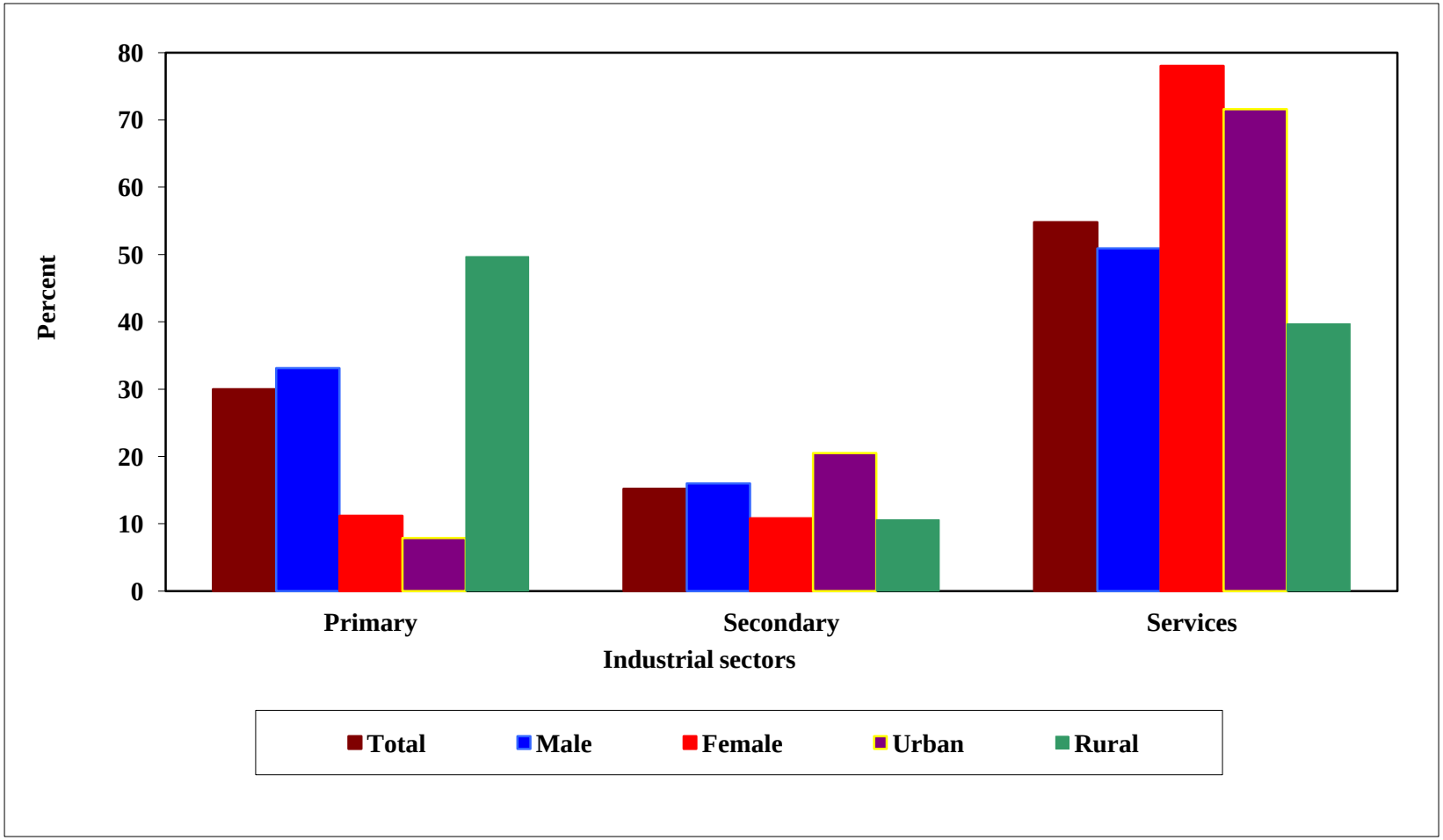
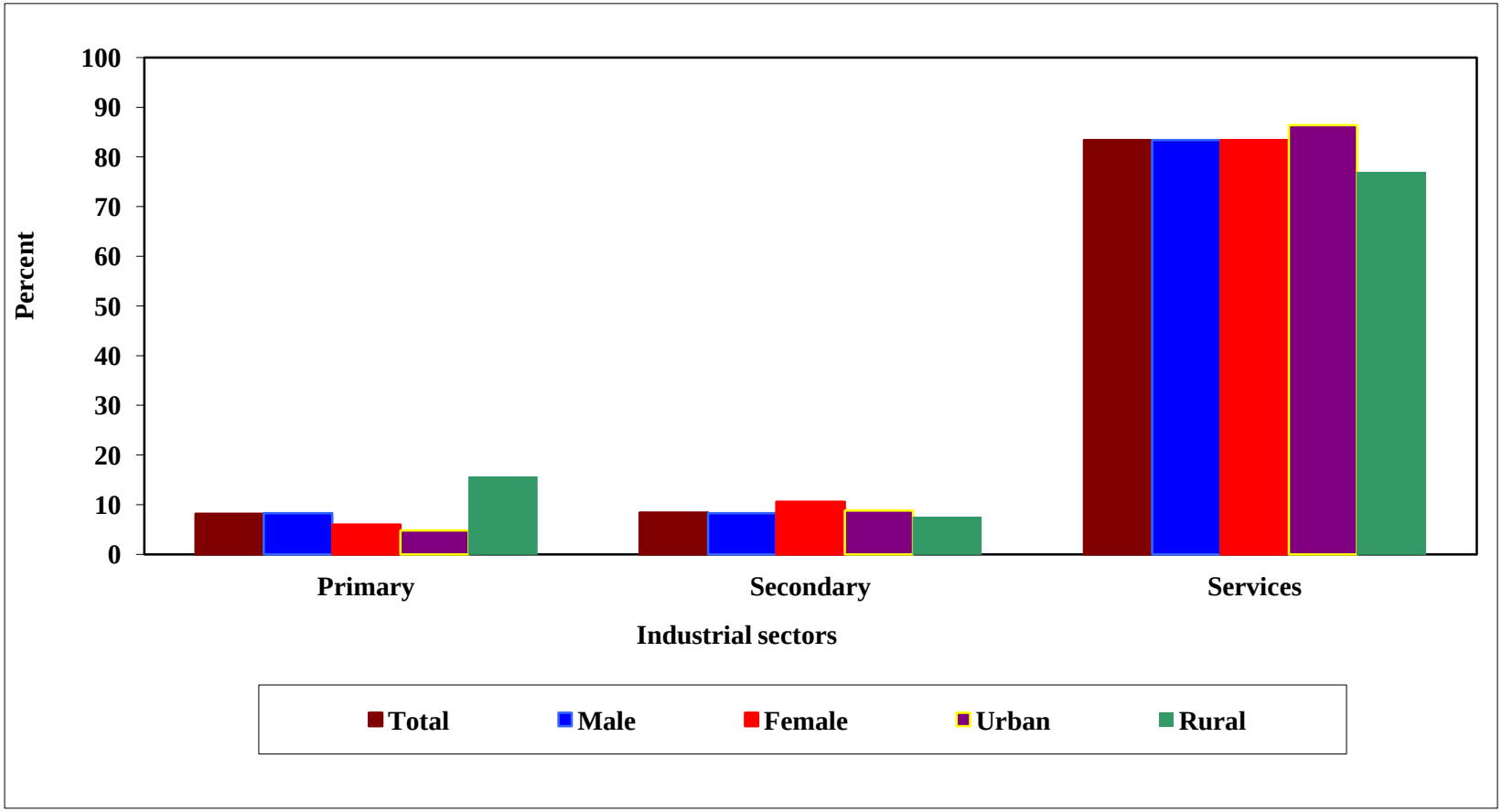


Figure (3.8) Percentage distribution of Egyptian unemployment (Ever Worked Unemployment) by industrial sectors, 1996



The analysis of unemployment by the industrial classification (Table 3.4) and figure (3.8) indicate that:

1. The bulk of unemployment in Egypt is never-worked unemployment (about 95% of all Egyptian unemployment), not having any previous work experience and have not previously participated in any economic activities.

2. Ever-worked unemployment represents about 5% of all unemployment with some variation by sex and place of residence. Their percentage increases to about 7% among males and in urban areas and it decrease to less than 1% among females and to about 3% in rural areas. Majority of ever-worked unemployment had a previous work experience in services sector, namely in construction, except for females unemployment.

3.3.4 Variation in Employment and Unemployment by Occupational Structure

The occupational structure of Egyptian employment and unemployment are represented in table (3.5) and figures (3.9) and (3.10). Those show the following:

1. At the national level, farmers and related workers, production and related workers, and professional, technical and related workers represent more than three-forth (77.9%) of all Egyptian employments. The same percent increases to about 80% among male employments. Farmer workers represent about one-half of employments in rural areas (48%).

2. More than one-half of female employments are engaged in professional, technical and related works (52.3%).

3. Production and related occupations represent about one-third of urban employments (32.1%).

Table (3.5) Distributions of Egyptian employment and unemployment at the national level, by sex and by place of residence, according to the occupational structure.1996.

Occupational structure	Employment									
	Total	%	Male	%	Female	%	Urban	%	Rural	%
Professional; Technical and Related Workers	3620805	24.3	2544356	19.8	1076449	52.3	2335841	33.4	1284964	16.3
Administrative and Managerial Workers	677918	4.5	592477	4.6	85441	4.1	517717	7.4	160201	2.0
Clerical Workers and Related	1122757	7.5	684833	5.3	437924	21.2	630958	9.0	491799	6.2
Sales and Services Workers	1411758	9.5	1292834	10.1	118924	5.8	760796	10.9	650962	8.2
Farmers, Fishermen, Breeding Animals and Hunting	4251980	28.5	4055146	31.5	196834	9.5	454527	6.5	3797453	47.9
Production and Related Workers in Transport and Laborers	3742030	25.1	3619876	28.2	122154	5.9	2246675	32.1	1495355	18.9
Workers not Reporting any Occupation	91225	0.6	67110	0.5	24115	1.2	52049	0.7	39176	0.5
Total	**14918473**	**100.0**	**12856632**	**100.0**	**2061841**	**100.0**	**6998563**	**100.0**	**7919910**	**100.0**
	Unemployment									
	Total	%	Male	%	Female	%	Urban	%	Rural	%
Professional; Technical and Related Workers	2988	0.1	2435	0.1	553	0.1	2249	0.2	739	0.0
Administrative and Managerial Workers	94	4.0	88	3.5	6	12.1	84	4.4	10	3.1
Clerical Workers and Related	702	0.9	552	0.8	150	3.3	518	1.0	184	0.8
Sales and Services Workers	2820	3.8	2555	3.6	265	5.8	2266	4.4	554	2.3
Farmers, Fishermen, Breeding Animals and Hunting	3653	4.9	3548	5.0	105	2.3	1111	2.2	2542	10.7
Production and Related Workers in Transport and Laborers	32246	42.9	31710	45.0	536	11.7	23530	45.7	8716	36.8
Workers not Reporting any Occupation	32613	43.4	29653	42.0	2960	64.7	21682	42.1	10931	46.3
		100		100		100		100		100
Ever Worked Unemployment	75116	4.9	70541	7.0	4575	0.9	51440	7.4	23676	2.8
Never Worked Unemployment	1459955	95.1	930484	93.0	529471	99.1	639323	92.6	820632	97.2
Total	**1535071**	**100.0**	**1001025**	**100.0**	**534046**	**100.0**	**690763**	**100.0**	**844308**	**100.0**

Source: Central Agency for Public Mobilization and Statistics (CAPMAS), Census of Population, Housing and Establishments, 1996, (Table, 29).

Figure (3.9) Percentage distribution of Egyptian employment by occupational structure, 1996.

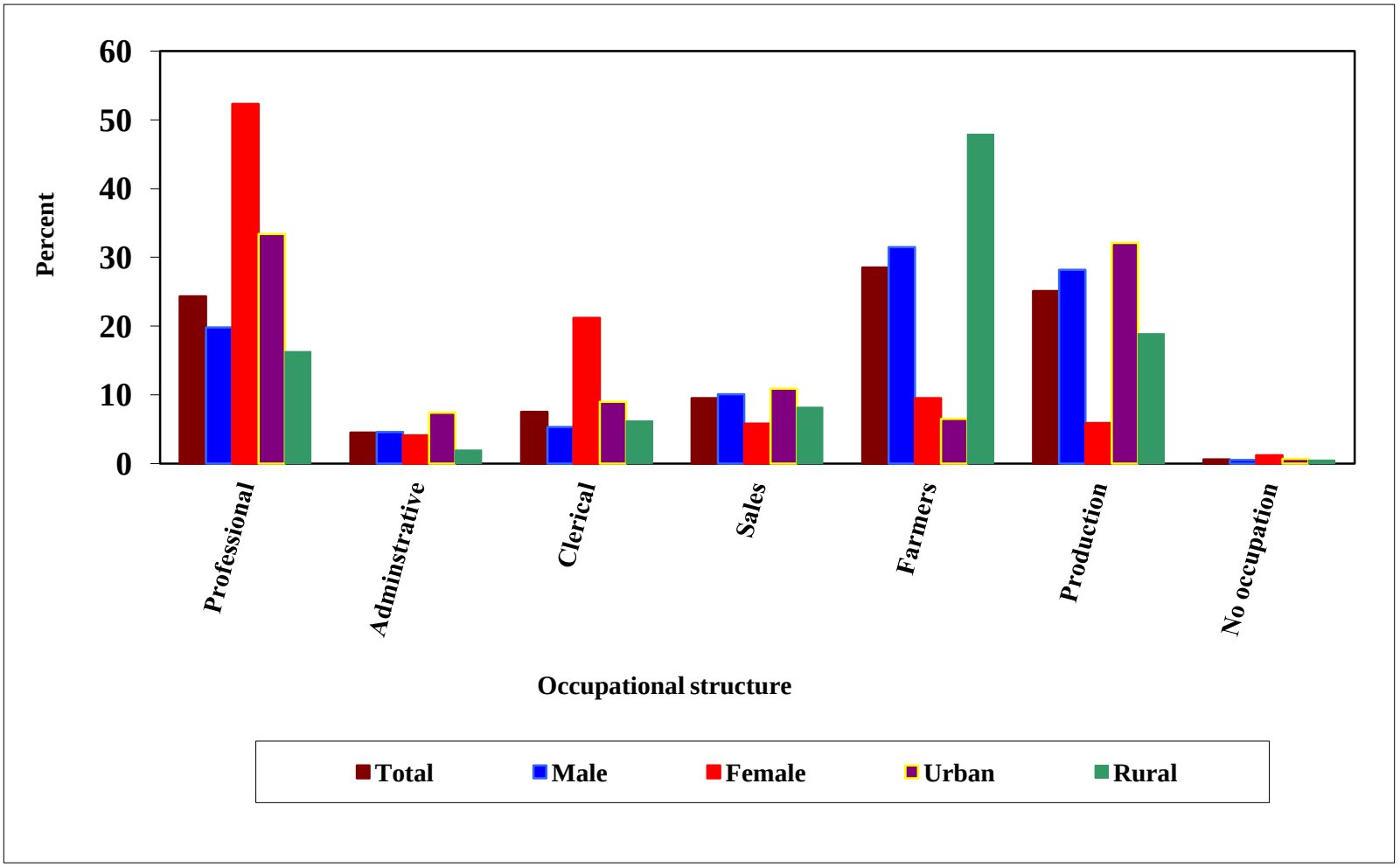
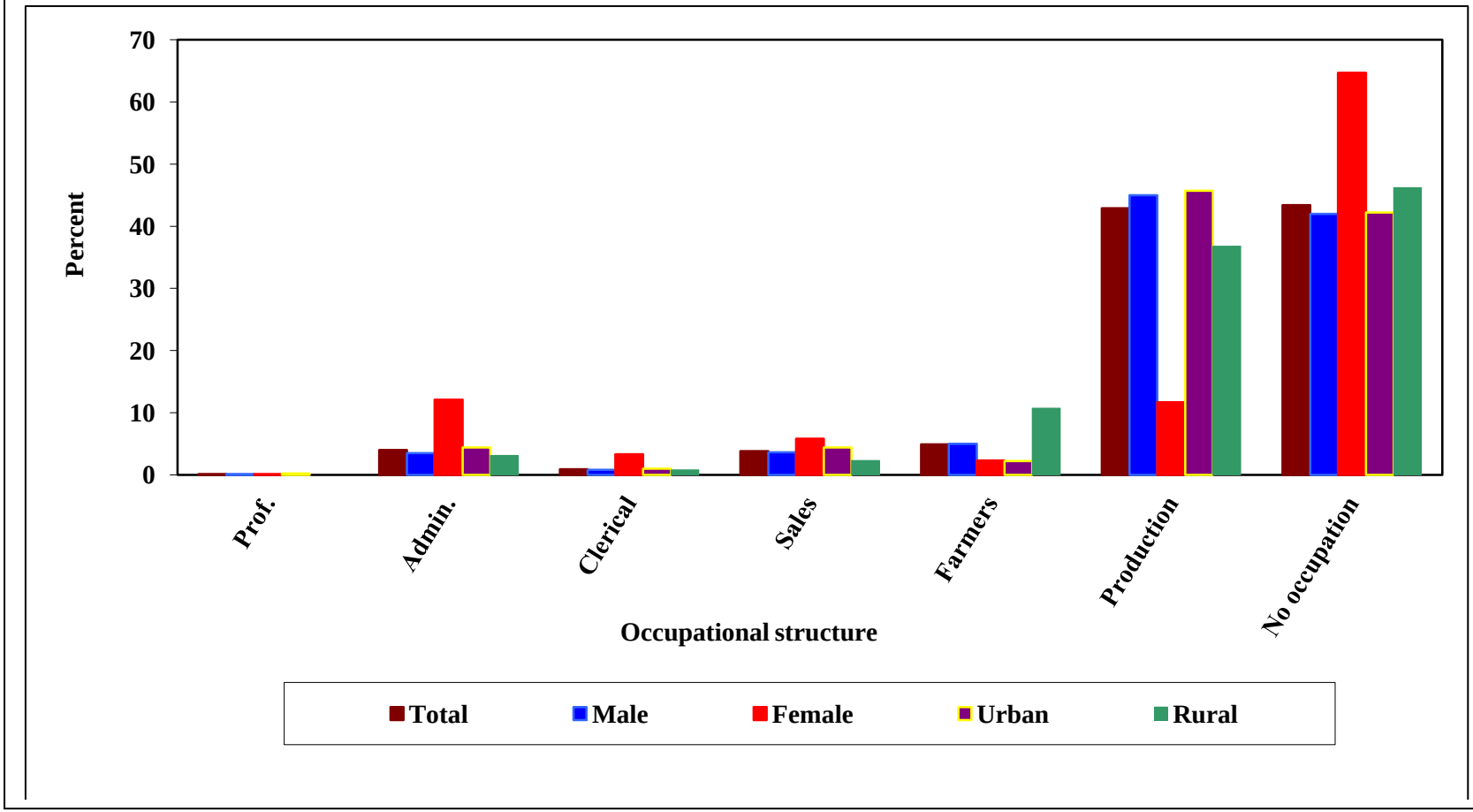


Figure (3.10) Percentage distribution of Egyptian unemployment (Ever Worked Unemployment) by occupational structure, 1996



4. The percentage of sales and services workers is higher among male employment than female (10.1% and 5.8% respectively) while the reverse is correct for clerical and related occupations (21.2% among females versus 5.3% among males).

5. As we explained before, 95% of unemployment is never-worked unemployment without any previous work experience. The remaining part of unemployment (ranging from about 7% in urban areas to less than 1% among females) is ever-worked unemployment.

6. Production and related works, mostly in urban areas, are the main occupations of ever-worked unemployment. This phenomenon may have a link with the early retirement cases, which is associated with the process of privatization of public sector enterprises in Egypt.

3.4 Estimation of the Recent Levels in Employment and Unemployment

3.4.1 Recent Level in Employment by industrial Sectors

The recent estimations of the size of Egyptian employment is obtained from the Ministry of Planning for the financial year 2000/2001, and are presented in the following table (table 3.6). It shows that:

1. Size of Egyptian employment is increasing from about 14.9 million in 1996 to reach about 17.4 million in 2001. The average annual rate of increase in the size of employment during the period 1996-2001 is quiet lower than the observed one during the inter-censual period 1986-1996; the rates were 3.6% and 3.9% respectively.

2. Despite the differences in the classification of some of the economic sectors between the two sources of data (1996 and 2001), it is clear that the same trend of increase in the size of employment in agriculture, industry, and construction sectors is still exiting.

3. Despite the increase in the size of employment in agriculture sector, the percentage of employment in agriculture sector has shown a slight reduction from about 29.6% in

1996 to about 28.6% in 2001. Another reduction in the percentage of employment in industry and mining sector is observed. It decreased from about 14.6% in 1996 to about 13.8% in 2001.

4. Production sectors absorbing about 51.4% of all Egyptian employment in 2001 (53.5% in 1996), while the services sectors (production and social services) absorbing the remaining percentage (48.6%).

Table (3.6) Estimation of the size of Egyptian employment by economic sectors for the financial year 2000-2001.

Economic Sectors	Number (in thousands)
Agriculture	4985
Industry and Mining	2412
Petroleum	49
Electricity	131
Constriction	1377
Total of Production Sectors	**8954**
Transportation and Suez Canal	789
Commerce, Finance, and Insurance	1888
Tourism	150
Total of Production Services Sectors	**2827**
Housing	231
Social, Public, Governmental Services and Social Insurance	3831
Other Services	1591
Total of Social Services Sectors	**5653**
Total	**17434**

Source: Ministry of Planning, A Reference Documentary of the Changes in the National Economy, Period 1960 to 2001, August 2001.

5. Two-third of employments in production services sectors are participating in commerce, finance and insurance Activities, while two-third of employments in social

services sectors are participating in social, public, governmental services and social insurance services.

3.4.2 Recent Level in Unemployment

Estimations of the recent unemployment rate are collected from different sources and presented in table 3.7. The table shows eight estimations of Egyptian unemployment rate during the period 1998 to that 2001 (including the present study estimation). Of course, there are differences in unemployment definitions, data sources, manipulation of data, and the methods of calculation (regarding the reference period of unemployment). However, we can conclude that:

1. Most of the estimations indicate that unemployment rate has a decreasing trend from the actual level observed in 1996 (9.3%).

2. Most of the estimates of the year 2000 indicate that unemployment rate ranged from 9.0% as the highest estimation (LFSS, CAPMAS) to 7.4% as the lowest estimation (HSBC).

3. The most recent estimation of unemployment rate is published in the Economic Newsletter of the National Bank of Egypt, year 2002 indicates that unemployment rate in year 2001 is about 7.6%. This estimation is in a great consistency with the estimation obtained from CAPMAS [(1)], and HSBC for the year 2000.

4. The study estimation of unemployment rate in year 2001 (12.2%) is based on two sources of data:

    - The first is, the estimation of the demand for Egyptian labor force, based on the actual values of Gross Domestic Product GDP, and worker productivity for the year 2001, represents in Table Two in the appendix.

    - The second is the study projection for the supply of Egyptian labor force in year 2001, based in specific assumptions for activity rates of males and

females separately. More detail about the methodology, assumptions and results are representing in chapter five and table 5.1 in the study.

Table (3.7) Different estimations of the recent unemployment rate in Egypt, different sources and years.

Source	Year of Estimation	Unemployment rate
CAPMAS (1)	1999/2000	7.9
CAPMAS (2)	2000	9.0
Egypt Human Development Report (3) (2000/2001)	1999	8.1
National Bank of Egypt (4)	2000/2001	7.6
HSBC (5)	1999/2000	7.4
Yearbook of labor Statistics (6) (2000)	1998	8.2
The World Factbook (7) (2002)	2001	12.0
The Present Study Estimation	2001	12.2

Sources:

(1): Central Agency for Public Mobilization and Statistics (CAPMAS), Demand Survey in Egyptian Labor market (2001).

(2): Central Agency for Public Mobilization and Statistics (CAPMAS), Labor Force Sample Survey (LFSS), 2000.

(3): Institute of National Planning (INP), Egypt Human Development Report (200/2001).

(4): National Bank of Egypt (NBE), Economic Newsletter 2002, Cairo.

(5): The Hong kong and Shanghai Banking Corporation Limited (HSBC), Egypt Business Profile.

(6): International Labor Migration (ILO), Yearbook of Labor Statistics 2000.

(7): Central Intelligence Agency (CIA), the World Fact-book 2002, Field Listing – Unemployment Rate.

(8): Calculated, from data of table two in appendix and table 5.1 in the study.

5. Estimation of the World Fact-book of Central Intelligence Agency (CIA) is in a great consistency with the study estimation of unemployment rate in year 2001.

6. The official published estimations of unemployment rate are lower than the estimates resulted from the indicators of economic performance (GDP growth rate and productivity) and labor growth (growth in economic activity). No clear reason behind this contradiction.

7. Most of the recent estimations of unemployment rate in years 2000 and 2001 support our results for the supply surplus (unemployment rate) in year 2006 under different assumptions of the Growth rate of Gross Domestic Product (GDP) and worker productivity (see table 5.4).

CHAPTER FOUR

ECONOMICALLY ACTIVE LIFE TABLES AND LOSS OF ACTIVE YEARS DUE TO UNEMPLOYMENT

4.1 Introduction

The age-sex specific activity rates derived from the census data together with a life-table representing the current conditions of mortality in the population are the materials for calculating the tables of economically active life (also called "tables of working life", "labor force life-tables" and so forth). Such tables represent the life style of economic activity in hypothetical cohorts, that is generations of males or females, subject at each period of their lives to given rates of mortality and of participation in economic activities. The tables provide measures of the average length of economically active life, and age-specific rates of entry into, and retirement from, labor force, and reduction of the labor force by death. They are useful in studying the processes of growth and structural change of the labor force, in estimating such quantities as lifetime expectations of earnings, in evaluating returns from investments in human capital, and for assessing economic implications of changes in activity rates and age-structure of the population..

4.2 Tables of Economically Active Life

The methods of deriving the various functions of economically active life-table according to the United Nation approach (U.N., 1968, PP. 15-35) are explained below. An abridged table of this kind gives measures for age intervals of five years. Complete tables of economically active life give the measures for each single year of age.

The calculation begins with age specific activity rates ***(column 2).*** In addition, the specific rate for the beginning age of each interval (column 3) is required in the calculation of some of the measures. These have been obtained by simple interpolation formula, averaging the rates for successive pairs of five-year intervals

(for instance, the activity rate for the exact age of twenty years is estimated as the average of the rates for fifteen to twenty and twenty to twenty five, and so forth).

The life-table survival function, life-table stationary population, and expectation of life are presented in columns (4, 7, 10 and 13). The survival function ***(column 4)*** is the $\mathbf{l_x}$ function of the life table, representing the number of survivors that would remain alive at each exact age out of the hypothetical cohort of 100000 person subject to the given age specific mortality rates. The stationary population in each age interval ***(column 7)*** is the ${}_5\mathbf{L_x}$ function of the life table, representing the number of persons who would be alive within each age interval in a hypothetical population replenished annually by a constant number of 100000 births and subject to the given age specific rates of mortality. The stationary population above each given age ***(column 10)*** is the $\mathbf{T_x}$ function of the life table. It is derived by cumulating the ${}_5\mathbf{L_x}$ values from each given age to the end of life. This represents the aggregate of years of life remaining for a member of the hypothetical cohort having survived to each given age. The total expectation of life at each age ***(column 13)*** is the ${}^{\circ}e_{\mathbf{x}}$ function of the life table derived by dividing the cumulated stationary population ($\mathbf{T_x}$) by the number of survivors at each age ($\mathbf{l_x}$). This represents the average number of years of life remaining for survivors at each age.

The numbers of economically active survivors at various ages and economically active persons in the stationary population are obtained by multiplying the life-table values by the corresponding specific activity rates; thus on each line of the table, ***column 5*** is the product of column 4 and column 3, and ***column 8*** the product of columns 7 and 2. The cumulated economically active stationary population ***(column 11)*** is derived by summing the values of column 8 from each age to the end of life.

4.3 Measures of the Length of Active Life

A working life table provides two measures of the average length of economically active life, as shown in columns 14 and 15. The first ***(column 14)*** is for the expectation of active life, that is to say, the average number of economically active

years to be lived per person in the hypothetical cohort at the age of entry to labor force and among the survivors at each age. This is derived by a calculation analogous to that of the total expectation of life, the cumulated economically active stationary population (column 11) being divided by $\mathbf{l_x}$. the total number of survivors at each age (column 4). The expectation of inactive life ***(column 15)*** at the age of entry to labor force and at each age after that is obtained by subtracting the expectation of active life from the total expectation of life.

The second measure of the length of economically active life is the average remaining years of active life per economically active person among the survivors of the cohort at each age ***(column 16)***. For ages above the point at which the specific activity rates reach the maximum, the calculation of this measure is similar to that of expectation of active life, except that the cumulated economically active stationary population $\mathbf{Tw^*_x}$ (column 12) is divided by the number of economically active survivors $\mathbf{lw^*_x}$ (column 6) instead of the total number of survivors at each age (column 4). At ages below the point of the maximal activity rate, a modification of the method has to be introduced; the activity rates for the younger ages are replaced by hypothetical activity rates equal to the maximal rate. Without this modification, the values of average remaining years of active life for the younger ages would be exaggerated, since the numbers of economically active survivors at the younger ages would not include persons expected to enter into economic activities later in life; while the active years of the latter would be included in the cumulated economically active stationary population figures.

Calculation of the expectation of active and inactive life and related functions (columns 2-12) can be made equally well with reference to the population of either sex in any country, area, ethnic group etc., for which the required activity rates and life table function are available. Of course, the validity of results depends on the accuracy of the data on economic activities and of the mortality data on which the life table is based. On the other hand, the validity of measures of average remaining years of active life for economically active persons (column 16) depends on certain conditions which do not have to be satisfied for valid measures of the expectation of active life. These conditions are:

(a) All persons who enter the labor force at any time in their lives do so prior to the age at which the activity rate reaches its maximum, and no survivors retire into inactive status prior to that age;

(b) The ages at which individuals retire are independent of the ages at which they enter the labor force;

(c) The rate of mortality at each age is the same for economically active and inactive person.

Of course, none of these conditions can be expected to be perfectly satisfied in any case, but near satisfaction of them is necessary if the measures of average remaining years of active life are to be accepted as valid adequate limits of error.

The following sets of tables represent the results of applying the economically active life table technique on the data of Egyptian male and female populations and employed males and females respectively. The first table 4.1 represents the abridged table of economically active life for Egyptian male population, while the second table (4.2) represents the abridged table of employment life for Egyptian male population. The corresponding tables for females are (4.3) and (4.4) respectively. From tables (4.1) and (4.3) we notice that:

1. At the prevailed levels of mortality and activity rates in the year 1996, an Egyptian male aged 15-19 (in the first labor force age group) is expected to still alive on average for additional 54 year. Of these years, the economically active life is estimated as of 41.4 year on average (about 76.6% of the total expected years of life) and to be in inactive status (due to all reasons of inactivity) for the remaining years (12.7 year), (see table 4.1). The corresponding years for an Egyptian female in the same age group (15-19) is 56 year as an expectation of the remaining total years of live; 6.6 year as an expectation of economically active life (11.8% of the

Table (4.1) Abridged table of economically active life for Egyptian male population, 1996.

Age Interval	Age Specific Activity Rate		Survivors at Age x out of 100,000 Born Alive			Stationary Population in Age Interval			Cumulated Stationary Population in Age x -			Expectation of Life at Age x			Average Remaining Years of Active Life at Age x
	in Age Interval	*at Beginning Age x*	*in The Total Population*	*in The Economically Active Population*		*in The Total Population*	*in The Economically Active Population*		*Total Population*	*Economically Active Population*		*Total Years*	*Economically Active Years*	*Inactive Years*	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Exact Age x to x+5	${}_5{}^{w}x$	${}^{w'}x$	${}^{l}x$	${}^{l w}x$	${}^{l w*}x$	${}_5L_x$	${}_5Lw_x$	${}_5Lw^*_x$	T_x	Tw_x	Tw^*_x	${}^{o}e_x$	${}^{o}ew_x$	${}^{o}enw_x$	${}^{o}ew^*_x$
15-19	39.4	0	92228	0	90614	459918	181208	451869	4982183	3813807	4188622	***54.0***	***41.4***	***12.7***	46.2
20-24	77.9	58.65	91718	53793	90113	457136	356109	449136	4522265	3632599	3736753	***49.3***	***39.6***	***9.7***	41.5
25-29	95.8	86.85	91119	79137	89524	453836	434775	445894	4065129	3276490	3287617	***44.6***	***36.0***	***8.7***	36.7
30-34	98.1	96.95	90388	87631	88806	449671	441127	441802	3611293	2841715	2841723	***40.0***	***31.4***	***8.5***	32.0
35-39	98.4	98.25	89443	87878	87878	444469	437357	436691	3161622	2400588	2399921	***35.3***	***26.8***	***8.5***	27.3
40-44	97.3	97.85	88275	86377	86377	436966	425168	425168	2717153	1963230	1963230	***30.8***	***22.2***	***8.5***	22.7
45-49	96.1	96.7	86368	83518	83518	425174	408592	408592	2280187	1538062	1538062	***26.4***	***17.8***	***8.6***	18.4
50-54	93.6	94.85	83489	79189	79189	406770	380737	380737	1855013	1129470	1129470	***22.2***	***13.5***	***8.7***	14.3
55-59	90.8	92.2	78874	72722	72722	377787	343031	343031	1448243	748733	748733	***18.4***	***9.5***	***8.9***	10.3
60 +	37.9	64.35	175890	113185	113185	1070456	405703	405703	1070456	405703	405703	***6.1***	***2.3***	***3.8***	3.6

Sources: Computed as given in U.N., Population studies, No. 43, 1968.

${}_5{}^{w}x$ (Age Specific Activity Rates) derived from table (3.2).

${}^{l}x$ ***(Survival functions)*** derived from life table of male Egyptian population based on data of 1996 census, Cairo Demographic Center (CDC), September 2000.

Table (4.2) Abridged table of employment life for Egyptian male population, 1996.

Age Interval	Age Specific Employment Rate of Population		Survivors at Age x out of 100,000 Born Alive		Stationary Population in Age Interval		Cumulated Stationary Population in Age x -		Expectation of Life at Age x				
	in Age Interval	*at Beginning Age x*	*Total Population*	*Employed Population*	*Total Population*	*Employed Population*	*Total Population*	*Employed Population*	*Total Life*	*Econo-mically Active Life*	*Employed Life*	*Inactive Life*	*Unemp-loyed Life*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Exact Age x to x+5	ASER	ASER '	l_x	$l e_x$	L_{5x}	Le_{5x}	T_x	Te_x	^oe_x	^oew_x	^oee_x	$^oenw_x$	$^oene_x$
15-19	33.97	0.00	92228	0	459918	156234	4982183	3627279	***54.0***	***41.4***	***39.3***	***12.7***	***2.0***
20-24	64.24	49.11	91718	45038	457136	293664	4522265	3471045	***49.3***	***39.6***	***37.8***	***9.7***	***1.8***
25-29	80.24	72.24	91119	65824	453836	364158	4065129	3177381	***44.6***	***36.0***	***34.9***	***8.7***	***1.1***
30-34	93.07	86.66	90388	78326	449671	418509	3611293	2813223	***40.0***	***31.4***	***31.1***	***8.5***	***0.3***
35-39	98.11	95.59	89443	85499	444469	436069	3161622	2394714	***35.3***	***26.8***	***26.8***	***8.5***	***0.1***
40-44	96.99	*97.55*	88275	86112	436966	423813	2717153	1958645	***30.8***	***22.2***	***22.2***	***8.5***	***0.1***
45-49	95.86	96.43	86368	83280	425174	407572	2280187	1534832	***26.4***	***17.8***	***17.8***	***8.6***	***0.0***
50-54	93.34	94.60	83489	78981	406770	379679	1855013	1127260	***22.2***	***13.5***	***13.5***	***8.7***	***0.0***
55-59	90.58	91.96	78874	72533	377787	342199	1448243	747581	***18.4***	***9.5***	***9.5***	***8.9***	***0.0***
60 +	37.87	64.23	175890	112965	1070456	405382	1070456	405382	***6.1***	***2.3***	***2.3***	***3.8***	***0.0***

Sources: Computed as given in U.N., Population studies, No. 43, 1968.

ASER (Age Specific Employment Rates) derived as the percentage of employment persons in each age group (from table 3.1) to the total number of persons in the same age group.

^{l}**x (Survival functions)** derived from life table of male Egyptian population based on data of 1996 census, Cairo Demographic Center (CDC), September 2000.

Table (4.3) Abridged table of economically active life for Egyptian female population, 1996.

Age Interval	Age Specific Activity Rate		Survivors at Age x out of 100,000 Born Alive			Stationary Population in Age Interval			Cumulated Stationary Population In Age x -			Expectation of Life at Age x			Average Remaining Years of Active Life at Age x
	in Age Interval	*at Beginning Age x*	*in The Total Population*	*in The Economically Active Population*		*in The Total Population*	*in The Economically Active Population*		*Total Population*	*Economically Active Population*		*Total Years*	*Econo-mically Active Years*	*Inactive Years*	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Exact Age x to x+5	$_5{}^wx$	w'_x	l_x	$l\,w_x$	$l\,w^*_x$	$_5L_x$	$_5Lw_x$	$_5Lw^*_x$	T_x	Tw_x	Tw^*_x	^oe_x	^oew_x	$^oenw_x$	$^oew^*_x$
15-19	11.0	0	91938	0	19537	458805	50469	*86255*	5146425	602782	616154	***56.0***	***6.6***	***49.4***	31.5
20-24	22.9	16.95	91572	15521	19459	456844	104617	*85887*	4687620	552313	529899	***51.2***	***6.0***	***45.2***	27.2
25-29	19.6	21.25	91156	19371	19371	454586	89099	*85462*	4230776	447696	444012	***46.4***	***4.9***	***41.5***	22.9
30-34	20.2	19.9	90665	18042	18042	451908	91285	*84959*	3776190	358597	358550	***41.6***	***4.0***	***37.7***	19.9
35-39	17.4	18.8	90077	16934	16934	448565	78050	*84330*	3324282	267312	273592	***36.9***	***3.0***	***33.9***	16.2
40-44	15.0	16.2	89310	14468	14468	444074	66611	66611	2875717	189261	189261	***32.2***	***2.1***	***30.1***	13.1
45-49	11.1	13.05	88241	11515	11515	436996	48507	48507	2431643	122650	122650	***27.6***	***1.4***	***26.2***	10.7
50-54	7.9	9.5	86394	8207	8207	424893	33567	33567	1994647	74144	74144	***23.1***	***0.9***	***22.2***	9.0
55-59	6.0	6.95	83293	5789	5789	404361	24262	24262	1569754	40577	40577	***18.8***	***0.5***	***18.4***	7.0
60 +	1.4	3.7	271521	10046	10046	1165393	16316	16316	1165393	16316	16316	***4.3***	***0.1***	***4.2***	1.6

Sources: Computed as given in U.N., Population studies, No. 43, 1968.

$_5{}^wx$ (Age Specific Activity Rates) derived from table (3.2).

^lx ***(Survival functions)*** derived from life table of female Egyptian population based on data of 1996 census, Cairo Demographic Center (CDC), September 2000.

Table (4.4) Abridged table of employment life for Egyptian female population, 1996.

Age Interval	Age Specific Employment Rate of Population		Survivors At Age x out of 100,000 Born Alive		Stationary Population in Age Interval		Cumulated Stationary Population in Age x -		Expectation of Life at Age x				
	in Age Interval	*at Beginning Age x*	*Total Population*	*Employed Population*	*Total Population*	*Employed Population*	*Total Population*	*Employed Population*	*Total Life*	*Econo-mically Active Life*	*Employed Life*	*Inactive Life*	*Unemp-loyed Life*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Exact Age x to x+5	ASER	ASER '	l_x	$l e_x$	$_5L_x$	$_5Le_x$	T_x	Te_x	^oe_x	^oew_x	^oee_x	$^oenw_x$	$^oene_x$
15-19	6.73	0.00	91938	0	458805	30878	5146425	505518	***56.0***	***6.6***	***5.5***	***49.4***	***1.1***
20-24	14.08	10.41	91572	9528	456844	64324	4687620	474641	***51.2***	***6.0***	***5.2***	***45.2***	***0.8***
25-29	13.31	13.70	91156	12484	454586	60505	4230776	410317	***46.4***	***4.9***	***4.5***	***41.5***	***0.4***
30-34	18.28	15.80	90665	14321	451908	82609	3776190	349812	***41.6***	***4.0***	***3.9***	***37.7***	***0.1***
35-39	17.29	17.79	90077	16020	448565	77557	3324282	267203	***36.9***	***3.0***	***3.0***	***33.9***	***0.0***
40-44	14.96	*16.13*	89310	14401	444074	66433	2875717	189646	***32.2***	***2.1***	***2.1***	***30.1***	***0.0***
45-49	11.12	13.04	88241	11507	436996	48594	2431643	123213	***27.6***	***1.4***	***1.4***	***26.2***	***0.0***
50-54	7.92	9.52	86394	8225	424893	33652	1994647	74619	***23.1***	***0.9***	***0.9***	***22.2***	***0.0***
55-59	6.01	6.97	83293	5801	404361	24302	1569754	40967	***18.8***	***0.5***	***0.5***	***18.4***	***0.0***
60 +	1.43	3.72	271521	10101	1165393	16665	1165393	16665	***4.3***	***0.1***	***0.1***	***4.2***	***0.0***

Sources: Computed as given in U.N., Population studies, No. 43, 1968.

ASER (Age Specific Employment Rates) derived as the percentage of employment persons in each age group (from table 3.1) to the total number of persons in the same age group.

^lx (Survival functions) derived from life table of female Egyptian population based on data of 1996 census, Cairo Demographic Center (CDC), September 2000.

Total expected years of live); and 49.4 year as an expectation of inactive life (see table 4.3).

2. Average remaining years of active live is another measure of the length of economically active life (after replacing the specific activity rates of the ages below the point of the maximal activity rate by a rate equal to the maximal rate, to avoid the exaggeration of the values of average remaining years of active life). The average remaining years of active life for an Egyptian male, aged 15 to 19 is about 46.2 year. The corresponding average remaining years of active live among the Egyptian females in the same age group (15-19) is about 31.5 year.

3. It is clear that there is a negative and logical relation between the person's age (male or female) and the expectation of the remaining years in live, in economically active situation, and the average remaining years of active life. As the age of the person increases (i.e. shifting from one age group to the next age group) the exception of his/her total years of life, years of economically active live, and the average remaining years of active life decreases.

4. At the last age group of employment life (55-59), an Egyptian male is expect to still alive on average for additional 18.4 year. Of these years, he will still in economically active status on average for about 9.5 year (51.6% of total expected remaining years of life); in inactive status on average for about 8.9 year; and the remaining years of active life is expect to be about 10.3 years. The corresponding expectation among female in the same age group are: 18.8 year as the average remaining years of life; 0.5 as the average remaining years in economically active status; 18.4 year as the average remaining years in inactive status; and 7.0 as an average remaining years of active life.

As for tables (4.2) and (4.4) which represent the abridged tables of employment life for Egyptian males and females respectively, we can notice the following:

1. As we explained before (in table 4.1), an Egyptian male aged 15-19 years is expected to stay in economically active life on average for about 41.4 year. Of these years, it is expected to be employed for about 39.3 years (represents

about 95% of the economically active life); and to be in unemployment status for about 2 years (5% of all economically active life).

2. The economically active life for an Egyptian female in the age group 15-19 is expected to be about 6.6 years (see table 4.3). Of these years, it is expected to be employed for about 5.5 years (represents about 83% of the economically active life); and to be unemployed for about 1.1 years (17% of all economically active life).

3. It is clear that, as the age of employee (either male or female) increases, the average employed life and unemployment life decreases. The unemployment burden is concentrated among youngest and middle age employees (from the entry age to labor force until the med span of active life), which means no expectation for unemployment life for males over age 44 or for females over age 34.

4.4 Quantitative Measures of the Burden of Unemployment

In this section, a trail has been made to compile a quantitative measure to the extent of unemployment problem in Egypt through estimating the total years of economically active life lost due to unemployment. Additionally the magnitude of lost years due to unemployment will be converted into money in view of the current Egyptian labor productivity.

The methodology used to estimate a quantitative measure for the extent of unemployment in terms of loss of years is simply by multiplying the average number of years of unemployment life per economically active survivor person (from tables 4.2 and

4.4) by the actual size of labor force, and sum the results through all the age groups. This will yield the total years of economically active life lost due to unemployment. The above-mentioned approach is applied in table (4.5). It shows that:

1. At the current level of unemployment rate of 9.3% and at the current Age Specific Employment Rates (ASERs) for Egyptian males and females, we lose about 10.6 million economically active person/years, 90% of these lost years for males (about 9.6 million of economically active years) and 10% for females (about one million of economically active years).

2. The majority of economically active years lost due to unemployment concentrated among labor force less than 30 years of age, it is about 9.7 millions of economically active years, representing about 91% of all economically active years lost due to unemployment.

The average productivity of an Egyptian worker was relied on to generate the second measure of the impact of unemployment on the Egyptian economy. The main idea of this measure is to multiply the total number of economically active years lost due to unemployment by the average productivity of an Egyptian worker. This yields the total amounts of loss due to unemployment in terms of money (estimated in Egyptian Pound LE).

It may be useful before going through the estimation process to introduce a brief definition of productivity, its variation from a sector to another within the Egyptian economy, in addition to a comparison of Egyptian productivity of worker with the corresponding measure of developed and underdeveloped countries.

Table (4.5) Average number of years of unemployed life, and total years of economically active life lost due to unemployment, by sex, and both sexes, Egypt, 1996.

Age interval	Male			Female			Both Sexes
	Average number of years of unemployed life per economically active survivor males at age x	Actual size of male labor force	Total years of economically active life lost due to unemployment	Average number of years of unemployed life per economically active survivor females at age x	Actual size of female labor force	Total years of economically active life lost due to unemployment	Total years of economically active life lost due to unemployment
15-19	2.02	1418937	**2869744**	1.06	362894	**383914**	**3253658**
20-24	1.76	2050638	**3612036**	0.85	554749	**470544**	**4082580**
25-29	1.09	2010685	**2187001**	0.41	442390	**181403**	**2368404**
30-34	0.32	1950093	**614712**	0.10	399432	**38704**	**653416**
35-39	0.07	1879115	**123404**	0.00	337489	**407**	**123811**
40-44	0.05	1567496	**81414**	0.00	232567	**0**	**81414**
45-49	0.04	1350212	**50500**	0.00	143092	**0**	**50500**
50-54	0.03	927588	**24552**	0.00	81217	**0**	**24552**
55-59	0.01	702893	**10269**	0.00	42057	**0**	**10269**
Total		13857657	**9573632**		2595887	**1074972**	**10648604**

Sources: computed:
Actual size of male and female labor force derived from table (3.2).
Average number of years of unemployment life for male and female derived from tables (4.2) and (4.4).

4.5 Egyptian Labor Productivity

4.5.1 Productivity Definitions and Concepts

The classic definition of productivity is the ratio of inputs to outputs (P=I/O). Straight quantities can be used, but weighting factors (such as costs) are generally used. Efficiency and effectiveness are related to productivity. The relation between the inputs and outputs defines efficiency. Effectiveness, however, related to the quality of the output. Another definition to productivity as it is the balance between all productions factors that will give the greatest return for the least effort, (Drucker, 1974, P.153). Productivity can be separated into two factors: performance and financial (Moore, 1978, P.312). Performance productivity is based on the number of outputs produced. For example, if company A produces 100 units in one week, and 120 the next, its performance productivity has increased by 20 percent. By contrast, financial productivity focuses on the value of output. If company B had produced 100 units in both weeks, but raised the price from LE 1.00 per unit to LE 1.20 per unit in the second week, its financial productivity would have increased by 20 percent with no increase in outputs.

Economic theory differs when applied at the national level from when applied to an individual business. One is called macroeconomics and the other microeconomics. Productivity may be viewed in a parallel manner, with macroproductivity referring to productivity at the national level, microproductivity referring to productivity at the business level, and nanoproductivity referring to productivity at suborganizational levels. A general definition of productivity is possible, but to use it one must indicate the intended level of use, i.e. the national economy, firm, plant, department, or the individual (Thor, 1988, P.93).

4.5.2 Trends in Egyptian Labor Productivity

According to the United Nations Industrial Development Organization (UNIDO) database of industrial statistics (see table One in appendix), Egypt manufacturing sector has achieved significant progress in labor productivity over the 1980 to 1992

period, the overall labor productivity rose by 63 percent, from $10,210 to $15,973, while the average annual wage stood at a stable $1,475 to 1,479 per worker.

The combination of rising labor productivity and stable wages means that Egypt's unit labor costs of production (the cost of wages per $100 of output) are as low as $9 or only 9 percent of output value in manufacturing. This means that, the country has an obvious and significant cost advantage in businesses operation to meet domestic and export demand. It also means that, while Egyptian workers may still lag behind some of their international competitors in terms of productivity (a function of training, experience and the level of automation of production methods), they certainly make up for this in terms of low wages they receive.

The Egyptian Ministry of Planning provides the recent available data on productivity of Egyptian worker by economic sectors (see table Two in appendix). According to the measurement of labor productivity in 1996, the average productivity of the worker in the production sectors (including agriculture, mining and industry, petroleum, electricity, and construction sectors) was about LE 13,268 increased to about LE 17,839 in year 2000. The percentage of increase was about 34% during the specified period. Within the production sector, the highest labor productivity is observed among workers in petroleum sector (the most capital intensive manufacturing sector) followed by workers in electricity sector, while the lowest productivity observed among workers in agriculture sector. Amongst the three main economic sectors, the highest productivity among all Egyptian workers observed in production services sectors (include transportation, Suez Canal, commerce, finance, insurance, and tourist sectors). It rose from about LE 28,721 in 1996 to about LE 36,341 in year 2000. The percentage of increase was about 27% during the specified period. On the contrary the lowest productivity observed among workers in social services sectors (include housing, personal and social services, social insurance and public services sectors). It goes up from about LE 7,902 in 1996 to about LE 9,900 by the year 2000. The percentage of increase was about 25%. The overall Egyptian labor productivity increased from about LE 13,963 in 1996 to about LE 18,265 by the year 2000. The percentage of increase was about 34% during the specified period.

4.5.3 Significance of the Egyptian Labor Productivity

Despite this advantageous point of inexpensive work force in Egypt, the conclusion may be surprising when we consider it in the context of actual investment. Investors do not look at the wage rate when they are choosing where to invest; the most important consideration is the unit cost (the relation between the costs of labor and the output that labor generates). While Egypt wage rate may be competitive in the world market, productivity continues to lag in many sectors of the economy. Therefore, Egypt's unit cost (the true measure of labor cost) is relatively high. Low productivity reduces the competitiveness of Egyptian products in the local market and abroad, by raising the price paid by consumers, and reducing Egypt's attractiveness to the international investors who are so important to the nation's ongoing economic reforms.

There are many reasons for Egypt's low productivity. Lack of technology and inadequate job training surely reduce efficiency and output. Most of the developing countries face these problems. However, there are constraints on productivity that Egypt has imposed on itself. One of the most important factors is the government interference in employment practice. The Egyptian government is understandably concerned about unemployment, and this has resulted in a series on incentives and prohibitions designed to encourage firms to employ more workers than they actually need. The effects of incentive programs have hurt the Egyptian economy. Worldwide experience shows the opposite. Businesses do not hire workers based on government incentives; they hire the number of workers they need. The incentives only distort the labor market and lead to inefficiency, which reduces competitiveness. Another factor that raises the unit cost of production in Egypt is the lack of accurate up-to-date information on business conditions an investor can expect. It is extremely difficult to find a reliable information or comprehensive evaluation of unit labor cost. The relevant information that an investor needs to make an informed decision can be hard to find, and often expensive. The cost of finding that information adds to the unit cost of production reduces any advantage Egypt may gain through low wages. While the government certainly cannot provide the technology needed to improve productivity in the short term, but, there are some steps that could take to improve Egypt's global position.

The best investment that the government can make right now to improve productivity in the long run is in basic education. Specialized training can be left to the marketplace, but trainability of employees is a function of basic education (58.5% of Egyptian labor force are less than the basic level of education, see table 2.3). If people are to be expected to raise their productivity, they must be better educated. As workers become better educated and more productive, wages will increase, in the long run productivity will be a driving factor.

The conclusion is, investors are not interested in the cost of wages alone. They want to know the relationship between labor and productivity. Egypt can be competitive in the global marketplace, but only if its productivity rises. If Egypt does not raise its productivity, the benefits of cheap labor alone are not enough to achieve real economic development.

4.5.4 Loss Due to Unemployment in Terms of Money

Table (4.6) represents the results of estimated total loss due to unemployment in terms of money. The lost money computed by multiplying the total years of economically active life lost due unemployment at each age group of work span (from table 4.5) by the average productivity of the Egyptian worker in 1996 (LE 13,963). The table explains that:

1. At the prevailing rate of unemployment (9.3%) and according to the estimated total years of economically active life lost due to unemployment, and at the actual productivity level of the Egyptian worker, we loss about 148.7 Billion Egyptian pound. The amount of money lost decreases as the age of worker increases. This is due the reduction of the expectation of unemployment life with increasing age of workers.

Table (4.6) Total amount of loss due to unemployment in terms of money, at the national level, 1996.		
Age group	**Total years of economically active life lost due to unemployment (Thousand years)**	**Total loss due to unemployment in terms of money (1) (Million LE)**
15-19	3254	45436
20-24	4083	57011
25-29	2368	33064
30-34	653	9118
35-39	124	1731
40-44	81	1131
45-49	51	712
50-54	25	349
55-59	10	140
Total	10649	148692

Sources: computed.

Total loss of economically active years due to unemployment obtained from table 4.6

(1) Total loss due to unemployment in terms of money estimated by multiplying the average productivity of the Egyptian worker in 1996 (LE 13,963) by the total years of economically active life lost due to unemployment at each age group.

2. It is clear that, as the rate of unemployment decreases, the expectation of total years of economically active live increases, and the total loss due to unemployment in terms of money will decreases. For example, if the government succeeds in reducing the rate of unemployment within the next 10 years to reach about 7%, keeping other influencing factors constant, the loss in economically active years due to unemployment will be reduced to about 8 million years, and the total loss in terms of money will be reduced to about LE 112 billion. Further more, if we succeed to reach the acceptable global level of unemployment, around 3.5%, by the end of 2017. The total years of

economically active life due to unemployment will be decreased to about 4 million years, and the loss in terms of money will be decreased to about LE 55.6 billion, under the assumption of keeping other factors constant.

CHAPTER FIVE

FUTURE OF THE EGYPTIAN LABOR FORCE:

PROJECTION OF THE SUPPLY AND DEMAND OF LABOR FORCE

5.1 Introduction

Strategic planning focuses on successfully managing the future. Projecting what is likely to occur in the future is the first step towards managing the future. Projection methods can be used to accomplish this goal.

Projection methods can be classified as quantitative, qualitative, or as a combination of both methods. Quantitative methods involve the analysis of patterns observed in the past data to predict the future trends. These methods are based on the assumption that tomorrow's events will be similar to today's, and that patterns observed in the past will continue into the future. If historical patterns can be expected to continue into the future, quantitative methods should produce relatively accurate projection. On the other hand, if the past patterns change for some reasons, then this method may not provide accurate projection.

The qualitative approach, by contrast, does not require historical data and, as such is not based on this assumption. Instead, it uses the personal opinions of experts to forecast the future. When the quantitative and qualitative methods are combined, the resulting projections are based on historical trends, but modified using the opinions of experts to account for probably changes not reflected in the historical data. The combined method recognizes that forecasting is both an art as well as a science. In this study, we use the combined method to forecast the supply of and the demand for the Egyptian labor force.

5.2 Projection of the Supply of Labor Force

Projection of the supply of labor force depends on assumptions of the future size and composition of the current population, as well as on the trends in participation rates. The main idea of projecting the supply of Egyptian labor force is to multiply the expected Age Specific Activity Rates (ASARs) of different labor age groups by the projected size of population. This will yield the estimated size of labor force, which is ready to participate in

the economic activities of the society (the supply of labor force). The following is a detailed description of the assumptions of the future population growth as will as of the Age Specific Activity Rates (ASARs).

5.2.1 Assumptions of the Components of Egyptian Population Growth

The size and composition of any population is affected by the interaction of three variables: fertility, mortality, and net immigration. The main aim behind the population projection is to estimate the size and composition of Egyptian population by sex starting from 1996 until the year 2026. Dem-Proj software (Future Group, 1991) was utilized to project the size and composition of the Egyptian population. This software requires three sets of assumptions, first, the target Total Fertility Rate (TFR) as an indicator of the future fertility level, second, Life Expectancy at Birth **(e^0)** as an indicator of the future mortality level, and lastly, the Net Immigration Rate as an indictor to the future level of immigration.

In the present section, two models of the assumptions of the components of population growth (fertility, mortality, and net immigration) are generated. These two models represent the most agreed upon future trends of the Egyptian population growth starting from year 1996 until year 2026.

The first model of population growth assumes that the current level of Total Fertility Rate (TFR) of 3.5 births per woman will continue constant along the projection span. No immigration impact is assumed on the population growth. Male life expectancy at birth **(e^0)** is assumed to grow from 63.8 years in the base year of projection (1996) to 72.7 years in the end of projection period (2026). The corresponding life expectancies of females are 65.4 and 76.7 years respectively (the main indicators of the model are presented in Table Three in the appendix).

The second model of population growth assumes that the current level of Total Fertility Rate (TFR) of 3.5 births per woman will decline gradually to reach 2.9 by 2016, and then decline to reach the replacement level (2.1) by the 2026. No immigration impact on the population growth is assumed. Male life expectancy at birth **(e^0)** will grow from its current level to reach about 72.7 years at the end of projection span (year 2026). The corresponding

life expectancy of females is assumed to be about 76.7 years at the end of projection period (the main indicators of the model are presented in Table Four in the appendix).

5.2.2 Assumptions of the Labor Force Participation Rates

Although the very minor changes that occurred in male ASARs during the inter censual period 1986-1996, but It is assumed that the same growth will continue for the next ten years up to 2006 and then to remain constant after that until the end of the projection period. The observed growth rate in female ASARs during the period 1986-1996 is assumed to continue for the next fifteen years up to year 2011 and to remain constant after that until the end of the projection period (year 2026).

5.2.3 Future Prospects of the Supply of the Egyptian Labor Force

Tables (5.1) and (5.2) and figures (5.1), (5.2) and (5.3) represent the projected size of Egyptian population of working age groups. As well as the supply size of the Egyptian labor force, during the period 2001 to 2026, five years intervals, according to the combined assumptions of population growth and ASARs growth.

Table (5.1) represents the results of applying first model of population growth assumptions combined with the assumptions of ASARs. It shows that:

1. The size of Egyptian manpower (population aged 15 to 59 years) is expect to grow from about 33.5 million in the base year of projection period 1996 to about 44.2 million in 2006 and to continue growing to reach about 64.7 million at the end of projection period (2026).

2. The size of labor force is expect to grow from about 16.5 million in the base year of projection to reach about 23.3 million in 2006 and to continue its growth to reach about 35.4 million by the last year of projection span. Percentage of labor force to the total manpower (population in the working age groups 15-59) is expect to increase gradually from about 49.2% in the base year of projection to reach about 52.8% in 2006 and to fluctuate around 55% during the remaining period of projection.

3. The size of male labor force is expected to increase from about 13.9 million in the base year of projection period (represents about 84.5% of the total size of labor force) to reach about 18.8 million in 2006 (80.4% of the total size of labor force). Male labor force size will continue growing to reach about 27.8 million by the end of projection period 2026 (represents about 78.6% of the total size of labor force). It is clear that the reduction in the percentage of male labor force to the total size of labor force resulted from the assumption of higher growth rate of female ASARs and the approximately constant growth rate of male ASARs. The percentage of female participation in labor force is expect to increase from about 15.5% (about 2.6 million) in 1996 to about 21.1% in 2006 (about 4.6 million) and to continue its growing to reach about 24.0% in 2026 (about 7.6 million).

4. By the end of the projection period, the size of Egyptian labor force is expected to be more than double of the initial size in the base year of projection. It is expected to increase by 18.9 million workers representing about 115% of the labor force size in year 1996. Male labor force is expected to double by the end of the projection period (will increase by about 100.6% of its size in 1996), while

Table (5.1) Projection of population size, Age Specific Activity Rates (ASARs) and the supply of labor force according to the assumption* of first model, years 2001 to 2026, five years intervals.

Year 2001

Age groups	Population (In million)			ASARs			Supply of labor force (In million)		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
15-19	7.82	4.05	3.77	27.1	39.4	11.0	2.12	1.60	0.52
20-24	6.84	3.57	3.27	52.2	77.6	22.9	3.57	2.77	0.80
25-29	5.03	2.62	2.41	57.2	96.2	21.2	2.88	2.52	0.36
30-34	4.32	2.08	2.24	60.9	98.1	24.1	2.63	2.04	0.59
35-39	3.92	1.96	1.96	59.1	98.5	23.4	2.32	1.93	0.39
40-44	3.78	1.87	1.91	59.6	97.6	21.2	2.26	1.83	0.43
45-49	3.08	1.56	1.52	57.8	96.3	15.9	1.78	1.50	0.28
50-54	2.58	1.34	1.24	52.2	93.6	11.9	1.34	1.25	0.09
55-59	1.89	0.92	0.97	50.9	90.7	9.1	0.96	0.83	0.13
Total	**39.26**	**19.97**	**19.29**	**50.6**	**81.5**	**18.6**	**19.86**	**16.27**	**3.59**

Year 2006

Age groups	Population (In million)			ASARs			Supply of labor force (In million)		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
15-19	7.55	3.90	3.65	28.3	39.4	15.0	2.14	1.54	0.60
20-24	7.77	4.02	3.75	52.9	77.3	25.2	4.11	3.11	1.00
25-29	6.79	3.54	3.25	58.1	96.6	22.9	3.95	3.42	0.53
30-34	4.98	2.59	2.39	62.6	98.0	28.7	3.12	2.54	0.58
35-39	4.26	2.05	2.21	60.5	98.6	31.5	2.58	2.02	0.56
40-44	3.84	1.92	1.92	62.5	97.8	30.0	2.40	1.88	0.52
45-49	3.67	1.81	1.86	60.2	96.5	22.8	2.21	1.75	0.46
50-54	2.95	1.49	1.46	54.5	93.5	17.8	1.60	1.39	0.21
55-59	2.42	1.25	1.17	51.1	90.6	13.8	1.23	1.12	0.11
Total	**44.23**	**22.57**	**21.66**	**52.8**	**83.2**	**21.1**	**23.34**	**18.77**	**4.57**

Year 2011

Age groups	Population (In million)			ASARs			Supply of labor force (In million)		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
15-19	6.71	3.44	3.27	29.6	39.4	20.5	1.99	1.36	0.63
20-24	7.52	3.88	3.64	53.7	77.3	27.7	4.04	3.00	1.04
25-29	7.71	3.99	3.72	58.9	96.6	24.7	4.54	3.85	0.69
30-34	6.74	3.51	3.23	64.3	98.0	34.3	4.33	3.44	0.89
35-39	4.92	2.56	2.36	62.1	98.6	42.5	3.05	2.52	0.53
40-44	4.19	2.01	2.18	65.5	97.8	42.4	2.75	1.97	0.78
45-49	3.75	1.87	1.88	62.6	96.5	32.7	2.34	1.80	0.54
50-54	3.55	1.74	1.81	56.8	93.5	26.8	2.02	1.63	0.39
55-59	2.79	1.40	1.39	51.4	90.6	21.0	1.44	1.27	0.17
Total	**47.88**	**24.40**	**23.48**	**55.3**	**85.4**	**24.1**	**26.50**	**20.84**	**5.66**

Table (5.1) Continued

Year 2016

Age groups	Population (In million)			ASARs			Supply of labor force (In million)		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
15-19	7.97	4.09	3.88	29.6	39.4	20.5	2.36	1.61	0.75
20-24	6.68	3.42	3.26	53.7	77.3	27.7	3.58	2.64	0.94
25-29	7.47	3.85	3.62	58.9	96.6	24.7	4.40	3.72	0.68
30-34	7.66	3.96	3.70	64.3	98.0	34.3	4.92	3.88	1.04
35-39	6.67	3.47	3.20	62.1	98.6	42.5	4.14	3.42	0.72
40-44	4.85	2.52	2.33	65.5	97.8	42.4	3.17	2.46	0.71
45-49	4.10	1.96	2.14	62.6	96.5	32.7	2.57	1.89	0.68
50-54	3.63	1.80	1.83	56.8	93.5	26.8	2.06	1.68	0.38
55-59	3.37	1.64	1.73	51.4	90.6	21.0	1.74	1.49	0.25
Total	**52.40**	**26.71**	**25.69**	**55.2**	**85.4**	**23.9**	**28.94**	**22.79**	**6.15**

2021

Age groups	Population (In million)			ASARs			Supply of labor force (In million)		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
15-19	9.51	4.87	4.64	29.6	39.4	20.5	2.82	1.92	0.90
20-24	7.94	4.07	3.87	53.7	77.3	27.7	4.27	3.15	1.12
25-29	6.66	3.41	3.25	58.9	96.6	24.7	3.92	3.29	0.63
30-34	7.42	3.82	3.60	64.3	98.0	34.3	4.77	3.74	1.03
35-39	7.59	3.92	3.67	62.1	98.6	42.5	4.72	3.87	0.85
40-44	6.59	3.42	3.17	65.5	97.8	42.4	4.31	3.34	0.97
45-49	4.76	2.46	2.30	62.6	96.5	32.7	2.98	2.37	0.61
50-54	3.99	1.90	2.09	56.8	93.5	26.8	2.27	1.78	0.49
55-59	3.47	1.70	1.77	51.4	90.6	21.0	1.78	1.54	0.24
Total	**57.93**	**29.57**	**28.36**	**54.9**	**84.6**	**24.1**	**31.84**	**25.00**	**6.84**

2026

Age groups	Population (In million)			ASARs			Supply of labor force (In million)		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
15-19	10.83	5.54	5.29	29.6	39.4	20.5	3.20	2.18	1.02
20-24	9.48	4.85	4.63	53.7	77.3	27.7	5.09	3.75	1.34
25-29	7.91	4.05	3.86	58.9	96.6	24.7	4.66	3.91	0.75
30-34	6.63	3.39	3.24	64.3	98.0	34.3	4.26	3.32	0.94
35-39	7.37	3.79	3.58	62.1	98.6	42.5	4.58	3.74	0.84
40-44	7.52	3.88	3.64	65.5	97.8	42.4	4.92	3.79	1.13
45-49	6.49	3.36	3.13	62.6	96.5	32.7	4.06	3.24	0.82
50-54	4.64	2.39	2.25	56.8	93.5	26.8	2.63	2.23	0.40
55-59	3.83	1.80	2.03	51.4	90.6	21.0	1.97	1.63	0.34
Total	**64.70**	**33.05**	**31.65**	**54.7**	**84.1**	**24.0**	**35.37**	**27.79**	**7.58**

***** TFR=3.5 along the projection period, no immigration, life expectancy reaches 72.7 and 76.7 years for male and females respectively by the end of projection period.

Table (5.2) Projection of population size, Age Specific Activity Rates (ASARs) and the supply of labor force according to the assumptions*of second model, years 2001to 2026, five years intervals.

Year 2001

Age groups	Population (In millions)			ASARs			Supply of labor force (In millions)		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
15-19	7.82	4.05	3.77	27.1	39.4	11.0	2.12	1.60	0.52
20-24	6.84	3.57	3.27	52.2	77.6	2.9	3.57	2.77	0.80
25-29	5.03	2.62	2.41	57.2	96.2	21.2	2.88	2.52	0.36
30-34	4.32	2.08	2.24	60.9	98.1	24.1	2.63	2.04	0.59
35-39	3.92	1.96	1.96	59.1	98.5	23.4	2.32	1.93	0.39
40-44	3.78	1.87	1.91	59.6	97.6	21.2	2.26	1.83	0.43
45-49	3.08	1.56	1.52	57.8	96.3	15.9	1.78	1.50	0.28
50-54	2.58	1.34	1.24	52.2	93.6	11.9	1.34	1.25	0.09
55-59	1.89	0.92	0.97	50.9	90.7	9.1	0.96	0.83	0.13
Total	**39.26**	**19.97**	**19.29**	**50.6**	**81.5**	**18.6**	**19.86**	**16.27**	**3.59**

Year 2006

Age groups	Population (In millions)			ASARs			Supply of labor force (In millions)		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
15-19	7.55	3.90	3.65	28.3	39.4	15.0	2.14	1.54	0.60
20-24	7.77	4.02	3.75	52.9	77.3	25.2	4.11	3.11	1.00
25-29	6.79	3.54	3.25	58.1	96.6	22.9	3.95	3.42	0.53
30-34	4.98	2.59	2.39	62.6	98.0	28.7	3.12	2.54	0.58
35-39	4.26	2.05	2.21	60.5	98.6	31.5	2.58	2.02	0.56
40-44	3.84	1.92	1.92	62.5	97.8	30.0	2.40	1.88	0.52
45-49	3.67	1.81	1.86	60.2	96.5	22.8	2.21	1.75	0.46
50-54	2.95	1.49	1.46	54.5	93.5	17.8	1.60	1.39	0.21
55-59	2.42	1.25	1.17	51.1	90.6	13.8	1.23	1.13	0.10
Total	**44.23**	**22.57**	**21.66**	**52.8**	**83.2**	**21.1**	**23.34**	**18.78**	**4.56**

Year 2011

Age groups	Population (In millions)			ASARs			Supply of labor force (In millions)		
	Total	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
15-19	6.71	3.44	3.27	29.6	39.4	20.5	1.99	1.36	0.63
20-24	7.52	3.88	3.64	53.7	77.3	27.7	4.04	3.00	1.04
25-29	7.71	3.99	3.72	58.9	96.6	24.7	4.54	3.85	0.69
30-34	6.74	3.51	3.23	64.3	98.0	34.3	4.33	3.44	0.89
35-39	4.92	2.56	2.36	62.1	98.6	42.5	3.05	2.52	0.53
40-44	4.19	2.01	2.18	65.5	97.8	42.4	2.75	1.97	0.78
45-49	3.75	1.87	1.88	62.6	96.5	32.7	2.34	1.80	0.54
50-54	3.55	1.74	1.81	65.8	93.5	26.8	2.34	1.63	0.71
55-59	2.79	1.40	1.39	51.4	90.6	21.0	1.44	1.27	0.17
Total	**47.88**	**24.40**	**23.48**	**56.0**	**85.4**	**25.5**	**26.82**	**20.84**	**5.98**

Table (5.2) Continued									
Year 2016									
	Population (In millions)			**ASARs**			**Supply of labor force (In millions)**		
Age groups	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
15-19	7.76	3.98	3.78	29.6	39.4	20.5	2.30	1.57	0.73
20-24	6.68	3.42	3.26	53.7	77.3	27.7	3.58	2.64	0.94
25-29	7.47	3.85	3.62	58.9	96.6	24.7	4.40	3.72	0.68
30-34	7.66	3.96	3.70	64.3	98.0	34.3	4.92	3.88	1.04
35-39	6.67	3.47	3.20	62.1	98.6	42.5	4.14	3.42	0.72
40-44	4.85	2.52	2.33	65.5	97.8	42.4	3.17	2.46	0.71
45-49	4.10	1.96	2.14	62.6	96.5	32.7	2.57	1.89	0.68
50-54	3.63	1.80	1.83	65.8	93.5	26.8	2.39	1.68	0.71
55-59	3.37	1.64	1.73	51.4	90.6	21.0	1.74	1.49	0.25
Total	**52.19**	**26.60**	**25.59**	**56.0**	**85.6**	**25.2**	**29.21**	**22.75**	**6.46**
2021									
	Population (In millions)			**ASARs**			**Supply of labor force (In millions)**		
Age groups	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
15-19	8.84	4.53	4.31	29.6	39.4	20.5	2.61	1.78	0.83
20-24	7.73	3.96	3.77	53.7	77.3	27.7	4.15	3.06	1.09
25-29	6.66	3.41	3.25	58.9	96.6	24.7	3.92	3.29	0.63
30-34	7.42	3.82	3.60	64.3	98.0	34.3	4.77	3.74	1.03
35-39	7.59	3.92	3.67	62.1	98.6	42.5	4.72	3.87	0.85
40-44	6.59	3.42	3.17	65.5	97.8	42.4	4.31	3.34	0.97
45-49	4.76	2.46	2.30	62.6	96.5	32.7	2.98	2.37	0.61
50-54	3.99	1.90	2.09	65.8	93.5	26.8	2.63	1.78	0.85
55-59	3.47	1.70	1.77	51.4	90.6	21.0	1.78	1.54	0.24
Total	**57.05**	**29.12**	**27.93**	**55.9**	**85.1**	**25.4**	**31.87**	**24.77**	**7.10**
2026									
	Population (In millions)			**ASARs**			**Supply of labor force (In millions)**		
Age groups	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
15-19	9.62	4.92	4.70	29.6	39.4	20.5	2.85	1.94	0.91
20-24	8.82	4.51	4.31	53.7	77.3	27.7	4.74	3.49	1.25
25-29	7.70	3.94	3.76	58.9	96.6	24.7	4.54	3.81	0.73
30-34	6.63	3.39	3.24	64.3	98.0	34.3	4.26	3.32	0.94
35-39	7.37	3.79	3.58	62.1	98.6	42.5	4.58	3.74	0.84
40-44	7.52	3.88	3.64	65.5	97.8	42.4	4.92	3.79	1.13
45-49	6.49	3.36	3.13	62.6	96.5	32.7	4.06	3.24	0.82
50-54	4.64	2.39	2.25	65.8	93.5	26.8	3.05	2.23	0.82
55-59	3.83	1.80	2.03	51.4	90.6	21.0	1.97	1.63	0.34
Total	**62.62**	**31.98**	**30.64**	**55.8**	**85.0**	**25.4**	**34.97**	**27.19**	**7.78**

* TFR decline gradually to 2.9 in year 2016 then decline to 2.1 in year 2026, no immigration, life expectancy reaches 72.7 and 76.7 years for male and females respectively by the end of projection period.

female labor force is expected to be three times of its initial size in the year 1996 (191.5%).

Table (5.2) presents the results of applying the second model of population growth assumptions combined with the assumptions of ASARs. It shows that:

1. No differences were observed in the size of population aged 15-59 years derived from the two models of population projection up to year 2011. This means that, the assumption of constant TFR in the first projection model or the assumption of gradual reduction in TFR in the second projection model will not produce any differences in the size of population in working age groups up to year 2011. This is because, the change in fertility during the first fifteen years of projection period will only affect the size of population below the working ages, that is population less than 15 years old. The size of population of working age groups is expected to reach about 62.6 million by the end of the projection period (2026). According to the assumption of the second model of population projection, the size of population of working age groups is expected to record a reduction of about 2.1 million than the corresponding size derived from the first model of projection in the end of the projection period.

2. Consequently, no differences in the size of labor force are observed from the two models of population projection up to 2006. The size of labor force is expected to reach about 35.0 million by the end of projection period. According to the assumptions of the second model of population projection, the size of the labor force is expected to be lower than the corresponding size of first model by about 420 thousand workers by the end of the projection period.

3. Regarding the differences in the projected size of labor force by sex, almost no differences are found in the projected size of male or female labor force derived from the two models of projection until 2006.

Figure (5.1) Projection of the size of Egyptian population and labor force, 1996 to 2026.

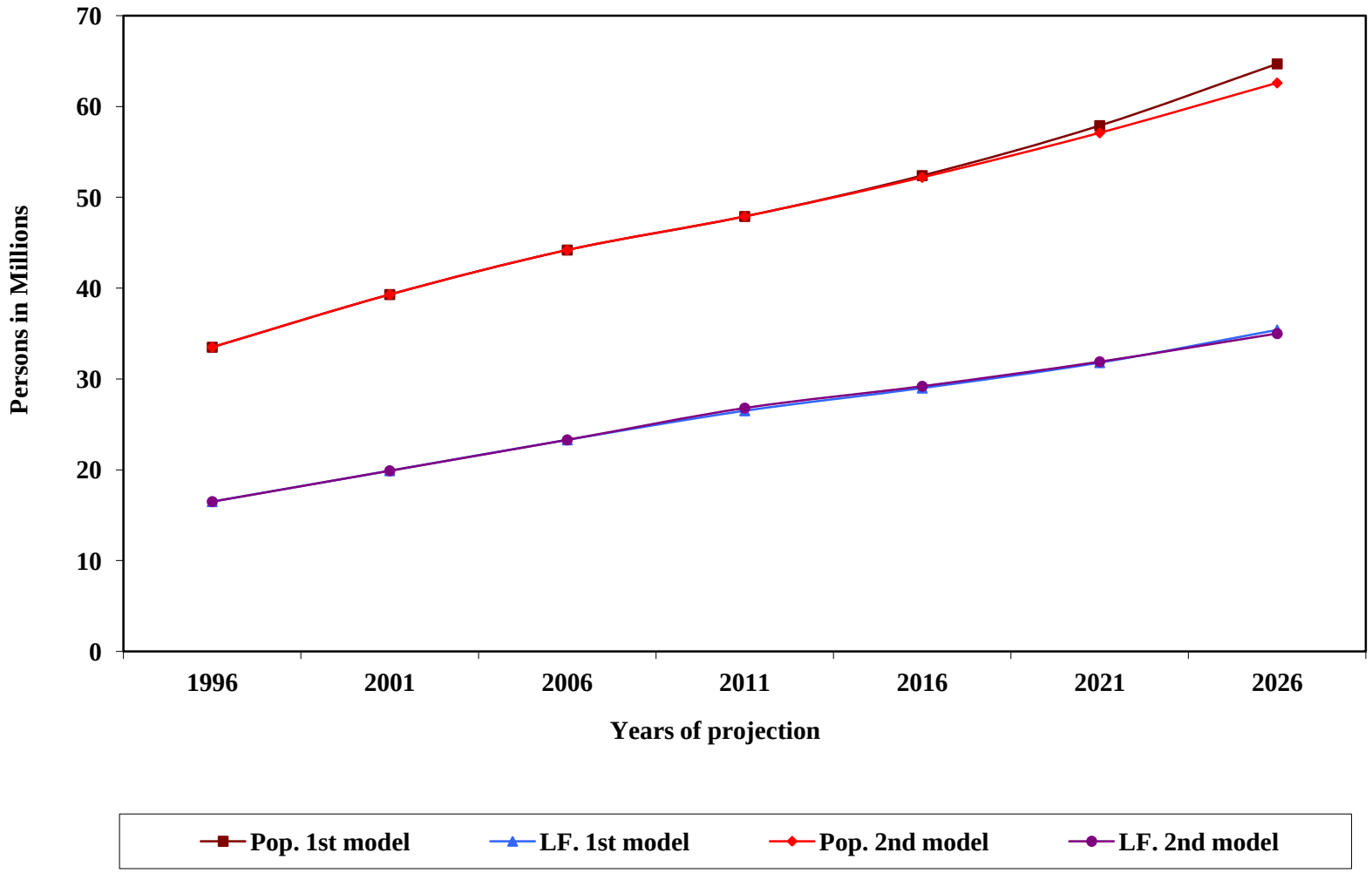


Figure (5.2) Projection of the size of Egyptian male population and labor force, 1996 to 2026

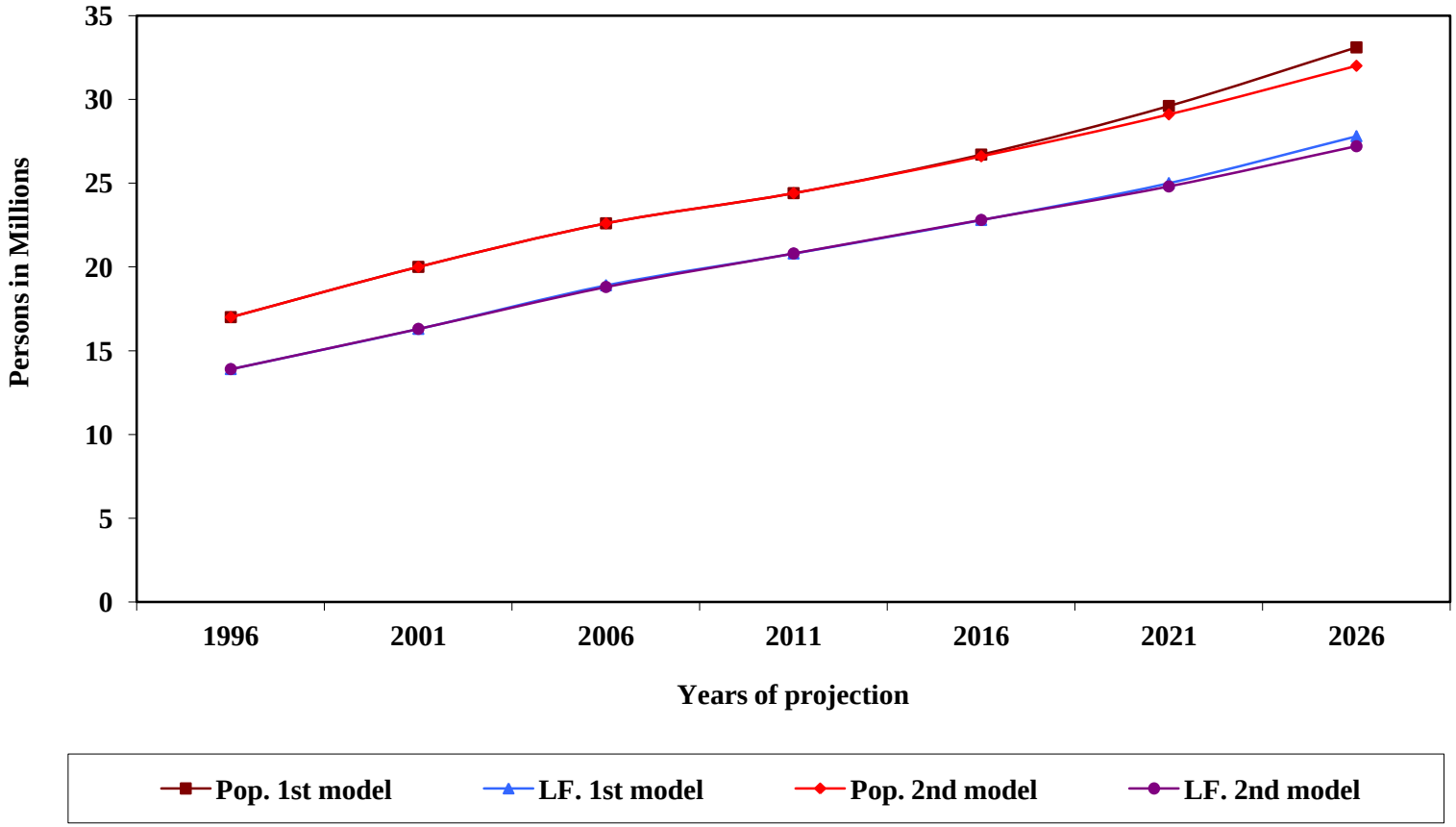
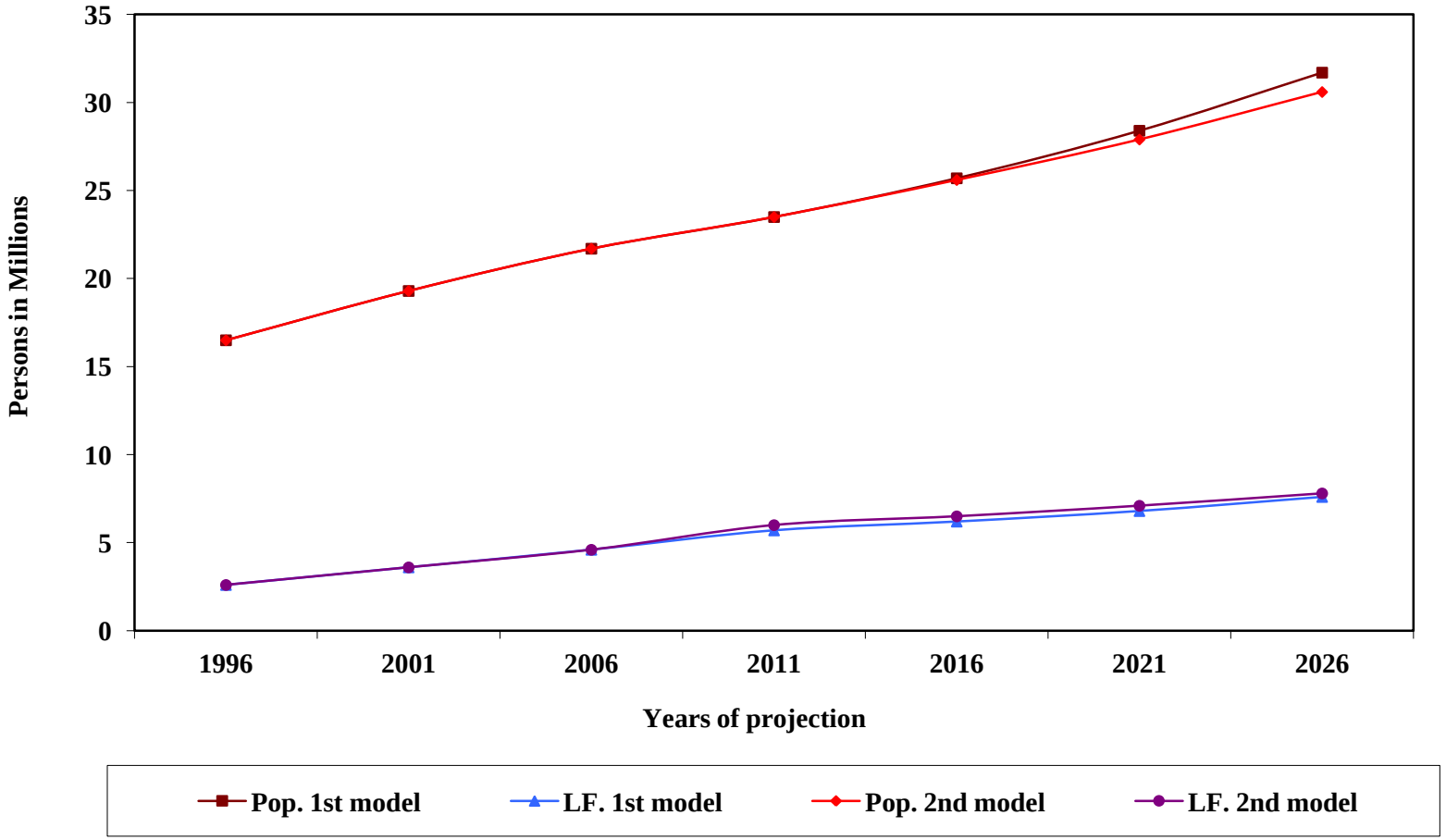


Figure (5.3) Projection of the size of Egyptian female population and labor force, 1996 to 2026



4. The projected size of male labor force will be about 27.2 million by the end of projection period, represents about 77.8% of the total size of the labor force. By the end of projection period, the expected size of male labor force will decrease by about 620 thousand of economically active persons than the corresponding size derived from the first model.

5. The estimated size of the female labor force will be about 7.8 million by the end of projection period, represents about 22.2% of the total size of the labor force. By the end of projection period, the expected size of female labor force shows an increase of about 200 thousand economically active persons than the corresponding size derived from the first model.

5.3 Projection of the Demand for Labor Force

In the present section, an attempt is made to project the labor requirements in each economic sector of the Egyptian economy in the near future (up to 2006). It is well known that labor demand is more subject to changes according to the economic situation. Thus, any projection of labor demand should take into account this fact and should not exceed the short or medium term to be more reliable. Projecting the demand for labor force requires assumptions for the growth rate of Gross Domestic Product (GDP), growth rate of GDP of each economic sector of the economy, as well as the growth rate of the worker productivity in each economic sector. The following is a detail description of the assumptions of the components of labor demand projection. The fixed price (to Year 1996) and the exponential growth rates of GDP and workers productivity will be used in the forecasting.

5.3.1 Assumptions of the Components of Labor Demand Projection

5.3.1.1 Gross Domestic Product (GDP) Assumptions

Three variants of projection will be applied according to the assumptions of Gross Demotic Product (GDP) growth rates. These assumptions are as follows:

First variant (the low or pessimistic variant), we assumed that no change will take place in the GDP growth rate (i.e. the annual exponential average GDP growth rate of 4.32% during the period 1996-2001 will continue for the next five year up to 2006).

Second variant (the moderate or realistic variant), we assumed that GDP will grow by an annual exponential average of 5.5% during the projection period 2001-2006. The sensibility of this assumption comes from observing the average growth rate of GDP in 1996-2001 (4.32% annually) and the target average growth rate of GDP during the period 2001-2006 (6.80% annually) as stated in the development strategy outline of Egypt (Cabinet, 1997). It is clear that the target one for the period 2001-2006 is far behind the actually achieved one during the previous period 1996-2001. Thus, we select approximately the mid-point of the two growth rates of GDP to be our second assumption through the projection period 2001-2006.

Third variant (the high or optimistic variant), we assumed that GDP growth rate will increase by 6.8% annually (three double of population growth rate, as it is stated in the development strategy outline of Egypt).

Regarding the growth rate of GDP in each sector of the economy, it is assumed that the same trends, which were observed in the past period 1996-2001, will continue for the next five years up to 2006.

5.3.1.2 Productivity Growth Rate Assumptions

Regarding the productivity growth rates, there are two assumptions in this regard:

The first one will assume that no change will take place in the productivity level in any sector of Egypt's economy (i.e. the observed average levels of productivity in each sector during the period 1996-2001 will continue constant until the year 2006).

In the second assumption, productivity in each economic sector will increase according to the expected level of technology and training programs for workers that will apply in the short term as follows:

- Productivity of worker in agriculture sector is assumed to increase by 4 percent annually during the period 2001 to 2006. Consequently, the average growth rate of the productivity of workers in the agriculture sector will increase from 1.57% as the annual average growth rate during the period 1996-2001 to about 1.88% as the annual average growth rate during the period 2001-2006.

- Productivity of worker in industrial sector will increase by about 6 percent annually during the period 2001 to 2006. Accordingly, the average growth rate of the productivity of workers in the industrial sector will increase from 2.13% as the annual average growth rate during the period 1996-2001 to about 2.77% as the annual average growth rate during the period 2001-2006.

- Productivity of worker in production sector (includes Agriculture, Mining and industries, Petroleum, Electricity, and Construction sectors) is assumed to increase by about 5 percent annually during the period 2001 to 2006. Therefore, the average growth rate of the productivity of workers in production sectors will increase from 1.17% as the annual average growth rate during the period 1996-2001 to about 2.14% as the annual average growth rate during the period 2001-2006.

- Productivity of worker in production services sector (includes Transportation, Suez canal, Commerce, Finance and insurance, Hotels and restaurants, ant Tourist sectors) is assumed to increase by about 3 percent annually during the period 2001 to 2006. As a result, the average growth rate of the productivity of workers in production services sectors will increase from 1.40% as the annual average growth rate during the period 1996-2001 to about 1.61% as the annual average growth rate during the period 2001-2006.
- Productivity of worker in social services sector (includes Housing, Personal and social services, Social insurance and public and governmental services sectors) is assumed to increase by about 3 percent annually during the period 2001 to 2006. Thus, the average growth rate of the productivity of workers in social services sectors will increase from 1.67% as the annual average growth rate during the period 1996-2001 to about 1.92% as the annual average growth rate during the period 2001-2006.

5.3.2 Future Prospects of the Demand for Egyptian Labor Force

Table (5.3) represents the projected size and the growth rate of the demand for Egyptian labor force, by main economic sectors, according to the alterative sets of Gross Domestic Product (GDP) and productivity assumptions, year 2006. In this tables three variants of GDP assumptions combined with two variants of productivity assumption to produce six alterative models of demand for labor force projections. It shows that:

1. According to variant one of GDP assumption (the low variant) and the constant productivity assumption, the total demand for Egyptian labor force will reach about 20.4 million by the year 2006. All production sectors will require about 10.5 million workers (represents about 51.8% of all demand for labor force). More specifically, agriculture sector will require about 51.2% of the demand for all production workers, industry sector will require about 29.7%, and the remaining percent about 18.5% will be required by other production sectors. Production services sectors will require about 3.4 million workers (represents about 16.7% of all demand for labor force) while the remaining percent (31.5% of all demand for labor force) will be required for social services sectors.

2. The combination of variant two of GDP assumption (the moderate variant) with the constant productivity assumption indicates that, the total demand for the Egyptian labor force will reach about 21.5 million by the 2006. All production sectors will

Table (5.3) Projection of the size and the growth rate of the demand for Egyptian labor force by main economic sectors according to the alternative sets of Gross Domestic Product (GDP), and productivity assumptions, year 2006.

Productivity assumptions	Main economic sectors	GDP assumptions					
		Variant one (3)		Variant two (4)		Variant three (5)	
		Number	Growth Rate	Number	Growth Rate	Number	Growth Rate
Constant Productivity (1)	Agriculture	5396	1.29	5604	2.11	5841	3.05
	Industry	3132	4.73	3405	6.88	3728	9.43
	All Production Sectors	10548	2.80	11173	4.15	11896	5.71
	Production Services Sectors	3404	3.18	3607	4.56	3842	6.16
	Social Services Sectors	6418	2.16	6744	3.39	7119	4.59
	Total	**20370**		**21524**		**22857**	
Changing Productivity (2)	Agriculture	5312	0.96	5535	1.53	5750	2.69
	Industry	3034	3.95	3321	5.19	3611	8.51
	All Production Sectors	10324	2.32	10989	3.13	11644	5.17
	Production Services Sectors	3369	2.94	3587	3.69	3802	5.89
	Social Services Sectors	6338	1.89	6689	2.58	7031	4.25
	Total	**20031**		**21265**		**22477**	

Source: Computed.

(1): Constant productivity, the same level of productivity in each sector during the period 1996-2001 will continue.

(2): Increasing productivity by 4% in Agriculture sector, 6% in Industrial sector, 5% in all production sectors, and 3% in production services and social services sectors.

(3): The prevailing GDP growth rate of 4.3% during the period 1996-2001 will continue during the projection period.

(4): GDP growth rate of 5.5% annually will be prevalent along the projection period 2001-2006.

(5): GDP growth rate of 6.8% annually will be prevalent along the projection period 2001-2006.

require about 11.2 million workers (represents about 51.9% of all demand for labor force) and it is distributed on the major production activities as the following; agriculture sector will require about 5.6 million workers (represents about 50.2% of the demand for all production workers); industry sector will require about 3.4 million workers (represents about 30.5% of the demand for all production workers); and the remaining 2.2 million workers will be required to activate the other production sectors. Production services sectors will require about 16.8% of all demand for labor force (about 3.6 million workers) while the remaining 6.7 million workers will be the requires of social services sectors.

3. Variant three of GDP assumption (the high variant) joining with the constant productivity assumption generates a total demand for Egyptian labor force by about 22.9 million by the year 2006. All production sectors will require about 11.9 million workers (represents about 52.0% of all demand for labor force). Agriculture activities will require about 49.1% of the demand for all production workers; industry activities will require about 31.3%, and the remaining percent about 19.6% will be requires by the other production sectors. Production services sectors will require about 3.8 million workers (represents about 16.8% of all demand for labor force) while the remaining percent (31.2% of all demand for labor force) will be requires by social services sectors.

From the previous three models of the demand for labor force projection, it is clear that under the constant productivity assumption, increasing the size of the demand for labor force will be attributed to growing GDP. Increasing the value of GDP without increasing productivity of workers can be achieved by increasing the size of national production, through establishing new production units to produce more goods and operate more workers, or increasing the value of national production, especially in the international markets through the instability (increasing) of good prices, or both.

The next three models of the demand projection for the Egyptian labor force are done under the same assumption of GDP growth rates combined with the assumptions of increasing productivity. Productivity of worker in each economic sector is assumed to increase by specific percentage according the current and the expected future level of

technology and the level of workers' skill in each sector as described before in section 5.3.1. They show that:

1. The first variant of GDP assumption (the low variant) joining with the changing productivity assumptions generates a total demand for Egyptian labor force about 20.0 million by the year 2006. This means, increasing productivity of workers, with keeping other factors constant, will reduce the required labor force size for all economic activities, than the previous model of constant productivity, by about 339 thousand workers. Production sectors will require about 51.5% of this demand; followed by social services sectors and production services sectors by about 31.6% and 16.9% respectively.

2. The combination of variant two of GDP assumption (the moderate variant) with the changing productivity assumptions indicates that, the total demand for Egyptian labor force will reach about 21.2 million by the year 2006. This represents a reduction in the required labor force size for all economic activities, than the previous model of constant productivity, by about 380 thousand workers. Production sectors will require about 51.7% of this demand followed; by social services sectors and production services sectors by about 31.5% and 16.8% respectively.

3. According to variant three of GDP assumption (the high variant) and the changing productivity assumptions, the total demand for Egyptian labor force will reach about 22.5 million by the year 2006, with a reduction on the required labor force size, than the previous model of constant productivity, by about 380 thousand workers. Production sectors will require about 51.8% of this demand; followed by social services sectors and production services sectors by about 31.3% and 16.9% respectively.

5.4 Future Prospects of Unemployment in Egypt.

The previous projection of the short-term demand for Egyptian labor force (up to year 2006) and the long-term projection of the supply of Egyptian labor force (up to year 2026)

enable us to examine the future labor supply surplus or the out polled unemployment rate in the short term (in year 2006) under each set of the projection assumptions.

Since the two models of projecting the supply of labor force revealed that, there is no difference in the size of the labor force up to the year 2006, so the assumption of the demand for labor force projection will be the main determinate to the future prospects of unemployment rate.

In this regard, it should be note that, the study estimation for Egyptian unemployment rate in year 2001 and its comparison with other estimations from different sources, which presented in table (3.7) in this study, might be considered as a confirmation of the validity of the methodology and assumptions for forecasting the unemployment rate in this section.

Table (5.4) represents the estimation of the future of Egypt's unemployment rates under the alternative sets of GDP and productivity assumptions, in the year 2006. It explains that:

1. The supply of the Egyptian labor force is estimated to be about 23.3 million workers by the year 2006. The same labor force size is estimated under constant or reducing fertility assumption combined with increasing female ASARs and approximately constant male ASARs (see Tables 5.1 and 5.2).

2. Under the assumption of GDP growth rate of 4.32% annually and no change in worker's productivity, the forecasting of labor supply surplus (unemployment rate) will be about 12.7%. It is higher than the unemployment rate of 1996 (9.3%) by 37%. It means that if no improvement takes place in GDP growth rate and worker's productivity during the period 2001-2006, the burden of Egypt's unemployment will increase by about 3.4 Percentage points.

3. Under the assumption of GDP growth rate of 5.5% annually and no change in worker's productivity, the projecting unemployment rate will be about 7.8%. It is lower than the unemployment rate of 1996 by about 16%. It means that if the previously mentioned assumptions are achieved during the period 2001-2006, the burden of Egypt's unemployment will decrease by about 3.4

Percentage points. This prediction represents the most possible reduction in unemployment rate that we may achieve by the year 2006, and it will put Egypt in approximately the same level of unemployment rates of many developed countries such as Denmark, Sweden, and Untied Kingdom (see Table 2.4).

4. If the GDP growth rate of Egypt's Development Strategy Outline (GDP growth rate of 6.8% annually, during the period 2001-2006, three double of population growth rate) is achieved and combined with no change in worker's productivity, the prediction of unemployment rate will be about 2.1%. It is less than one-forth of the unemployment rate of 1996, and it means that, the burden of Egypt's unemployment will be decrease by about 7.2 percentage point. This variant of unemployment prediction represents the maximum reduction in unemployment rate that may be achieved, and it will put Egypt in approximately the same level of unemployment rates of some Asian Dragons' countries and other developed countries such as China, Korea, Malaysia, and Japan (see table 2.3).

5. Under the assumption of GDP annual growth rate of 4.32% and increasing the workers productivity by at least the suggested percentages for each economic sector (see section 5.3.1), the predicted unemployment rate will be about 14.2%, which is higher than the current unemployment rate by about 53%. This means that the bulk of Egypt's unemployment will increase by about 4.9 Percentage points than the unemployment level of year 1996.

Table (5.4) Estimation of the future of labor supply surplus (unemployment rate) of Egypt, under the alternative assumptions of Gross Domestic Product (GDP) and productivity, year 2006.

Productivity assumptions	Gross Domestic Product (GDP) assumptions	Supply of labor force (In thousands)	Demand of labor force (In thousands)	Supply surplus of labor force (Unemployment rate)
Constant Productivity	**GDP growth rate of 4.32% annually**	23340	20370	12.7
	GDP growth rate of 5.5% annually	23340	21524	7.8
	GDP growth rate of 6.8% annually	23340	22857	2.1
Increasing Productivity	**GDP growth rate of 4.32% annually**	23340	20031	14.2
	GDP growth rate of 5.5% annually	23340	21265	8.9
	GDP growth rate of 6.8% annually	23340	22477	3.7

Source: Calculated from the results of supply and demand projections under the alternative assumptions.

6. Under the assumption of GDP annual growth rate of 5.5% and increasing worker's productivity by at least the mentioned percentages in section 5.3.1, the predicted unemployment rate will be about 8.9%. It is lower than the current unemployment rate by about 4% only. If the previously mentioned assumptions achieved, the reduction in Egypt's unemployment rate is approximately worthless (less than one percentage point).

7. The last prediction of unemployment rate will be about 3.7% if Egypt's economy will be able to achieve GDP annual growth rate of 6.8% combined with increasing worker's productivity. The predicted unemployment rate represents about one-third of the unemployment rate of 1996. This predicted rate of unemployment will put Egypt in approximately the same level of unemployment rates of Indonesia, Malta, Switzerland, and Mexico (see table 2.4).

It should be indicated that the results of some recent studies regarding the future estimation of unemployment rate is in a great consistency and supports our estimation to unemployment rate under alternative sets of GDP growth rate and productivity. In a recent study (Elesawy, 2002, P.21), indicates that if the current economic growth rate achieved a slight improvement to raise form 3.6% to about 5%, we will need about 25 years to reach the secured unemployment rate. If a high increase in the economic growth rate is achieved, around 8% to 9%, the time needed to reach the secured unemployment rate will reduces to only about 7.5 years. The secured unemployment rate is around 3% to 4% (Fergany, 1999, P.41). Some other sources indicate that the secure unemployment rate is below 5% (International Labor Organization, ILO).

5.5 Future of the Egyptian Labor Force in Light of Economic Reform and Global Changes

5.5.1 The Egyptian Economic Reform and Labor Force

The main objectives of the Egyptian Economic Reform Policy are to eliminate the imbalances in Egypt's economy by transforming it to a market-based economy, and to restore the country's creditworthiness. The program comprises reform of the public sector,

investment policies, external policies, pricing, monetary and fiscal reform policies, and social policies. The main objectives of these policies are presented briefly below:

- Change the institutional, legal, and financial environment of public enterprises, raise their efficiency and increase the autonomy of their mangers, while making them subject to the same rules as the private sector.

- Privatize of public enterprises in the commodities and financial sectors, with the exception of strategic public enterprises.

- Decontrol the price in the public sector is essential to move to a market-based economy.

- High priority to decontrol of investment, and calls for a competitive investment environment for public and private enterprises.

- External policies comprise exchange reform, trade liberalization, and debt relief.

- Social policies aim to minimize the negative impact of the Egyptian Economic Reform Policy on the poor. Creating the Social Fund for Development (SFD) is a basic step in this regard.

The economic reform policy affects the labor market through two main channels; first, through its impact on total production; and second, through the implementation of public enterprise reform.

The main factor affecting employment is the rate of growth of output and productivity. Given productivity, the higher the output growth rate, the more employment opportunities will be created in the economy. The Economic Reform Policies have had reduction impact on total investment and Gross Domestic Product GDP growth. It is still too early to assess the impact of the Economic Reform Policies on GDP in the medium and long-terms. In the short term, judged by what has happened from low rate of GDP growth has adverse implications for employment. The impact of privatization on employment is negative, at

least in the short-term, as the experience of other countries show (Korayem, 1997, P.21). The overstaffed enterprises cannot sell to private owners unless the new owners are permitted to lay off workers. Changes in the labor law are expected to address this issue. This is expected to raise unemployment among ever-worked persons more than its current level (5.0% of all unemployment). Some funds allocated to the Social Fund for training programs to enhance worker ability, in addition, unemployment insurance may be recommended to minimize the effect of privatization.

5.5.2 Trade Liberalization and Labor Force

The agreements between the European Union (EU) and Southern and Eastern Mediterranean Countries, known collectively as the Euro-Mediterranean Partnership, aim to create a regional free trade area. The agreements involve the gradual elimination of tariffs on manufactured goods by the end of a 12-year transition period.

In the case of Egypt, since Egyptian manufactures already have duty-free access to the European Union (EU), the trade liberalization agreement would affect mainly Egyptian tariffs on EU products. Even in industry, some EU product will left out of the agreement and remain subject to Egyptian tariffs. The industries most affected will be spinning and weaving, metals, and engineering. Minor affect will occur to Food processing. Under the agreement, the European Union would also provide Egypt with financial support to ease the transition and technical assistance to match standards and administrative procedures (Eisenmann, 1998).

Given Egypt's current trade pattern, the EU partnership agreement should reduce the price of imported equipment. It should reduce the cost of investment and speed up the accumulation of physical capital. On the other hand, the agreement is not without risk. First, there is a real possibility of a trade diversion, in which EU products could crowd-out other (and perhaps cheaper) manufactured goods and services from other sources. In addition, domestic industries that compete with imports might be harmed by the availability of better-quality European products.

Manufacturing is the sector most likely to be directly affected by the partnership, which does not extend to agriculture or services. However, although manufacturing

represents half of the jobs in the state-owned enterprises, it accounts for only 14 percent of total employment. The impact on manufacturing employment depends on how willing or able workers are to transfer from industries that compete mainly with imports to ones that focus on exports. It is difficult to assess exactly the ability of labor to relocate because it depends in part on whether the technology favored by trade liberalization is labor or capital intensive. Moreover, any change is likely to affect not only workers in Egypt, but also emigrant Egyptians working in Gulf countries, unemployed workers, skilled workers under-employed in low-productivity jobs and women. An optimistic view is that Egypt can achieve a rush in exports by employing newcomers in the labor force.

Growth would increase due to the partnership, if Egypt's economy became deeply integrated into that of Europe and foreign direct investment in Egypt and imported manufactured inputs rose.

The bulk of jobs that would be created is linked to the effects of growth and concerned mainly in agriculture and services sectors. Any liberalization of trade that is limited strictly to industry will increase employment by only a small degree. Nevertheless, its effect on the growth of GDP will depend on what combination of technology and labor is chosen in manufacturing, and this in turn depends on their relative costs. While, regional agreements should encourage the deep integration of the Egyptian economy with Europe, they should also proceed hand in hand with domestic reforms.

5.5.3 Globalization and Labor Market

The phenomenon of globalization has captured world attention in various ways. From the information superhighway to the free and easy movement of people and goods, the world has become global. Globalization is the great economic event of this era. The International Monetary Fund (IMF) describes it as “the growing economic interdependence of countries worldwide through the increasing volume and variety of cross-border transactions in goods and services and of international capital flows, and also through the more rapid and widespread diffusion of technology”. It has been very rightly said: “Technology makes globalization feasible. Liberalization makes it happen.”

The World Trade Organization (WTO)

Despite being a relatively young international organization - having come into existence only in 1994 - the World Trade Organization (WTO) has attracted considerable intellectual and media attention. No other organization has been more closely associated with the phenomenon of globalization. WTO but a set of principles that provided the basic foundation for the most modern developments associated with globalization. Among these principles, we can cite free trade, open markets and tariff reductions. Today WTO has 140 members and 30 are on the waiting list. Surely, the WTO is the driving force behind globalization. The key objectives of WTO are:

1. To set and enforce rules for international trade.
2. To provide a forum to negotiate and monitor trade liberalization.
3. To improve policy transparency.
4. To resolve trade disputes.

5.5.4 Globalization and Labor Force

Impact on Employment:

Globalization has brought with it, a rise in unemployment in some economics, while a rise in employment in other economies. Those, which were able to learn and adapt the new technologies, will be successful in holding their competitive advantage in the increasingly global economy.

Impact on Wages:

Economic theory suggests that international trade affects the prices of products in both exporting and importing countries and this in turn affects the price of labor (wages) within countries by influencing the demand for labor. If the supply of labor is fix this demand, the potential changes will lead to a rise in wages since workers will demand a best for switching into more profitable industries. Also, theory suggests that import competition lowers the price of products made by low skilled labor relative to the price of products made by skilled labor, so that domestic firms shift toward producing skill intensive goods.

Role of Immigration in Globalization

There are many restrictions on the free flow of labor, particularly the migration of low skilled labor from poor countries. Yet the potential benefits to poor countries, and to the poorest people in poor countries, of a relaxation of immigration controls in rich countries are considerable. The migrants would benefit directly by an improved standard of living. Their relatives left behind would benefit from the remittances received. Moreover, the developing countries as a group would benefit when the migrants return with new useful skills and generally enhanced human development.

A study of Egypt (Wahba, 1999, P. 13) revealed that 64 per cent of the overseas migrants were farmers or agricultural laborers with little or no education. Yet, their remittances reduced the number of households living in poverty by 9.8 percent and raised the per capita income of the migrants' households by 14.7 percent. A large share of remittance income was devoted to investment. Such evidence support to the argument that, restrictions on the free movement of low skills labors will reduce substantially the process of development in developing countries. More liberal migration policies in rich countries can help to create greater equality of opportunity for people everywhere and can contribute greatly to human development in developing countries.

5.5.5 Egypt and Globalization.

Within five years, Egypt will be force to integrate itself into the global economy. Globalization is permanent. It will not go away because we do not like some of its trouble implications or its impact. Egypt will have to play by the global rules. No country will be able to choose from the global package. Even if the government would like to select or prevent this or that aspect of globalization, or slow down its effect, it will not be able to do so. Globalization holds great promise of providing access to new markets, creating jobs and wealth for those who will be competitive, innovative, technologically advanced and can work at the speed of thought. It also entails great risks such as high unemployment, poverty, despair and perhaps aggressive social troubles if it is unable to competitor in the global field.

The following ten critical factors are very important for any country to assess its ability to survive and success in the future global market. These ten factors are:

1. The quality of education and skills training of the labor force.
2. The availability of skilled managers and highly innovative and effective business leaders.
3. Businesses that produce ever-improving products and services at world-class quality.
4. A stable democratic government, with clear economic policies, efficient regulatory processes and fair taxation practices.
5. The rule of law: fair laws that apply to everyone equally, and which are enforced, with no tolerance of corruption.
6. Banks and other financial institutions that generate capital facilitate credit and serve customers.
7. Local and international marketing capabilities.
8. Environmental protection and safekeeping for a sustainable future.
9. Availability of quality (factual) information and quantitative indicators and trends data (e.g. demographics) to base decisions on.
10. A culture that promotes teamwork, initiative, and innovation.

In view of these factors, we should work rapidly to mobilize and act immediately to maximize the available chances to succeed in the global market.

5.5.6 Egyptian Labor Force and Migration

Economists have shown only slight interest in the influence of international migration on labor force and the economic situation in the origin country. There are two channels whereby international migration may affect the economic prospects of the origin countries; first, migrants may make remittance that creates, later, a productive investments; secondly, the human and financial capital that may be accumulated through the migration span may be used, after return of migrants to their countries, in starting business or enhancing earning.

In 1989, the Egyptian labor force working abroad was approximately about 1.5 million (ILO, 2001), other study estimated the size of Egyptian labor force working abroad as 1.78 million in 1988 (Wahba, 1999, P.17), Primarily in Saudi Arabia, Libya, Jordan, Kuwait, and Iraq (see Table 5.5). Those working migrants generate a considerable direct impact on the Egyptian economy. Since 1983 remittances of migrants have not dropped below $3.1 billion and have reached as much as $6.1 billion in 1992 represents about 5-11% of Egyptian Gross Domestic Product (GDP).

5.5.6.1 Impact of the Gulf War on the Egyptian Labor Migrants

The Gulf crisis that start with Iraq's invasion of Kuwait in August 1990 had a negative consequences on the Egyptian labor migrants, some immediate and others of long-term nature. The immediate consequence of the Gulf crisis was the dislocation of large numbers of migrants from their countries of residence.

In the wake of the crisis, it was estimated that more than 400 thousands, in other study the estimated number of return migrants was about 700 thousands (Fergany, 2001, P.3), Egyptian returned from Iraq, Kuwait, and Jordan (see Table 5.5). This massive return from the Gulf area engaged with great losses for the migrants and their communities of origin (they mostly return without their accumulated savings and their personal belongings). It is probably too early to assess the long-term impact of Gulf crisis. However, the possible conclusion is that the Gulf labor market has been transformed, in terms of size (reduced) and composition (increasing the bias against Arab nationalities migrants) for a coming long time.

5.5.6.2 Future of the Egyptian Labor Migrants

From our point of view, there will be a declining trend of Egyptian labor migrants to Arab countries and particularly to Gulf countries. Many changes in the socioeconomic and political situations of Gulf area has been occurred and acting behind our view to the future of Egyptian labor migration to Gulf countries. We can conclude these changes in the following points:

Table (5.5) Estimation of Egyptian labor migrants by most important country of destination, 1989-2000.						
Year	**Egyptian Labor migrants**					
	Total (in Thousands)	**Most Important Countries of Destination**				
		Saudi Arabia	**Libya**	**Jordan**	**Kuwait**	**Iraq**
1989	1511	420	150	120	180	510
1990	1150	380	210	82	12	150
1991	1103	420	220	160	10	90
1992	1221	520	230	185	28	82
1993	1690	680	240	187	78	75
1994	1732	710	280	180	110	128
1995	1820	820	295	210	180	148
1996	2099	950	300	231	212	200
1997	2181	987	311	248	220	200
1998	1982	966	345	227	201	82
1999	1902	924	333	227	191	66
2000	1900	923	332	226	190	65

Source: International Labor Organization, international labor Migration database (ILM).

- The simplicity of imported labor and the policy of welfare conditions that greatly delayed the development of native work forces to replace the imported labor have been changed.

- The fall down of the world oil market has brings an end to the large oil revenues that Arab oil states enjoyed during the past 15 years.

- The growing economic and political crisis in many oil-exporting states, aggravated by military and political conflict has lowered the standards for imported labor, its wages, and qualifications.

The trend of the previous conditions is expected to continue and even increase in strength. So that we expect more effort in opening new markets for Egyptian labor in other parts of the world (the suggested place is Africa) as well as the traditional host Arab countries. We think that, this will require specialist centers for training purposes of the potential immigrants on vocations and skills needed in such markets. More effort is expected from the Ministry of Labor Force and Migration in this regard. This may help in reducing the gab between the supply and demand sides of the labor force and consequently reducing the unemployment rate. In addition, it may represent a good source for the country income by increasing the remittances of Egyptian workers abroad.

CHAPTER SIX
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

6.1 Summary.

The size and structure of manpower (population in the age group of work, 15-60 years) is considered to be the backbone of any society, since they represent the defense power, production power, and on them fall the hope and burden of their societies in development, and pursue for a good future. So, it is one of the priorities of any government is to achieve a high level of manpower qualification, employment and performance to be able to carry the responsibilities of defense, production, and development of the nation.

The Egyptian population is always described as a young population; where the percentage of population less than 15years of age is about 38% (1996, census). This usually ensures an enough size of manpower in the present and future. Currently, the size of manpower represents 56% of the total population. The quick view to the changes in the Egyptian labor force during the past twenty years (1976-1996), emphasis that many changes has been occurred in the size and structure of labor force. Of course, these changes are associated with many changes in the structure of labor market, the governmental policies and strategies regarding employment of graduates and the educational system, and lastly in the behavior and views of the individuals towards the kinds and types of works.

Also, Egypt has achieved an observed success, during the past ten years 1986-1995, in limiting the increase in unemployment rate, where it fluctuated around 10%. Despite the efforts that occurred in this fields, the problem of unemployment problem is still exists.

From the previous introduction, it is easy to realize the essentiality and importance of a detailed analytical study of the differentials in structure and dimensions of the Egyptian labor force (employment and unemployment). Therefore, the following objectives are worth considered by this study:

1. To analyze the differentials, that occurred during the study period (1976-1996), in the trend of Egyptian labor force, according to some selected socioeconomic

characteristics (employment status, educational level, industrial classification, and occupational structure).

2. To introduce some of the standardized labor measures for the Egyptian labor force such as Crude Activity Rate (CAR), Refined Activity Rate (RAR), unemployment Rates, and Age Specific Activity Rates (ASARs), aiming to facilitate further comparative studies between Egypt and other countries.

3. To analyze the recent structure of Egyptian employment and unemployment according to some selected socioeconomic characteristics (age, educational level, industrial classifications, and occupational structure).

4. To produce quantitative measures highlighting the impacts of unemployment in Egypt. This will be done through estimating the economically active years of life, and the loss of economically active years due to unemployment in terms of time (years) and money.

5. To project the supply of and the demand for Egyptian labor force for the future years, on the basis of the most recent demographic and economic measures.

The study mainly depends on the final results of 1976, 1986, and 1996 Egyptian censuses of Population, Housing and Establishments as the main and essential source of data at the national level. In addition, the study depends on some other sources of data, such as:

__ Different rounds of the Labor Force Sample Survey (LFSS).
__ Different issues of the Human Development Report (HDR).
__ Data sets of the Ministry of planning.
__ Labor Statistics Database (LABORSTA) of the International Labor Organization (ILO).

The methodology adopted in this study is a combination of three methods:

1. In some parts of the study, illustrative analysis of the differentials in the Egyptian labor force and unemployment according to selected socioeconomic variables will be adopted.

2. Utilization of the "Working Life Tables Technique " for the purpose of estimating the economically active years of life, and the loss of the economically active years due to unemployment. Based on these estimates, the study provides two models to convert the impact of recent level of unemployment into time (measured by total of economically active years lose due to unemployment) and money (measured in view of the current level of productivity).

3. For the purpose of projecting the supply of and the demand for Egyptian labor force. The Cohort Component Method for Population Projection will be utilized to project the supply of labor force for the next twenty-five years. Investigative and time series analysis will also be utilized to project the demand for Egyptian labor force.

The study is designed in six chapters. After the introductory chapter, chapter two deals with the differentials in the trend of labor force during the period 1976-1996. Analysis of the recent situation of employment and unemployment in Egypt is presented in chapter three. The quantitative measures of the impact of unemployment through applying the economically active life tables techniques and estimating the loss of economically active years due to unemployment in terms of time and money, will take place in chapter four. Chapter five encompasses our view to the future of Egyptian labor force, through projecting the supply of and the demand for labor force. Lastly, chapter six will provide a summary and conclusion of the main results obtained by the study, in addition to some of the suggest policies and recommendations in this field.

6.2 The Main Findings of the Study

In chapter two the differentials in the trend of Egyptian labor force during the period 1976-1996 were analyzed. The main findings were: Egyptian Manpower size increased from about 19.6 millions in year 1976 to reach about 33.5 millions in 1996. The overall increase was about 71%, while the average annual rate of growth was about 2.4%. The average annual increase in the absolute size of Egyptian manpower was about 700 thousands during the

period 1976-1996. With respect to sex, the size of male manpower increased from about 9.9 millions in 1976 to reach about 17.0 millions in 1996 representing about 50.7% of the total manpower. In the same time, the size of female labor force increased from 9.8 millions in 1976 to 16.5 millions in 1996 representing about 49.3% of the total manpower.

Regarding the urban/rural split, the size of urban manpower has increased during the period 1986-1996 by an annual average of 304 thousands. The size of urban manpower in 1996 represents about 60.2% of total urban population. The size of rural manpower increased byan average of 456 thousand annually during the same period. The size of rural manpower in 1996 represents about 53.8% of total rural population.

Measures of the relative size of labor force indicate that Egyptian labor force practiced a slight increase in the rates of Crude activity (CAR) and Refined Activity (RAR) during the study period. Despite the low levels of female labor force's Crude Activity and Refined Activity Rates, the percentages of increase were higher compared to male labor force. Slight increase in the Refined Activity Rate of rural labor force is observed during the period 1986-1996.

The factorial Analysis of the change in labor force size indicates that the changes in the population size had the greatest impact in the increase of labor force size during the two inter censual periods (1976-1986, and 1986-1996). The impact of the changes in the population size exceeds the impact of the changes in Refined Activity Rate (RAR); this is valid for total labor force, its classification by place of residence, and for male labor force. The situation among female labor force is reverse, where the impact of increasing Refined Activity Rate (RAR) was higher than the impact of increasing the size of female population.

Analysis of the trend in the employment status indicates that, the size of labor force (employment and unemployment) has increased from about 8.9 millions in 1976 to about 16.4 millions in 1996. The averages annual increase was about 431 thousands during the last inter- censual period 1986-1996.

The burden of unemployment problem increased over the study period. It increased from about 4.6% in 1976 to about 9.3% in 1996. Unemployment rate among female labor force in 1996 is about three folds that of male labor force (20.6% vs. 7.2% respectively).

Unemployment rate among rural labor force is slightly higher than urban labor force (9.6% vs. 9.0% respectively).

With regards to the trend in the educational status of labor force, the study indicates that illiteracy is the great challenge facing Egyptian human development in general, and improving the skills and qualities of Egyptian labor force in particular. The current level of illiteracy among Egyptian labor force is still high (about 33% of all labor force size), especially among males and rural labor force (36% and 44% respectively). Given that any educational level less than the intermediate level will face with difficulties in absorbing, adopting and implementing new technologies, we can conclude that, 56% of the size of Egyptian labor force is below this level. The corresponding percentages among rural and male labor force are 66% and 63% respectively, and is 19% for female labor force. The outstanding improvement in educational level of Egyptian labor force occurred among those who have intermediate level of education, where their percentage increased from about 10% in 1976 to reach about 32% in 1996.

Analysis of the trend in the industrial classification of Egyptian labor force indicates a great decline in the percentage of Egyptian workers in the industries of primary sector. The decline was about 31% during the whole period of study (from about 43% in 1976 to about 30% in 1996). This reduction may support the argument of decreasing the percentage of workers in primary sector with the progress of development process. Many reasons operated behind this reduction, such as, the technological and mechanical transformation that occurred in the most of the agriculture works; increasing the value of children's education in rural areas; streams of migration from rural to urban areas; in addition to the alternative opportunities of work outside the agriculture sector.

The study noticed that stability of the proportion of workers in secondary sector industries around 15% of all Egyptian labor force during the study period. Services sector had a great change. The percentage of workers in services sector activities increased by about 13 Percentage points during the study period (from 42% in 1976 to about 55% in 1996).

With respect to the sex disparities, female labor force has a higher participation in services sector activities and a lower participation in secondary sector industries compared to male labor force. Regarding to the differentials by place of residence, rural labor force are

more engaged in primary sector activities, namely in agriculture, and less engaged in services sector activities compared to urban labor force.

Diagnosing the trend in the occupational structure indicates that a decreasing trend in Blue Collar Occupations from about 69% of all labor force in 1976 to about 54% in 1996. Female labor force is more occupied by White Collar Occupations than male (83% and 40% respectively). The same phenomenon is observed among urban labor versus rural labor force (the percentages were 60% vs. 33%).

In chapter three a trial is made to analyze the recent situation of employment and unemployment in Egypt.

The historical background of the phenomenon of unemployment revealed that this problem passed through three stages since 1960; the first stage – the sixteen's decade – was characterized by very low levels of unemployment (3 to 4 percent). The second phase – from 1975 to 1985 – was characterized by shortage in labor force due to the open door policy, and migration of the Egyptian labor force to the Gulf area; real wages went up. The third phase – from 1985 until now is characterized by emigration peaked in the early 1990s; drop out the remittance of migrants, this was reflected in slowing the growth. Unemployment rate climbed to new heights, reaching 10 percent in 1993, and is fluctuating around this level since.

Analysis of the recent situation of Egyptian employment revealed that the size of Egyptian employment reached about 14.9 million in 1996 (14% females, and 86% males). Their distribution according to the place of residence indicates that 53% are located in rural areas and 47% in urban areas. With respect to the age, the study showed that about 10% of the Egyptian Employments are young employment (below the twenty years of age). Employment between age twenty to less than forty-five years represents about two-third of all Egyptian employment (68.6%). More than three-forth of female employments are in this age group. Older employment (those aged from forty-five to less than sixty years) represents about 22% of all Egyptian employment.

Analysis of Age Specific Activity Rates (ASARs) showed that, ASARs start with a low level at the first age group of working life (15-19) and it goes up to reach its maximum value at the medium age group, after that it goes slowly down until the last age group of

working life. The highest ASAR is observed among male and followed by urban area, while the least ASAR is noticed among female. The maximum participation rate among females was at age 30.34 (20%) while the maximum participation rate among male was at age 35-39 (98%).

Analysis of employment by educational levels indicates that, one third of employment is illiterate. Illiteracy is higher among male and rural employment compared to the national level. Illiteracy problem among employment is highly revealed when we add the quasi-illiterates (those who are able to read and write only without certificates), the percent rises to about 54.5%. Three-forth of female employment have intermediate or above level of education.

Analysis of employment by industrial classifications indicated that, about one-half of the employment size is participating in economic activities of primary sector, mostly in agriculture. Females participated in agriculture activities were about 11% of all female employment; the same percent is about one-third of male employment. Secondary sector activities absorb about 15% of all Egyptian employment. Services sector activities absorb about 8 millions. Approximately, 80% of all services sector workers are males; 61% are urban employees. Female participating in services sector activities represents more than three-forth of female employment in Egypt (78%).

The occupational structure of Egyptian employment shows that, farmers, production workers, professional, and technical workers represent more than three-forth (78%) of Egyptian employment. Professional, technical and related works occupy more than one-half of female employments. Farmers and related occupations represent about 47.9% of all rural employment, while production and related occupations represent about one-third of urban employment (32%). The percentage of sales and services workers is higher among male than female (10% and 6% respectively), while the reverse is correct for clerical and related occupations (about 21% of female employments versus 5% among male employment).

Analysis of unemployment classification by age groups, educational level, industrial classification, and occupational structure revealed the following:

The size of Egyptian unemployment is about 1.5 million in 1996; 65% are males and 55% are residence in rural areas. Unemployment with educational level less than intermediate is minor; it does not exceed 9% of Egyptian unemployment. The percentage fluctuated from 12% as a maximum among males to 3.1% as a minimum among females. The great part of the unemployment burden is concentrated among those with intermediate, university and above level of education; where 90% of Egyptian unemployment in this category. The problem of unemployment is more striking among females, and in rural areas.

The majority of unemployment problem (95%) is concentrated among persons less than thirty years of age. Those are characterized by being, new graduates, never worked, with less or no previous work experience or participation in any economic activities. The rest of unemployment problem (5%) is concentrated among older persons (30 years and above), who are illiterate, or with low level of education, ever worked, have a previous work experience, mostly in construction sector.

In chapter four, a trial is made to construct sets of economically active life tables aiming to explore the profile of economically active males and females, in addition to formulate quantitative measures to the burden of unemployment in Egypt. The results explain that:

At the prevailing levels of mortality and activity rates in year 1996, an Egyptian male in the first age group of working life (15-19) is expects to stay alive on average for additional 54 years. Of these years, the average economically active life is estimated as 41 year (39 years as the average of employed life and 2 years as the average of unemployed life). The corresponding years for an Egyptian female in the same age group (15-19) is 56 year as an expectation of the remaining total years of live; 7 year as an expectation of economically active life (6 years as the average of employed life and one year as the average of unemployed life).

As the age of worker (either male or female) increases, the average employed and unemployed life decreases. The unemployment burden is concentrated among youngest and middle age labor force (from the entry age of labor force to the med span of active life), which means no expectation for unemployment life among males or females over the age 35.

In a trial to compile quantitative measures to the extent of unemployment problem in Egypt, through estimating the total years of economically active life lost due to unemployment, and to convert these lost years into money in view of the current Egyptian labor productivity, the results are as follows:

At the current level of unemployment rate of 9.3%, and at the current Age Specific Employment Rates for Egyptian males and females, we lose about 10.6 million economically active person/years. Of these lost years, 90% lost by males (about 9.6 million years) and 10% lost by females (about one million years).

The second quantitative estimation of the burden of unemployment shows that, according to the previous estimation to the lose in economically active years due to unemployment, and at the current average level of productivity, the estimated lose of money due to unemployment is about LE 149 Billion.

It is clear that as we succeed in reducing the current rate of unemployment, the expectations of total loss in economically active live due to unemployment, and in the total loss in terms of money will decreases. For example, if the government succeed in reducing the unemployment rate within the next 10 years to reach about 7% (the most probably goal from our view), keeping other factors constant, the estimated total years of economically active life lost due to unemployment will be reduced to about 8 million years and the total loss in terms of money will be reduced to about LE 112 billion. Furthermore, if we succeed in reducing the unemployment rate to the secured level (around 3.5%) by the end of 2017, the total loss in the economically active life and the total lose in terms of money due to unemployment will be decreased to about 4 million years and LE 56 billion.

In chapter five, an attempt has been made to project the long-term supply of Egyptian labor force (up to year 2026), and the short-term demand for Egyptian labor force (up to year 2006). Results of the supply of labor force projection indicate that:

The size of labor force is expected to grow from about 16.5 million in the base year of projection to reach about 23.3 million in year 2006, and to continue its growth to reach about 35.4 million by the year 2026. Percentage of labor force to the total manpower is expected to

increase gradually from about 49.2% in the base year of projection to reach about 52.8% in year 2006, and to fluctuate around 55% during the remaining period of projection.

By the end of projection period, the size of Egyptian labor force is expected to be more than double that of the initial year. It is expected to increase by 18.9 million workers, representing about 115% of the labor force size in year 1996. Male labor force is expected to double by the end of the projection period, while female labor force is expected to be close of three folds its size in the year 1996 (191.5%).

In projecting the demand for labor force in each economic sector of the economy up to year 2006, data of the previous period 1996-2001 was analyzed and utilized to design the assumptions and to construct the models of projection. Three variants for the growth of Gross Domestic Product (GDP) were combined with two productivity assumptions to yield six alternative sets of projections. Results of the projection models indicate that:

In the first two models (the pessimistic models), If the Egyptian GDP is to grow by the same annual growth rate observed during the last period 1996-2001 (4.32% annually), combined with no change in workers' productivity, the total demand for labor force will reach about 20.4 million by the year 2006. The expected size will be reduced to about 20.0 million if we apply the increasing productivity model.

In the second two models (the moderate models), if Egyptian GDP is able to achieve a growth rate of 5.5% annually, with constant productivity, the demand for labor force will reach about 21.5 million workers. The corresponding expected size will be reduced by about 300 thousands if we apply the increasing productivity model.

In the last two models (the optimistic models), if the Egyptian GDP achieves an annual growth rate of 6.8 (the target of development strategy outline of Egypt), combined with constant productivity, this is expected to generate a total demand for labor force of 22.9 million by the year 2006. The expected size will be reduced to about 22.5 million if we apply the increasing productivity model.

Approximately, there is no variation in the distribution of the demand for labor force by economic sector, on average; production sector is expected to require about 52% of all the

demand for labor force. Production services sector is expected to require about 17%; and the remaining percent is expected to be required by social services sectors.

Projections of the short-term demand for Egyptian labor force (up to year 2006) along with the long-term projection of the supply of labor force (up to year 2026) enable us to estimate the unemployment rate in the short term (in year 2006) under each set of the projection assumptions. In this regard the study shows that:

If the growth rate of GDP stays constant at the average annual level observed during the period 1996-2001 (4.32%), the expected unemployment rate by 2006 will be higher than the observed in 1996 (9.3%). It will range between 12.7% in case of constant productivity and 14.2% in case of improved level of worker's productivity.

Increasing the Egyptian GDP growth rate by at least 5.5% annually during the period 2001-2006 is expected to guarantee a reduction in unemployment rate. The expected unemployment rate will range from 7.8% in case of constant productivity to 8.9% in case of improvement in the level of worker's productivity.

Achieving the GDP growth rate of the development strategy outline of Egypt (6.8% annually during the period 2001-2006) will expect to lessen the labor surplus to the secured level.

6.3 Recommendations and Policy Implications

1. Given the high rate of population Growth, all the efforts should be cooperated to achieve, at least the second model of population projection presented in the study (where Total Fertility Rate (TFR) declines from its current level of 3.5 births to reach 2.9 births by the year 2016, and to continue its decline to reach the replacement level of 2.1 births in year 2026). It is clear that, the potential impact of such reduction in TFR will affect the population growth rate, and accordingly, will reduce the schools burdens, the pressures on environment, and public services. Additionally, it may promote the socioeconomic development by reducing the current dependency ratio from 0.77 to about 0.51 by the year 2026 (see Table Four in Appendix).

2. Given the high percentage of illiterate and less skilled employees, the study is looking to education and training as the most important means for developing a skilled labor force. This involves fighting the phenomenon of drop out from schools; increasing current expenditure on education (per capita in the education age group 6-21) to comparable international standards; improving the quality of education to encourage self-learning and creativity; and ensuring the provision of skills and knowledge that cater adequately to the needs of the labor market.

3. Given the low educational level of the Egyptian manpower, linking between the education policy and the socioeconomic development plans is mostly required in the future, to grantee the full coordination between the educational output and the requirement of labor market to permit the balance between the supply and the demand of labor force.

4. Modernize the educational and training programs in view of the international development in the basic sciences, and the findings of local technical development researches.

5. Special priority should be given to the means of dealing with, and benefiting from, the high and sophisticated technologies, such as information technology, genetic technology, etc. and Support the technological development and innovation processes at the level of business institutions and various establishments.

6. Rectify the structure of manpower through a national policy of vocational training to meet the needs of the socioeconomic development plans as well as the local, Arab, and foreign labor markets.

7. Reform the training system in Egypt is necessary to strengthen and promote continuous upgrading of skills to enhance Egypt's competitiveness on world market, and expand the scope of training programs to include sectors and sub sectors with high employment potential such as commerce, services and tourism.

8. Given the low participation and high unemployment rate of Egyptian females, more efforts should be given to fight the illiteracy rate and drop out from schools among

females and improve the quality of female labor force. Also, great attention should be extended to help and encourage females to work outside the agriculture sector. The best way to achieve that, from our view, is through extending the technical and higher educational level for female, especially in rural areas and frontier governorates. These efforts should combine with additional efforts to change the traditional view and obstacles against female education and employment in such areas. Mass media, advisement, and direct communication may act a great role in this regard. Non Governmental Organization (NGOs) is also expected to play a significant role in achieving this goal.

9. Training programs are also effective in increasing the ability of women to obtain productive employment and to reduce gender bias in the private sector. Meanwhile, increasing women's participation in the female labor force can be encouraged by providing childcare centers to reduce the burden of conflicting demands on women. Childcare centers or community day centers, can free many women from the burden of children part of a day to enable them to attend illiteracy elimination classes or to participate in work activities.

10. Given the poor profile of manpower in rural areas than urban areas, and among females than males, more attention should be given to improving the rural women development centers, aiming to provide sustainable and comprehensive services to achieve fundamental changes in the social and economic situation of rural women.

11. More support should be directed to the productive families projects, environmental industries, and crafts, which is mostly depend on local materials and more suitable for females.

12. Self-employed women's associations have been successful in helping and promoting poor women in many developing countries such as India. These associations aim to enhance women's income earning opportunities as well as their working environment. Such associations help women in several ways; provide women with the necessary capital; help women to get better prices for their goods; and training courses to improve their abilities.

13. Given the concentration of the majority of unemployment among person less than 35 years of age, more attention should be paid to youth to encourage them to direct their energy to reclamation of the desert projects, small-scale industry projects, and to construct and inhabit new cities. This may be carried out through providing them with the advice and the essential needs from infrastructure, investments and technical aids, especially in the beginning of their projects. This may play an important role in increasing the inhabited area, in achieving better redistributing of the population, in reducing the jab between the supply of and the demand for labor force, and finally in reducing the unemployment rate in the future.

14. Early retirement, the geographical redistribution, and encouraging the governmental employee to establish private enterprises or cooperation associations and leaving the official work, may represent some of the available solutions to replace them by fresh graduates.

15. Given the gap between the demand side and the supply side of the Egyptian labor force, opening new markets to Egyptian labor in the traditional host countries as well as other parts of the world (the suggested place is Africa) may help in narrowing this gab. This requires establishment of specialized centers for the training purposes of the potential immigrants on vocations and skills needed for such markets. More effort is expected from the Ministry of Labor Force and Migration in this regard. This may help in reducing the jab between the supply of and the demand for labor force, and reducing the unemployment rate. In addition, it may represent a good source for the country income by increasing the remittances of Egyptian workers abroad, which are rapidly declined after the Gulf War in 1990.

16. Given the low productivity of Egyptian labor and the need for new technologies in production of goods and services, the study recommends, putting an adequate policy for technology transformation to absorb the coming new generation of manpower, not to increase the burden of unemployment in the society. Also, developing the current technology level to produce national products able for competition in the international markets with employment of the maximum range of manpower is one of the encouraging polices.

17. Developing the work laws to join wages with productivity. 18. Policy makers should try to achieve a better investment of labor force by redistribution of the human resources over the economic regions and sectors.

18. Issue a directory on the Egyptian labor market data covering all information and data on manpower economic classifications, types of vocations and geographical distribution. These data should be available in accurate and updated form to investors to facilitate the economic feasibility studies for new projects. Such database should assist in identifying the expected surplus or deficit in vocations, thereby achieving a balance in training and providing transformational training to meet shortages in the labor market.

19. Further studies are recommended, utilizing the same methodological tools and models, at the sectoral, regional, and governmental levels.

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