# THE POOR IN THE EGYPTIAN LABOR MARKET DURING AN ADJUSTMENT PERIOD: FOR BETTER OR FOR WORSE

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**Abstract**

The purpose of this paper is to examine the changes in the level and distribution of earnings in the Egyptian labour market and the main factors underlying these changes during the period of the Egypt Reform and Structural Adjustment Program (ERSAP 91). Geographically, the paper is concerned with Egypt as a whole, and the time period is 1988-1998. The methodology used in this paper is based on a comparison between two sets of micro data at the household level, before and after the implementation of ERSAP 91, using earning percentiles, variances and percentile differentials. The main finding is a decrease in earnings inequality in Egypt during the study period.

## 1. Introduction

Poverty has always been a traditional concern of development activists in different societies. One important aspect of poverty is earnings inequality. If we compare two countries with the same per capita income, where the first country has more earnings inequality within its labor market than the second, then we can say that the former suffers from greater poverty compared to the latter. Hence, poverty may be defined in terms of earnings inequality. In order to examine the trend of this so called inequality poverty, we should take into account the characteristics of the poor related to the labor market, the changes in labor market structure, and employment and unemployment trends. This is the main concern of this paper that has taken the Arab Republic of Egypt as a case study.

The Egyptian economy has long been suffering from low productivity and low level management in most sectors of the economy. Low economic growth, growing fiscal deficit, and worsening balance of payments were the dominant economic phenomena until the early 1990s. To solve these problems, the Egyptian government went through a reform program in 1987 under the sponsorship of the International Monetary Fund (IMF). But this program was not comprehensive and sufficient to alleviate all economic problems. At the very beginning of the 1990s, the economic situation worsened due to the political turmoil in the Gulf.

During 1990-91, the Gulf war was a serious threat to almost all the financing sources of Egypt. The return of around 700 thousand workers from the Gulf countries decreased Egyptian workers' remittances from abroad. Moreover, the number of tourists in the region as a whole declined significantly. Both, remittances from abroad and tourism belong to the most important revenue resources for Egypt. Furthermore, the heavy burden of servicing the debt that exceeded 46 billion US Dollars became a tremendous threat to the economy.

Due to this situation, the Egyptian government once again relied on the IMF and signed an agreement in March 1991, committing the government to a more comprehensive economic reform program. In subsequent years, it reached new agreements with the IMF and with the World Bank (WB), so, under the sponsorship of these two international financial institutions, the Egypt Reform and Structural Adjustment Program of 1991, referred to as ERSAP 91 was implemented.

With the implementation of ERSAP 91, the Egyptian government privatised a number of State Owned Enterprises wholly and partially until the end of 1997. Customs tariffs were also lowered and various deregulation and liberalization measures followed as well. With the mediation of IMF, the Paris Club wrote off 4 billion US Dollars of Egypt's foreign debt.

However, the general aspects of ERSAP 91 were expected to cause a number of serious problems, especially in social welfare sectors and employment; privatization was expected to seriously threaten the stability of job places. In developing countries with IMF sponsored economic reform programs, a rather common experience has been a negative impact on employment, especially when State Owned Enterprises take up a large portion of employment, like it is the case in Egypt.

Accordingly, even if the Egyptian economy has shown very positive changes in recent years at the macro level, accelerated growth and Balance of Payment improvements[1], these macro economic indicators do not necessarily show that the quality of life for all the people, especially the poor has improved. On the contrary, some critics have argued that poverty and unemployment have increased as ERSAP 91 aimed to achieve economic efficiency by applying fiscal and monetary measures. Hence, no economic development can be justified by itself, unless it is accompanied by improvement in the quality of life for the mass of people in society, or - at least - the majority of society does not become worse off.

Since the main channel through which ERSAP 91 probably influences individuals is the labor market, this paper seeks to examine the changes in it, as well as the changes in the level of earnings' distribution during the ERSAP 91 period.

In this paper we intend to examine the changes in the level and structure of employment during the period 1988-1998, the changes in the level and distribution of earnings during the same period, and the factors underlying these changes. The hypothesis of the paper is that earnings inequality in Egypt decreased during ERSAP 91.

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[1] In 1988, the Egyptian Current Account deficit was US$ −1,048 millions. In 1998, it was only US$ −192 millions. The GDP growth rate in 1988 was 5percent, and in 1998 it reached 8percent (IMF, 1999).

Geographically, the paper examines the impact of ERSAP 91 in Egypt as a whole. We will show that ERSAP 91 did not have a direct negative impact on the labor market or the earnings' distribution. We will also determine some other non-ERSAP 91 events that occurred during the study period and which might have played a role in the changes of the labor market. As will be seen from the paper, ERSAP 91 was not the reason why the unemployment rate increased during the nineties. We will also show that after ERSAP 91 the earnings inequality decreased in Egypt.

The methodology used in this paper is based on two sets of micro data at the household level. One of them is before, and the other after the implementation of ERSAP 91. A comparison will be made between the two years 1988 and 1998. We will first try to examine the changes in the labor market structure, employment and unemployment, during ERSAP 91, and then the changes in:

(i) real earnings for different earning groups (Percentiles).

(ii) earnings' distribution, which will be examined by observing the changes in variances (gap between actual earnings and mean earnings) and changes in percentile differentials (differences between earning levels of different percentiles of the population), after ranking the population according to earning levels. In addition, some regressions will be run to test the results.

The main limitation of this paper is that it cannot draw a causal relationship between ERSAP 91 and changes in labor market outcomes in Egypt during that period. Instead it will focus on showing the changes that occurred after ERSAP 91, concerning the labor market and the earnings' distribution. A further step will be trying to link these changes to ERSAP 91, taking into account that these changes might have happened due to the influence of other possible non-ERSAP 91 factors.

In cooperation with the Egyptian Central Agency for Public Mobilization and Statistics (CAPMAS), the Economic Research Forum (ERF) carried out the Egypt Labor Market Survey 1998 (ELMS 98). The latter is a nationally representative micro data labor market survey of 5000 households. The survey was designed, so that it can be compared to a similar survey, the October 1988 Labor Force Sample Survey (LFSS 88). The ELMS 98 was carried out 10 years to the day after the LFSS 88. Similar sample and questionnaire designs were used. This paper will mainly rely on the micro data of LFSS 88 and ELMS 98 derived from (ERF).

## 2. Characteristics of the Poor in Egypt

Low earnings level is not the only feature of poverty, since the latter is also associated with malnutrition, higher incidence of child mortality and morbidity, lower education levels, lower access to employment, poor housing conditions or limited access to basic services of water and sanitation. A proper examination of the distribution of welfare in Egypt should therefore shed light on the characteristics of the people below the poverty line, apart from their number. This is of great importance for policy makers who are entitled to design and target poverty alleviation strategies.

Since our study is mainly concerned with the labor market structure and earnings' distribution in Egypt, we will discuss the most related characteristics of the poor in Egypt to these two areas. These characteristics are the access to both education and employment.

### 2.1. Education

The Egyptian Population Census of CAPMAS (1999) says that 41 percent of the Egyptian population is below 15 years of age. Accordingly, there has been very much pressure on the educational system in recent years, especially because the population has been growing continuously (Zibani, 1999).

The educational system in Egypt has no significant contribution to improving the average Egyptian's earnings prospects in the labor market. Schools, in particular at the primary and preparatory levels, do not help the pupils obtain practical and useful skills for the labor market. Neither the schooling nor the socio-economic conditions of the pupils in these levels give them space to acquire a higher level of training in formal education. Hence, education has only low private returns (Fergany, 1996).

According to El Baradei (1996), there is a positive correlation between poverty and non-accessibility to basic education. She also observed that the average expenditure on education has reached 1.7 percent and 2.9 percent of total expenditure in rural areas and urban areas in Egypt, respectively in1995. Thus, the high rates of dropouts (51 percent in 1995) of pupils in basic education can, to a large extent, be attributed to their own poverty.

The number of working children between the ages of 6 and 14 was estimated at 1.5 million in 1995, which represents an average of 12.5 percent of the population.

The costs of education are quite high for poor households and the illiteracy rate among poor men is 61 percent, compared to 76 percent among poor women (INP, 1996).

### 2.2. Employment and Unemployment

Unemployment in Egypt is concentrated mainly among young, educated new entrants to the labor market. More than 93 percent of the unemployed in Egypt in 1995 were under 30 years of age and 95 percent had a secondary education or above (ICA, 1996). Unemployment is strongly associated with the expectation of a guaranteed job in the public sector, particularly in one of the State Owned Enterprises, after graduation. This makes young educated persons stay unemployed from 1 to 3 years, waiting for this guaranteed job.

The poor who do not have access to education, and hence, have no expectations of these kinds of jobs, either do casual wage work or create their own source of livelihood through any sort of self-employment

According to EHDR 1996, households headed by an unemployed person had a very high incidence of poverty (45 percent) in 1995/96. As for the households whose heads are employed, the highest incidence of poverty appeared among those who were either self-employed or employed in casual wage jobs, such as agriculture, construction, or personal services (42 percent).

#### 2.2.1. Non-agricultural employment

One of the strongest predictors of poverty for male household heads outside agriculture is casual wage work. Casual wage workers are seekers of livelihood and are in most cases employed in insecure and low-earnings jobs, and thus threatened by fluctuations and vulnerability in the labor market (Assaad, 1999).

According to the October 1988 Labor Force Sample Survey (LFSS 88) which belongs to the few surveys that can identify irregular employment in Egypt, one third of private non-agricultural wage workers in Egypt are irregularly employed. Less than 2.5 percent of those had legal employment

contracts that ensure protection by labor laws and less than 13 percent were covered by social insurance. A report of the Central Authority for Public Mobilization and Statistics (CAPMAS, 1999) shows that households headed by individuals with such kinds of occupations made up 48 percent of the poor in 1995/96.

An important non-agricultural activity in the Egyptian labor market that typically represents this sort of casual wage work, and that absorbs many of the poor workers in Egypt, particularly men, is the construction sector. Construction workers make up at least 70 percent of casual wage workers in urban areas (El-Ehwany, 2000).

A common type of low wage work that poor women do is personal services. It includes jobs that require low or even no education, such as street vending and peddling. Also *dallalas*, women who go house-to-house to sell various consumer products (Assaad, 1999), are included in the classification of personal services. Generally, the majority of jobs among the poor are unprotected by a legal employment contract.

#### 2.2.2. Employment in agriculture

Employment in agriculture is largely casual and predominantly seasonal, since it depends on the labor requirements of various crops and the crop rotation cycle (El-Laithy, 1996).

Due to the sexual division of labor, employment conditions in agriculture are highly gender discriminatory. The agricultural tasks that men are involved in are more specialized than the tasks of women and children. Thus, women's and children's wages are significantly lower than men's. According to a 1994 survey, female wages were about 60 percent and children's wages about 40 percent of adult male wages (Commander, 1997). Moreover, the majority of employed women and children in rural areas belong to the non-wage labor that works in home-based agricultural activities.

### 3. Egypt Reform and Structural Adjustment Program (ERSAP 91) and its Expected Impact on Labor Market Outcomes in Egypt

During the seventies, the Egyptian economy flourished and the average GDP growth rate reached 12 percent. This good condition was due to the high prices of oil that Egypt exported to many countries, high revenues

from tourism, and the large amounts of money that was transferred from Egyptian workers abroad. However, there was a clear specialization in services at the expense of other important sectors. Generally, the economy was open to external shocks, because it mainly relied on money coming from abroad.

The performance of the Egyptian economy worsened in the early eighties, when oil prices decreased in the international markets. The Egyptian government attempted to follow some fiscal and monetary policies in order to restore a high GDP rate of growth. However, achieving this target resulted in a higher deficit in the current account (-1,670 million US Dollars in 1986, which makes up 15 percent of the GDP). Moreover, the external debt increased to 46 billion US Dollars in 1989.

Since the late eighties, the government has undertaken a number of corrective actions. Nevertheless, in many cases these solutions were irrelevant, insufficient and only partially implemented. Hence, there had to be an integrated strategy that would help the Egyptian economy to overcome its structural imbalances and achieve a higher rate of growth.

In mid 1991, the Egyptian government started a comprehensive Structural Adjustment and Economic Reform Program with the International Monetary Fund (IMF) and the World Bank (WB). This program was expected to have an impact on labor market outcomes in Egypt. Accordingly, in the following sections we will shed light on the main features of the program and its expected impact on the Egyptian labor market, especially earnings' distribution.

### 3.1. Background of the Egypt Reform and Structural Adjustment Program (ERSAP 91)

The Egypt Economic Reform and Structural Adjustment Program (ERSAP 91) is a broad and comprehensive policy. Its aim is to eliminate economic disequilibria, stabilize the economy in the short-term, achieve a market-based open economy with substantially less public intervention in the medium term, and restructure economic activities to create a competitive market system. The ultimate goal of the Government's Economic Reform and Structural Adjustment is to achieve sustainable economic growth and to improve the country's living standards.

The set of macro and microeconomic policies that ERSAP 91 adopted covers fiscal sector reforms, foreign trade and price liberalization, privatization and development of some social conditions.

### 3.2. Expected Impact of ERSAP 91 on the Egyptian Labor Market

Since the main aim of this paper is to examine the labor market effects of the ERSAP 91, this section attempts to draw out the labor market implications of its various aspects.

Generally, the demand for labor is derived from the demand of a product. At the same time, the kind of product and sector determines whether skilled or less skilled labor is needed. The type of labor in turn determines the earnings changes. Usually, the higher the skills, the more the labor will be paid.

If we intend to examine the causes underlying growing earnings inequality in any society, we should return to the basic and simple economic model of the labor market. Both the demand and supply are the main determinants of labor market outcomes in terms of earnings and employment levels. Hence, any shift in either the supply, the demand or in both curves, would cause changes in the employment and/or earning levels. However, there is a third factor that might have influence on the earnings and the employment levels. These are the institutional forces that include trade unions.

In what follows, we will focus on the aspects of ERSAP 91 that might have an influence on the labor market and employment structure in Egypt, and hence, on the earning distribution. We are concerned with earnings in general, i.e. the equilibrium where the market moves them.

#### 3.2.1. Fiscal sector reform

The 1990/91 budget showed a deficit of 2.3 billion US Dollars (about 20 percent of GDP). The government implemented corrective measures and cut its public investments in the government sector. These cuts were expected to lead to a declining demand for workers in the same sector, and in turn decreasing the level of their earnings. Usually the government sector in Egypt offers lower earnings compared to the private sector. Table (1) shows a comparison between the mean earnings of the two main sectors of the Egyptian economy. These are the public sector, including both the government sector and State Owned Enterprises (SOE), and the private

sector. The difference between mean earnings in the private sector and the government sector is clear.

Table (2) shows us that the less skilled workers make up the majority of the government sector. Their low skills and the fact that they usually do not have the incentive to improve their skills due to guaranteed insurance and earnings and the absence of any threat of firing, might explain why earnings are generally low in the government sector. In addition, the benefits that the government sector offers to its workers, such as relatively high pensions, insurance and all sorts of security, are more significant when compared to the private sector that offers relatively higher earnings instead of offering these long term services. Hence, if as a consequence of ERSAP 91 the demand for government employment were to decrease, the already low earnings in the government sector would decrease further leading to more earnings inequality.

### 3.2.2. Privatization

An essential goal of restructuring the Egyptian economy is to promote and improve the private sector as an important source of development and growth. Towards this goal, the government has taken the responsibility of opening the market for the private sector and allowing it to compete with the public sector.

One other major government goal was to increase private sector participation in the ownership and management of SOEs, in order to improve the efficiency of the public sector's investment in business enterprises. Accordingly, the government has been working on the eventual privatization of all the enterprises owned by the local government.

To increase private sector participation in the ownership and management of large segments of SOEs and to reduce employment in SOEs, public sector equity worth LE 2.6 Billion (US$ 1 billion) in 240 public/private joint venture companies was offered for sale to the private sector.

Through selling SOEs to the private sector, only the skilled workers would be kept and the less skilled workers dismissed, especially if there were no restrictions on privatization. Market power would play a big role, where the highest earnings would be paid to the most skilled workers, and the lowest earnings paid to the least skilled workers.

To conclude, the increasing demand for skilled labor would cause an increase in its earnings, and the decreasing demand for unskilled labor would decrease its earnings, which would at the end lead to a higher level of earnings inequality.

### 3.2.3. Price liberalization

In order to create a market-based system, there has to be a decontrol of prices in the economy. A short time after implementing ERSAP 91, the price control system was eased. Energy prices have been raised closer to either border or long-term marginal cost levels. The most significant changes were in the agricultural sector, where many controls were abolished, the government role was eliminated and subsidies were reduced.

This price liberalization component of the program was expected to increase the demand for labor in agriculture. Before implementing price liberalization, producers were constrained by price ceilings that were set to provide the largest possible number of consumers with basic crops and cheap prices. Price liberalization was supposed to encourage the producers to produce more and in turn seek more labor. Since the agricultural sector in Egypt is mainly based on the work of low paid unskilled labor, we should expect an increase in its earnings, which would in turn lead to a decline in earnings inequality.

### 3.2.4.Trade liberalization

The main contributors to the distorted incentive system before ERSAP 91 were trade policies, in particular Non-Tariff Barriers (NTBs). In fact, the most important concern of the adjustment program in trade policy was phasing out the majority of NTBs and cutting the too high import tariffs. This would lead to changes in an economy that had been suffering from high protection for more than three decades. The trade liberalization includes two different policies; import and export policies.

The Egyptian government lowered the import bans from production coverage of 37.2 percent (of total manufacturing) to 22.7 percent in May 1991. Accordingly, we would expect that the local demand for the skilled labor by the manufacturing sector would decrease, since after ERSAP 91 the sector would be facing international competition and thus, its earnings would decline.

Agriculture witnessed the greatest reduction in protection brought about by the lifting of import bans, which meant that the demand for the usually unskilled labor of agriculture would decrease since it would be facing more external competition. This would lead to declining earnings of unskilled labor.

Since export promotion is of great importance, the government accelerated its export policy reforms ahead of the proposed policy changes. Accordingly, the government decided to reduce its export bans from twenty to six items in May 1991. In August 1992, export restrictions on cotton yarns and fabrics were completely eliminated. The cotton crop does not need skilled labor. Accordingly, supporting the export of cotton would lead to an increase in the earnings of unskilled labor. However, the textile products that belong to the most important exported items need skilled labor. Hence, the support of its exports would increase the demand for skilled labor, and therefore, their earnings[2].

### 3.2.5. Institutional changes

In order to achieve efficiency in the Egyptian labor market, some of its features had to be modified and some laws changed. These laws included ensuring lifetime job security for workers, policies guaranteeing employment for all graduates through the centralised manpower allocation system in addition to other rules and practices leading to the differential treatment of public and private sector workers. To reform these features without causing social problems, the Social Fund for Development (SFD) was established[3]. Its main mission is to facilitate the social transition associated with Egypt's economic Adjustment Program and to assist all categories of the unemployed including new graduates.

The two most powerful laws before the implementation of ERSAP 91 and which may be relevant to the operation of the labor market were the disciplinary dismissals and minimum wages. Starting with the disciplinary

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[2] The cotton makes up 80percent of agricultural crops and the textile industry makes up 62percent of the industries in Egypt

[3] The SFD is governed by the laws and regulations of the government of Egypt, while disbursements are made according to its agreement with donors, including Switzerland, Austria, Denmark, The Netherlands, Kuwait, Abu Dhabi, Ireland, Norway, Canada, Germany, France and Sweden.

dismissals, once a single three-months period has passed, a worker can no longer be dismissed, as long as the contract remains in force, unless he or she commits an extraordinary action[4]. As for the minimum wages, they are specified by law and vary according to industry, occupation, and region.

By easing these two laws through ERSAP 91, the market would play a greater role, and more qualified and skilled labor would be preferred and paid more than the less qualified and less skilled and would also no longer have guaranteed lifetime jobs. This implies that the earnings inequality would increase between skilled and less skilled labor.

To sum up the expected influence of ERSAP 91, we can see that there are two opposite directions of expected earnings inequality, i.e. poverty from the inequality perspective. Cutting government expenditures would lead to a decrease in the earnings of employment in the government sector in which the majority is unskilled. Privatization and decreasing SOE employment would lead to an increase in the earnings of skilled labor and a decrease in the earnings of unskilled labor. Trade liberalization, where the bans on agricultural imports were reduced would decrease the earnings of unskilled labor. Supporting the exports of textile industries would increase the earnings of skilled labor. All these changes would lead to more earnings inequality between skilled and unskilled labor. Moreover, the institutional changes concerning labor laws that ERSAP 91 was expected to undertake would also help increase earnings inequality, and accordingly, inequality poverty.

But the other part of the story shows us a different direction for earnings inequality. Price liberalization would lead to an increase in the earnings of unskilled labor in agriculture. The new import policies that allow foreign manufactured products to compete with the local ones would decrease the earnings of skilled labor. Export policies supporting agricultural products, and cotton in particular, would increase the earnings of unskilled labor. Hence, this would move us to another direction, where earnings inequality would be expected to decrease, pushing inequality poverty downwards. The net total effect cannot be determined unless we observe the actual changes

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[4]This is the resignation of the employee, loss of Egyptian nationality, a discharge from the service by presidential decree, for being absent for more than 20 days without notification and/or an acceptable excuse, and/or a conviction in criminal court.

that occurred in the labor market and conduct calculations concerning changes in earnings inequality.

In fact, all our expectations are speculative in nature, especially because there are different expected directions of earnings' movements as a result of ERSAP 91 policies. Even if we have a clear final effect on earnings inequality, there is hardly a straight causal relationship between ERSAP 91 and changes in earnings' distribution in Egypt, since many other non-ERSAP 91 factors might have contributed to these earnings' distribution changes, and hence, inequality poverty.

## 4. Actual Employment and Unemployment Changes in the Egyptian Labor Market (1988-1998)

In this section we are concerned with the changes that really occurred in the Egyptian labor market during ERSAP 91, particularly from the employment and unemployment perspectives. From that vantage point, we will attempt to predict the possible changes in inequality poverty according to these actual changes.

The labor force in Egypt has grown at an average annual rate of 2.7 percent from 1988 to 1998, which was exactly the same average annual growth rate of the population of working age (15-64 years).

Changes in participation occurred over time and along gender lines. These changes lead to important shifts in the gender composition of the labor force. Male participation rates declined by about 4 percent from 1988 to 1998, whereas female participation increased by almost the same percent. As a result the female labor force grew at a rate of 3.6 percent per annum, much more than the male labor force which grew at only 2.2 percent per annum (CAPMAS, 1999).

### 4.1. Employment Growth

Employment in Egypt has grown from 15.7 million in 1988 to around 19.6 million in 1998. This indicates an increase of 3.9 million jobs in 10 years, an average rate of 390 thousand jobs a year, or a 2.5 percent average annual growth rate, below the 2.7 percent average annual growth rate of the labor force and the working age population (El-Ehwany, 2000). These aggregate rates include considerable variations by gender and by sector.

### 4.1.1. Public sector employment growth

Since the public sector in Egypt consists of both the government sector and the State Owned Enterprises, we will devote the following two sections to discuss the changes that occurred in both sectors.

#### 4.1.1.1. Government employment growth

Although ERSAP 91 aimed at reducing public spending, the fastest growing sector and the largest contributor to employment growth in Egypt continued to be the government sector. Employment in the government sector grew much more rapidly (4.8 percent) than overall employment (2.5 percent) during the 90s. It also contributed 41.8 percent of the net job creation during our ten-years period (CAPMAS, 1999). The reason was that the Egyptian Trade Union Federation (ETUF) took an equivocal position toward ERSAP 91. The former insisted on subjecting foreign capital inflow to planning controls, protecting workers' rights, and maintaining the government sector as the dominant force in the economy.

Given the rapid growth of government employment, we should examine which people the government was hiring. The teachers were the fastest growing occupational group with an average annual rate of 7.3 percent. Moreover, they contributed more than a half of government employment growth. Also, more than half of the nearly 650 thousand females who joined the government workforce over the decade became teachers (El-Khawaga, 1998). In addition, teachers were the fastest growing and largest contributors to growth among men working in the government sector (53.7 percent). This reflects the major strategy the government was following to expand educational opportunities over the past decade (CAPMAS, 1999).

#### 4.1.1.2. Employment growth in the state owned enterprises

Employment in the State Owned Enterprises (SOEs) decreased significantly, and contributed with a negative share of growth (-7 percent) as well as a negative average annual rate of growth (-2.6 percent) out of the total employment growth in Egypt (CAPMAS, 1999). This implies that privatization succeeded in decreasing the share of SOEs, other than the fact that the government no longer guaranteed a job for every secondary school or university graduate in one of its SOEs.

### 4.1.2. Private agricultural employment growth

Agricultural employment grew at a significantly slower rate than other sectors and contributed about 26.9 percent of employment growth (CAPMAS, 1999). It is difficult to state that price liberalization had a significant effect on employment in commercial agriculture, since most of the employment growth in agriculture was among non-wage workers, particularly females who helped their husbands in their work (Assaad, 1999). Moreover, according to a recent ILO study, price liberalization of agricultural products did not lead to a big change in labor in this sector, since there is a broad strategy in agriculture of substituting labor with machines (Khawaga, 1998).

Usually, there are gender differences in the evolution of agricultural employment. Male agricultural employment declined at a rate of 1.9 percent per annum, whereas female agricultural employment increased at 4.1 percent per annum (CAPMAS, 1999). There is a large substitution of female labor for male labor in agriculture, because husbands usually seek other jobs outside agriculture in order to increase the earnings of the household (Richards, 1995).

### 4.1.3. Private non-agricultural employment growth

Since private non-agricultural wage employment is the second fastest growing segment of the labor market after the government and since it plays a big role in national policymaking, we should investigate the composition of employment growth in this segment. The largest share of employment growth was in construction. This sector contributed 39.1 percent of non-agricultural wage employment growth and grew at an average annual rate of 6.1 percent. Since the early nineties, there has been a major interest in building new cities aside from the capital Cairo that has been suffering from high population density. The government encouraged and supported private investments in these cities, which has increased the demand for construction workers. In addition, the government created new industrial areas, such as El-Kawthar in Upper Egypt, which also absorbed a high number of workers of the same category. A sector related to construction is tourism and the building of hotels. As a consequence of low tourism revenues due to the Gulf war in the early nineties, the government planned to activate tourism in

Egypt. It encouraged private investors who built new hotels and tourist cities, especially on the beaches along the Mediterranean and the Red Sea[5]. All these projects contributed to the growth of the construction sector, where 80 percent of the workers are men (CAPMAS, 1999).

The second large contribution in employment growth was in the services sector. This sector contributed 33.1 percent of non-agricultural employment growth and grew at an average annual rate of 9.2 percent. Many of these services included work as domestic servants and other kinds of jobs that require low levels of skills. The services sector mainly flourished due to the need of families that had returned from the Gulf for these services. 95 percent of the workers in this sector are females (CAPMAS, 1999).

Manufacturing did not really play a major role, as its entire share of growth was 2.4 percent. Egypt mainly relied on importing manufactured goods.

### 4.2. Unemployment

The aggregate unemployment rate increased from 5.4 percent to 7.9 percent or by nearly 48 percent and the number of unemployed increased by an average annual rate of 6.6 percent, a rate that is nearly two and a half times the rate of growth of both the labor force and the population of working age (El-Ehwany, 2000).

According to El-Khawaga (1998), an important reason for the increasing unemployment during the late eighties is the huge flow of Egyptian workers who were sent back from the rich petrol exporting countries in the Gulf area, due to the significant decline in oil revenues. This decline was caused by discovering new substitutes for petrol in the big oil importing countries. What worsened the situation was the 1990-91 Gulf war between Iraq and Kuwait, when a further large number of Egyptian workers were forced to return from both countries, and most of them were not able to get their jobs back.

Although the demand for construction workers increased during the study period due to the construction of new tourist cities, tourism itself was still

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[5] There are some packages for foreigners, according to which they visit these places, without passing by Cairo. But as will be seen later, these projects were not successful in activating tourism, and the tourists' occupancy rate was very low.

discouraged due to the Gulf war, and the tourists' occupation rate of these cities was very low (35 percent in 1991 compared to 72 percent in 1988, CAPMAS, 1992) which decreased the demand for employment in the tourism sector itself.

Male unemployment rates have increased more than female unemployment rates. One reason might be that many of the wives work as *dallalas* and/or servants, while their husbands are seeking jobs. This case is typical and very usual in Egypt. Another reason might be the large number of recent projects that are female oriented and that hire many qualified as well as unqualified women.[6]

The increasing unemployment rates were mainly among educated people, starting from intermediate up to post-graduate levels of education. On average, the unemployment rate within this range of education levels increased from 5.7 percent to 10.5 percent during our study period. The reason therefore was that there were not enough relevant jobs to their skills, especially in rural areas, and usually it is not easy to migrate from rural to urban areas, due to the higher standards of living, the expensiveness, and lack of accommodation and jobs in urban areas. Also, most of the labor that returned from the Gulf were of intermediate and above intermediate levels of education (up to university and post-graduates). In addition, the workers in the tourism sector who were discouraged were mostly at these levels of education.

In brief, unemployment in Egypt continued to be concentrated among educated youth. The unemployment rates in general were more severe for men than for women

From the actual changes and trends in the Egyptian labor market, we would predict that inequality poverty has decreased during the 10 year period. This is due to the fact that employment in the government sector has increased significantly and the demand for teachers in particular, who generally suffer from low earning rates, has increased, despite the fact that ERSAP 91 aimed at reducing government expenditures.

Although privatization succeeded in reducing the share of SOEs, the less skilled workers did not see a decrease in their earnings, since ERSAP 91 could not really change much of the two laws of disciplinary dismissals and minimum wages. The reason therefore was that the ETUF was powerful enough to protect its workers and keep these laws without change. In a few cases where ERSAP 91 succeeded in dismissing workers, they had to receive compensation, due to the pressure of both the SFD and the ETUF. Hence, although privatization occurred, it was not able to cause a decrease in the earnings of less skilled workers, and accordingly, we could not expect earnings inequality to increase.

Furthermore, the private sector that usually offers relatively higher earnings, was subject to pressures from the new entrants in the labor market who were no longer automatically accommodated in SOEs. Hence, the earnings in the private sector would decline somehow and lead to less earnings inequality.

In addition, the construction sector that mainly needed casual and unskilled workers flourished during the period and it absorbed a large number of workers, especially men, who were expected to obtain higher earnings. The services sector, where a great percentage of women work as low skill domestic servants also absorbed a high number of poor women with low skills, who were therefore expected to obtain higher levels of earnings. According to CAPMAS data of 1999, the construction and services sectors carried the largest weights of employment among private non-agricultural sectors (39.5 percent and 28.4 percent respectively). Hence, any changes in these two sectors could influence the Egyptian economy significantly[7].

Unemployment among more skilled workers, due to the Gulf crisis, let us expect a decline in theirs earnings, leading to less earnings inequality.

The rate of growth in agricultural employment requiring less skilled workers was too tiny for both sexes. Thus, we cannot compare it to the changes in the construction and services sectors. Moreover, most of the changes in this sector were among non-wage workers.

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[6] Culturally, women in Egypt, especially the less educated, are more flexible in accepting jobs that might not really be directly related to their education or specialization.

[7] Due to lack of data about males and females separately, the share of employment was shown in general.

We expect earnings inequality to have decreased among women more than among men, since according to CAPMAS data, the average annual growth rate of employment in the services sector (9.2 percent), where females make up the majority, was greater than the average annual growth rate of employment in the construction sector (6.1 percent), where males make up the majority. Moreover, the average annual growth rate of female employment in the services sector (12.2 percent) was higher than the average annual growth rate of male employment in the construction sector (8.3 percent). In addition, the average annual rate of employment growth among teachers in public schools was higher for females (8.5 percent) than for males (7.2 percent).

Accordingly, we should expect that inequality poverty in Egypt has decreased during 1988-1998. In the following, we will conduct the calculations needed in order to see whether this expectation is correct.

## 5. Earnings Changes in the Egyptian Labor Market (1988-1998)

In this section, we will test the authenticity of our expectation of a decreasing earnings inequality in Egypt during the period of ERSAP 91. In order to measure the earnings changes in the Egyptian labor market during that period, two data sets were derived from LFSS 1988 and ELMS 1998[8]. Both data sets are comparable to each other, because they include the same definitions, questionnaires and questions.

The two samples that we derived from the two data sets include all the Working Age Population (WAP), i.e. all the people who are allowed to work officially according to Egyptian law. The range of the WAP in Egypt is aged 15-64. After the students have finished their basic (compulsory) education in Egypt (around age 15), they have the choice either (i) to continue their education in high school, which should lead them to higher education in university, (ii) join technical institutes, or (iii) start joining the labor market with their basic education certificates.

As for the upper age of the Egyptian WAP, it is 64 according to retirement regulations in Egypt[9].

From the WAP we excluded the full-time students who postponed their labor market participation until they finish their studies. We also excluded the males who are aged 20-22 and whose fathers are registered in the labor force, since all these males are obliged to join the military service[10]. The unemployed and people who are out of the labor force, i.e. housewives, people not willing to work and the permanently disabled, were also excluded.

The earnings that we are concerned with are all the reported earnings of wage workers, employers and self-employed. However, due to the lack of information, we excluded wageless family labor and we used earnings per month instead of earnings per hour.

The original data set for 1988 included 28,038 observations (17,663 men and 10,375 women), and for 1998 the data set included 24,244 observations (15,758 men and 8,486 women). After excluding the above mentioned categories, the 1988 sample included 4,349 observations (2,899 men and 1,450 women) and the 1998 sample included 5,293 observations (3,970 men and 1,323 women)[11].

In order to observe the changes in the earnings distribution during ERSAP 91, we should measure changes in the labor market from the two following dimensions:

(a) earnings changes in absolute terms, and (b) earnings changes in relative terms, which gives us a picture of earnings inequality changes.

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[8] The earnings of 1998 have been deflated to 1988 Consumer Price Index.

[9] There are exceptional extensions of working periods, like it is the case of university professors and some other experts. However, the lack of micro data concerning them, let us exclude any age above 64 from the sample.

[10] In Egypt, the only males who are exempted from the military service are only sons and those whose fathers are deceased or out of the labor force (and not registered, for example, fathers who work for the family without having monetary earnings). The unfit males are also exempted, but due to the lack of micro data on this category, we ignored it.

[11] These numbers of observations apply to all the calculations conducted by the researcher in this paper, unless otherwise mentioned.

## 5.1. Absolute Changes in Real Earnings during the Period (1988-1998)

We measured the changes in real earnings through the study period, first for the total sample, second for males, and third for females. In order to make the data more manageable, we have transformed the earnings variable into its logarithm. Here, we ranked the population in the sample by earning levels and observed the changes in log real earnings that occurred in the $10^{th}$, $25^{th}$, $50^{th}$, $75^{th}$ and $90^{th}$ percentiles. Taking a look at table (3), we can see that all these earning percentiles have become worse off from 1988 to 1998. In other words, real earnings have decreased for the workers included in these percentiles of the sample[12]. The same applies for both males and females separately.

## 5.2. Relative Changes in Real Earnings during the Period (1988-1998)

We used two methods of measuring earnings inequality, a simple one, and a more complex one. We applied the two methods, first on the total sample, second on males, and third on females.

In the first method we compared the simple variances of the earnings distribution for the two years. The variance is calculated as follows:

$$\text{Variance} = \frac{\text{Sum} \quad (E_i - E^*)^2}{n}$$

Where $E_i$ is the earnings level of person i in the population, n is the number of people in the population, $E^*$ is the mean (average) level of earnings in the population. The higher the value of the variance, the more earnings inequality exists in the society as a whole, since this means that there is a big difference between the earnings of many workers and the average earnings level. In our case, and as it is shown in table (4), the variance for the total sample decreased from 1988 to 1998 by about 25 percent, which indicates that the economy moved towards a lower level of earnings inequality. From the same table we notice that the variance for males separately has decreased by about 14 percent. However, there are more

striking changes in the case of females. The variance has decreased by about 46 percent (much more than the case of males). Hence, among females, earnings inequality decreased more significantly compared to males.

The second and more detailed and comprehensive method is the ratio of earnings measure (Kaczmarek, 1997). Here, again we rank the population by earnings levels and compare the earnings of a particular percentile of the population to the earnings of another. For example, we can compare the earnings of the $90^{th}$ percentile to the earnings of the $10^{th}$ percentile of the population, in order to have a broader view of the earnings distribution. In other words, we create a ratio that divides the earnings level of the $90^{th}$ percentile by the earnings level of the $10^{th}$ percentile. If this ratio increases in time, we can conclude that the earnings inequality has increased between the two extreme ends of the population. We can also apply the same method using different earning percentiles of the population.

The skill is defined generally, so that the earnings level itself and the worker's position in the earnings distribution is taken to be a measure for the skill, i.e. the $90^{th}$ percentile of the wage distribution represents the highest skilled workers of the population, whereas the $10^{th}$ percentile represents the least skilled workers.

In order to judge the changes in earnings inequality, we should have a look at table (5) that shows us the earning differentials between different earning percentiles of the population for both years[13]. For instance, the earning differential between the $90^{th}$ and $10^{th}$ percentiles has decreased slightly from 1988 to 1998, which means that the gap between the earnings of the $90^{th}$ and $10^{th}$ earning percentiles has decreased. This can be explained by the influential power of the Egyptian Trade Union Federation (ETUF) that strengthened the earnings bargaining structure in Egypt and if not strongly increased the earnings of the less skilled workers, at least protected less skilled workers from earnings decreases.

Assuming that there is an earnings inequality between two percentiles, the larger the distance between these two percentiles (example: $10^{th}$ and $90^{th}$

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[12] This decrease in real earnings is mainly due to the increasing inflation rate (from 5 percent to 7 percent during the study period), since when we conducted our calculations without taking inflation into account, we observed that the absolute earnings for the same percentiles increased.

[13] Since we used the log earnings, we subtracted the earnings of the percentiles from each other instead of dividing them. Hence, we used differentials and not ratios.

percentiles), the greater the impact on earnings inequality found in society as a whole. But if the distance between two percentiles is smaller (example: 10th and 50th percentiles), the impact on earnings inequality will not be as large.

In our case, the inequality between the 90th and 10th percentiles (the percentiles with the largest distance in between) has decreased. This might be the reason why earnings inequality in the economy as a whole has decreased, a fact that we observed after calculating the earnings' distribution variance.

The differential between the 50th percentile (median) and 10th percentile, i.e. the dispersion in the bottom half of the distribution also decreased slightly during the study period. This might reflect the rigidity and resistance of minimum wages that ERSAP 91 could not push downward. Moving to the differential between the 90th percentile and the median, i.e. the top half of the distribution, it increased by a tiny proportion. This indicates that earnings inequality between the highly skilled and semi-skilled has increased slightly.

For the males separately the earnings inequality between percentiles hardly changed. A very slight positive change can be observed from the same table concerning the extreme tails (90th and 10th percentiles) and the top half (50th and 10th percentiles). Here, the inequality increased by hardly 0.06 log points during the period. No changes at all occurred in the bottom half.

Finally, the changes were obviously bigger in the case of females. The inequality between the 90th and 10th percentile decreased by 0.138 log points, which again implies that the gap in the earnings between skilled and unskilled workers narrowed. The same happened with the bottom half of the distribution, but this time the decrease was greater by 0.177 log points. Among the top half, the earnings inequality has increased by only 0.04 log points.

### 5.3. Impact of Skills on Earnings in Egypt (1998-1998)

In this paper, we rely on the level of education as an indicator for skills. The higher the level of education, the higher the expected skill can be. As we had concluded, both the value of the variance in earnings and the gap in earnings between the 10th and 90th percentiles of the total sample have decreased during this period. This indicates that generally, the earnings of less skilled labor have increased and the earnings of highly skilled labor have decreased and hence, there is lower earnings inequality.

In table (6) we calculated the mean earnings of all educational categories in 1988 and compared these with the mean earnings of the same educational categories in 1998. The results were compatible with the results that we had concerning the variance and ratio of earnings methods. People with lower levels of education saw an increase in their mean earnings, while people with higher levels of education saw a decrease in their mean earnings. This indicates that there was a lower earnings inequality during the study period. It is noteworthy that illiterates, who reflect the lowest levels of skills- and hence the lowest earnings- have seen the highest increase in their mean earnings (122 percentage increase). People with the highest skills, university graduates and post-graduates, saw a decrease in their mean earnings, by 27 percent and 34 percent, respectively. This can also be seen from figure (1).

Almost the same trends were observed for males and females separately from the same table and from figures (2) and (3). The most extreme changes were observed in the case of women, where the percentage increase in mean earnings of female illiterates was 212 percent, compared to the male illiterates whose percentage increase in mean earnings was 99 percent. The highly educated females' (university level) mean earnings decreased by 35 percent, compared to the males of the same category whose mean earnings decreased by only 22 percent. The same can be observed if we have a look at the intermediate level and all the education levels above. In fact, this result is compatible with the result we had before, which says that earnings inequality among females has decreased more significantly than it did among males.

As a whole, it is noticeable from table (6) that mean earnings in total have increased. This may be a reason for some confusion, especially as we found out before that real earnings have decreased overall for the 10th, 25th, 50th, 75th, and 90th percentiles. But the explanation for that is that real earnings

have obviously increased for the five lowest earnings percentiles of the population, as seen from table (7)[14].

### 5.4. Human Capital Earnings Function for Egypt (1988-1998)

Now we will run a regression of log monthly earnings on a vector of demographic and work characteristics, and hereby create a Human Capital Earnings Function (Mincer, 1974). The dependent variable is log earnings per month[15]. As for the independent variables, we created 6 dummy variables for education. The base variable is the illiterates, and the remaining six education dummy variables are: people who read and write, people with intermediate, less than intermediate, above intermediate education, university graduates, and post-graduates. Furthermore, we included the age and age squared as indicators for experience. To obtain a full specification for the function, we created dummy variables for living in urban areas, for marital status and for ownership of occupation sector[16]. Usually the specified function works better if we exclude the self-employed, where education usually has less explanatory value. Although the self-employed represent only a small proportion of our two samples (4 percent in 1988 and 4.4 percent in 1998), we run two different regressions, one before excluding, and the other after excluding the self-employed from the sample, and observe the results. We will go through this procedure three times, first for the whole sample, second for males, and third for females separately.

From the results shown in table (8), we see that before excluding the self-employed, the premium for university graduates has decreased from 33 percent to 26.8 percent. This means that a person with a university education who used to earn 33 percent more than an illiterate person in 1988, he or she earned only 26.8 percent more in 1998. The same applies for intermediate, above intermediate and post-graduate education, where the premium decreased in all these cases, but with different values. Accordingly, the importance of acquiring intermediate or any other level

above intermediate education to earn more money has decreased through the study period. It is also clear from the same table that the premiums for reading and writing and for less than intermediate education have increased from 1988 to 1998. In other words, people with these low levels of education benefited more in 1998 than in 1988. In addition, we notice that the importance of experience has also declined from 1988 to 1998, since the age coefficient has decreased from 6.4 percent to 1.9 percent. After excluding the self-employed, the coefficients of the variables in the regression changed, but we had the same trends concerning the changes in the premiums. So, the less educated still earned more and the more educated earned less. And again experience lost part of its importance for obtaining higher earnings.

Moving on to the males separately, from the results shown in table (9) we see that the premium for university graduates has decreased from 45 percent to 37.8 percent and the premium for post-graduates has decreased from 45.5 percent to 34.7 percent, before excluding the self-employed. This indicates that the influence of higher education on earnings levels for men also diminished from 1988 to 1998. Also the premiums of less educated males increased during that period. After excluding the self-employed, the premium for university graduates decreased from 60.1 percent to 49.6 percent and the premium for post-graduates decreased from 60.7 percent to 45.8 percent. This gives us the same trends that we had from the regression before excluding the self-employed. And again the premiums of less educated males increased during the period. In addition, we notice that the importance of experience also declined from 1988 to 1998, since the age coefficient decreased from 5.7 percent to 1.9 percent before excluding the self-employed, and from 7.6 percent to 2.5 percent, after excluding them.

Table (10) shows that before excluding the self-employed, the premium for female university graduates decreased from 34.4 percent to 26.7 percent and the premium for post-graduates decreased from 49.8 percent to 36.9 percent. We had the same trends after excluding the self-employed, since the premium for female university graduates decreased from 45.8 percent to 35.4 percent and the premium for post-graduates decreased from 66.4 percent to 49.2 percent. This indicates that returns from higher education on earnings levels for females diminished from 1988 to 1998. Also as seen from the results of the two regressions in table (10), premiums for females

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[14] The 1988 sample that represents the five lowest earnings percentiles separately includes 1,388 observations (856 men and 532 women) and the 1998 sample includes 1,957 observations (1,173 men and 784 women).

[15] No earnings per hour are available in our data sets.

[16] Due to lack of data, we could not include dummies for industrial occupation.

with lower levels of education increased during the same period. In addition, we notice that the importance of experience also declined from 1988 to 1998, before and after excluding the self-employed, where the decrease is bigger than in the case of males.

In fact, all the results that we had from the previous sections of this chapter are compatible with the actual changes in the labor market during the ERSAP 91 period and with all the expectations that we had according to these changes in the previous chapter. Earnings inequality has decreased for the population as a whole. Noteworthy is that although the trends of premiums were the same for males and females, the results for females were more severe than for males. This implies that earnings inequality decreased more in the case of females than in the case of males. This is due to the changes in labor market that were mentioned before.

What is also clear from the regressions is that education and experience play a smaller role in determining the level of earnings in 1998 than they used to in 1988. The reason why education matters less than before is that the demand for unskilled labor (in the government, construction and services sectors) has increased relative to the demand for skilled labor. And the reason why younger (less experienced) workers have gained relative to older (more experienced) workers is that the skills of older workers might be less relevant to the jobs needed nowadays. Moreover, the incentive to invest in human capital depends -among other factors- on the length of the individual's time horizon over which investments can be recouped through higher earnings. Hence, older workers with short time horizons may not find it worthwhile to invest in learning the new skills necessary to be successful to cope with the changes in the economy. The same argument can apply to employers who find it more useful and profitable to invest in training younger workers than training older ones. Thus irrelevant skills and shorter time horizons may explain some of the relative earning declines of experienced workers.

### 5.5. *Flexibility of the Labor Market and its Relevance to Changes in Earnings*

Since the changes in earnings distribution in our study are -to a large extent- based on structural changes in the labor market, it is important to examine the flexibility of this market. By mentioning the flexibility of the labor market we mean the flexibility of real earnings and the adjustment of employment levels to the demand for labor that is derived from the demand for products. As for real earnings, there is a high degree of flexibility, since they remarkably changed during the study period[17]. Concerning the adjustment of employment levels, this includes the unrestricted change in the number of working hours, and the occupational and geographical mobility of workers. Generally, this situation requires general and technical training of manpower on the one hand, and short-term employment contracts on a large scale on the other. In fact, the latter already exists to a large extent in the Egyptian labor market. Moreover, there are no strong segmentations in the Egyptian labor market (El-Laithy, 1997).

As previously mentioned, Egyptian unemployment rates have increased during the study period. It is often claimed that the labor market is rigid and responsible for aggravating unemployment. In fact, no evidence confirms that the labor market in Egypt is so rigid, or that rigid rules and restrictions are detrimental only for employment and competitiveness (El-Ehwany, 2000). On the contrary, the co-existence of the construction, agricultural and informal sectors, provides evidence for labor market flexibility, as they are sectors of flexible working conditions. Moreover, the sectors that saw increased demand for labor are mainly unskilled labor sectors, where labor can more easily be adapted.

Accordingly, it cannot be argued that the growing unemployment in Egypt is due to low flexibility of the labor market. The unemployment problem in Egypt is rather a structural problem that can be attributed to labor market distortions, irrelevant skills, along with the fact of returning workers from abroad as a consequence of the Gulf war.

### 6. Main Findings and Conclusions

To answer the three questions that we addressed at the beginning of our study in brief, employment in Egypt grew at an average annual rate that is below the labor force rate of growth. Government employment increased significantly, particularly in the category of teachers, although one of the most important aims of ERSAP 91 was decreasing government

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[17] Here we talk about real earnings in general, and not minimum wages which did not change significantly during the period, due to ETUF.

expenditures. But ERSAP 91 succeeded in eliminating the number of new entrants to the State Owned Enterprises. Agricultural employment grew at a relatively low level. The private non-agricultural employment had the largest share of employment growth in the Egyptian labor market. Within the latter, the two fastest sectors in growth for males and females were construction and services, respectively.

As for the changes in the levels of earnings, the level of real earnings generally decreased for the $10^{th}$, $25^{th}$, $50^{th}$, $75^{th}$ and $90^{th}$ earnings percentiles. However, concerning earnings distribution, poverty from the earnings inequality perspective decreased. The decrease was larger for women than for men. Education and experience no longer matter for the level of earnings like they used to do at the beginning of the period.

Moving on to the reasons that may have been underlying these changes, we conclude that the increasing demand for teachers in the government sector was due to a major government strategy of improving education in Egypt, where the government concentrated on increasing the number of teachers, most of them less skilled, rather than improving the quality of education. The increasing demand for unskilled labor in the construction sector increased, due to a major government strategy to support tourism and industry by constructing new tourist cities along the Egyptian coasts and new industrial cities in different areas, respectively. The increasing demand for labor in the low skills services sector was mainly caused by the need of families that had returned from the Gulf for these sorts of services. Agricultural employment grew at a slow rate since machinery started substituting labor in that sector.

These changes in the Egyptian labor market might - at the same time - explain why earnings inequality decreased. Increasing the demand for teachers in the government sector, who usually have low levels of earnings, led to an increase in their earnings. Also, increasing demand for unskilled workers in the construction and services sectors increased their earnings relative to the whole of society, especially as the Egyptian labor market was flexible.

Another possible reason why earnings inequality decreased is the fact that the earnings in the private sector decreased relatively, as a consequence of an increasing supply of labor that no longer found guaranteed jobs in the State Owned Enterprises after graduation, due to an ERSAP 91 policy that was implemented. This fact helped decrease earnings inequality, since usually, earnings in the private sector are higher than in the government sector in Egypt. If we return to table (1), we can see that the mean earnings of the private sector clearly decreased from 1988 to 1998 and that on the other hand mean earnings of the government sector increased during the same period, which supports the fact that earnings inequality has decreased.

There are two other reasons that might have been behind the decrease in earnings inequality; a large number of skilled workers returned from the Gulf countries in the early nineties and the tourism sector that absorbed a large percentage of skilled workers withdrew during our study period, in spite of government support to build new tourist cities. These two changes that were mainly a consequence of the Gulf war in 1990/91 led to an excess supply of skilled labor in the Egyptian labor market, which in turn led to a decrease in its earnings.

As for the general decrease in real earnings for the different percentiles, it was mainly caused by the increasing inflation rate during the period.

What may explain the greater decrease in earnings inequality among women relative to men, is that the average annual rate of employment growth in the services sector, where women represent the majority, was greater than the average annual rate of employment growth in the construction sector, where men represent the majority. In addition, the demand for female teachers was bigger than the demand for male teachers within the government sector. Last but not least, there were many female oriented projects that were created in the last decade, to absorb mostly unskilled female labor.

If less skilled labor earns more and more skilled labor earns less, then this itself can explain why education no longer matters like it did before in obtaining higher earnings, especially as we used education as an indicator for skills. And the reason why experience no longer matters, i.e. younger workers gained relative to older workers is that the skills of older workers might be less relevant to the jobs needed nowadays. Moreover, the incentives for older workers to acquire market relevant skills are weaker than is the case of young workers, since the latter have a longer time horizon in the labor market, and hence, it is worthwhile for them.

In fact, it is quite difficult to draw a direct link between ERSAP 91 and the Egyptian labor market outcomes, since the period that this study is concerned with, is a 10-year-period starting from 1988 and ending in 1998, according to the two micro data sets that we obtained. As seen above, during this period, many changes occurred beside the implementation of ERSAP 91. Hence, many non-ERSAP 91 intervening factors could have caused the changes in the Egyptian labor market, and accordingly, changes in inequality poverty. For instance, the expenditure cuts strategy of ERSAP 91 was supposed to lead to a decrease in the share of government sector employment. However, the opposite happened, due to the reverse government strategy increasing the demand for government teachers. Creating new industrial and tourist cities and the increased demand for services sector, facts that led to less earnings inequality, were not included in the ERSAP 91 plans. Also, the ERSAP 91-privatization program was expected to dismiss the unskilled workers from privatized enterprises. However, the powerful Egyptian Trade Union Federation (ETUF) prevented most of the unskilled workers from being dismissed. It also hindered the decline of minimum wages. Although price and trade liberalization strategies of ERSAP 91 were fully implemented, they did not really have a significant influence on earnings distribution. The changes caused by price liberalization, especially in the agricultural sector, were mostly among non-wage workers. It is also difficult to relate the trade liberalization policies of ERSAP 91 to the earnings distribution, since many commodities were affected, and as mentioned before, there were expectations for earnings changes in different directions. What ERSAP 91 really succeeded in was limiting the number of new entrants to guaranteed jobs in the State Owned Enterprises (SOEs), which decreased the demand for labor in the SOEs.

As for unemployment, during ERSAP 91 the number of unemployed increased by an average annual rate of 6.6 percent. However, this relatively high rate (6.6 percent) is still lower than its equivalent rate in the 1980s, as measured by the regular LFSS, which was about 8.9 percent per year (El-Ehwany, 2000). Hence, there is no clear evidence that the implementation of ERSAP 91 is a cause for the increasing unemployment rates in Egypt during the nineties, especially as ERSAP 91 could not really change the law of disciplinary dismissals. According to the latter, workers cannot be dismissed from their jobs and become unemployed, unless there is a force majeure. In addition, privatization led to the dismissals of a few workers only, who were later offered compensation.

One other fact that supports the irrelevance between ERSAP 91 and unemployment during the study period is that before ERSAP 91, guaranteed jobs for graduates was an important reason for unemployment, since these graduates usually waited for a particular period until they had a job in one of the SOEs. However, after the SOEs no longer absorbed all the graduates automatically, the rate of unemployment should have decreased, since the new graduates did not have expectations of guaranteed jobs anymore, and were accordingly expected to search for jobs immediately after graduation. However, what really happened is that the unemployment rate has increased, which means that there were other factors than implementing ERSAP 91 that may have been behind this increase.

What - to a great extent - explains the increasing rate of unemployment during ERSAP 91 is the 1990/91 Gulf crisis, where many young educated workers were forced to return from the Gulf countries and many young educated workers had to be dismissed from the withdrawing Egyptian tourism sector.

In general, unemployment in Egypt is the result of continued demographic pressures on the labor market. Labor supply is still much greater than the job creation capacity and the jobs created are irrelevant to the skills of many educated people (Assaad, 1999).

Although the decrease in inequality poverty was an important purpose of Egyptian society, since it prevents it from social, economic and political problems, we should shed some light on a number of points related to our findings.

In the long run, it is bad for the economy to underestimate the well-educated persons, since this makes them lose their incentive to work. Also keeping them unemployed can have dangerous consequences.

A useful strategy could be creating jobs that are relevant to the skills acquired in the schools, so that skilled people do not stay unemployed. For example, a very important sector in Egypt is the tourism sector. In fact, Egypt has not yet made enough use of its tourist attractions. A main problem is that there is no wide variety in the levels of hotels in Egypt.

Most of the hotels are either too expensive or too cheap. The tourist cities that the government supported consisted mostly of five star hotels. Many tourists cannot afford these expensive hotels. As for the cheap hotels, the standard is usually too low and discourages tourists from going there. Building hotels that meet the capabilities and needs of the tourists and improving the marketing factor in the tourism sector could be useful, since this would help create new jobs within the sector.

The fact that unskilled labor is highly compensated relative to more skilled or educated labor can be damaging. People who lack skills and are highly compensated will have no incentives to improve their skills or acquire more education and they will stay dependent on dead-end jobs. Moreover, most of these workers do not have social and medical insurance or pensions and are threatened to be dismissed at any point in time, particularly workers who join the casual labor market. Hence, in the future they might again be threatened by poverty and vulnerability if they lose these jobs and stay without skills.

To solve the problem, a comprehensive strategy can be followed that not only increases the number of schools, institutions, and teachers, but also improves their quality, so that education and acquiring skills becomes more attractive. Fees for basic education should also be reduced, which makes education possible for all categories. At the same time, the type of education and skills obtained should be relevant to the market requirements, so that education becomes worthier and the school dropout rates at young ages decline. In fact, this would require increasing expenditures on human development, which contradicts with the ERSAP 91 policy of cutting government expenditures. However, concentrating on decreasing military expenditures, rather than human capital could be a good solution.

Another important factor that can contribute to solving the problems of unskilled workers who might face future vulnerability is establishing projects for them, where they can obtain new skills while working and producing (Learning by Doing Projects).

As seen from the facts above, although the highly skilled were less rewarded relative to those with lower skills, the latter are still threatened from facing poverty and vulnerability in the future, unless they improve their skills, in order to occupy safer jobs in the long run.

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**Figure 1: Mean Earnings by Education Level (1988-1998)**
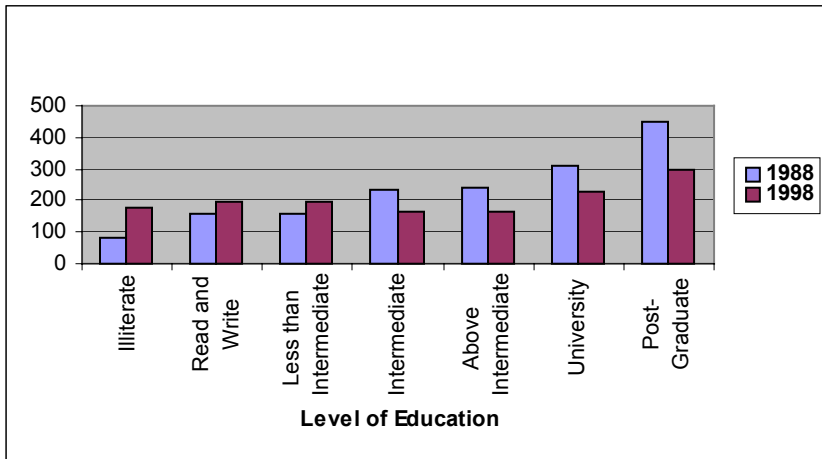


**Figure 2: Mean Earnings by Education Level for Males (1988-1998)**
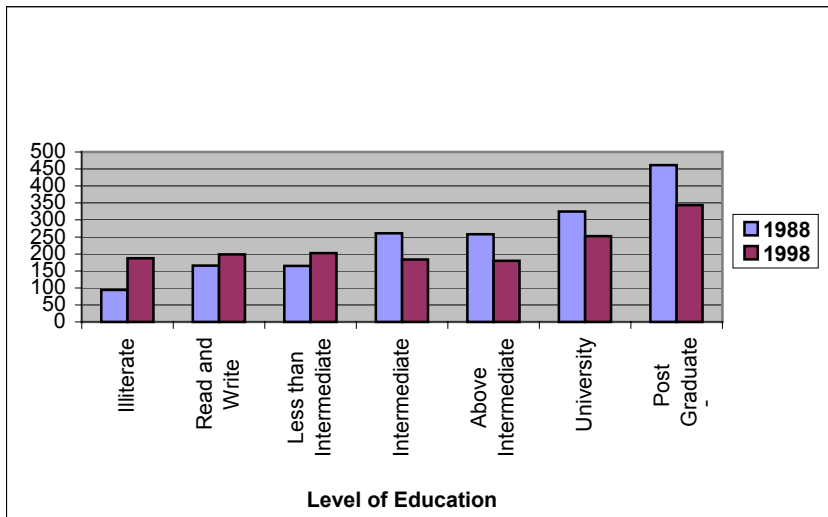


**Figure 3: Mean Earnings by Education Level for Females (1988-1998)**
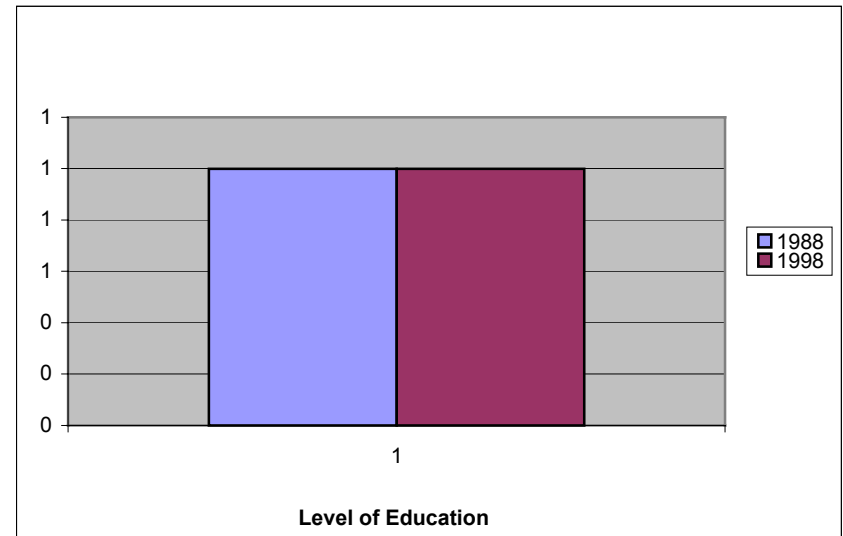
**Table 1: Mean Earnings of the Main Three Sectors of the Egyptian Economy in L.E. 1988-1998**

| Sector | Mean Earnings 88 | Mean Earnings 98 |
|---|---|---|
| Public | | |
| Government | 249 | 295 |
| State Owned Enterprises | 315 | 305 |
| Private | 450 | 390 |

Note: Egyptian Pound=LE
Source: Researcher's calculations from: Labor Force Sample Survey 1988 (LFSS 88) Egypt Labor Market Survey 1998 (ELMS 98).

**Table 2: Share of Employment by Education Level within the Government Sector, 1988-1998**

| Education Level | Employment 88 (%) | Employment 98 (%) |
|---|---|---|
| All levels below Intermediate | 63.1 | 65.6 |
| Intermediate | 25.6 | 23.8 |
| All levels above Intermediate | 11.3 | 10.6 |
| Total | 100 | 100 |

Source: Researcher's calculations from LFSS 1988 and ELMS 1998

**Table 3: Log Earning Percentiles in Egypt, 1988-1998**

| Females | Percentiles | LogE in 88 | LogE in 98 |
|---|---|---|---|
| | 10 | 4.516 | 4.213 |
| | 25 | 4.924 | 4.464 |
| | 50 | 5.273 | 4.793 |
| | 75 | 5.652 | 5.209 |
| | 90 | 5.958 | 5.518 |
| Males | Percentiles | LogE in 88 | LogE in 98 |
| | 10 | 4.828 | 4.387 |
| | 25 | 5.150 | 4.687 |
| | 50 | 5.521 | 5.081 |
| | 75 | 5.890 | 5.497 |
| | 90 | 6.282 | 5.898 |
| Total | Percentiles | LogE in 88 | LogE in 98 |
| | 10 | 4.723 | 4.347 |
| | 25 | 5.059 | 4.611 |
| | 50 | 5.449 | 5.029 |
| | 75 | 5.844 | 5.486 |
| | 90 | 6.183 | 5.774 |

Note: Log Earnings=LogE
Source: Researcher's calculations from LFSS 1988 and ELMS 1998

**Table 4: Inequality Measures for Log Earnings in Egypt, 1988-1998**

|  | Total | | Males | | Females | |
|---|---|---|---|---|---|---|
|  | 1988 | 1998 | 1988 | 1998 | 1988 | 1998 |
| Variance | 0.48 | 0.36 | 0.42 | 0.36 | 0.56 | 0.30 |
| Standard Deviation | 0.69 | 0.60 | 0.65 | 0.60 | 0.75 | 0.55 |
| Mean | 5.43 | 5.06 | 5.52 | 5.13 | 5.20 | 4.84 |

Source: Researcher's calculations from LFSS 1988 and ELMS 1998

**Table 5: Log Earning Percentile Differentials in Egypt, 1988-1998**

|  | Differentials | 1988 | 1998 | Change |
|---|---|---|---|---|
| Total | 90-10 | 1.460 | 1.427 | -0.033 |
|  | 90-50 | 0.734 | 0.744 | 0.010 |
|  | 50-10 | 0.726 | 0.683 | -0.043 |
| Males | 90-10 | 1.454 | 1.511 | 0.057 |
|  | 90-50 | 0.761 | 0.818 | 0.057 |
|  | 50-10 | 0.693 | 0.693 | 0.000 |
| Females | 90-10 | 1.442 | 1.305 | -0.138 |
|  | 90-50 | 0.685 | 0.725 | 0.040 |
|  | 50-10 | 0.757 | 0.580 | -0.177 |

Source: Researcher's calculations from LFSS 1988 and ELMS 1998

**Table 6: Mean Earnings by Education Level, 1988-1998**

|  |  | 1988 | | 1998 | | |
|---|---|---|---|---|---|---|
|  | Education Level | Mean Earnings | Number of workers | Mean Earnings | Number of workers | % Change in Mean Earnings |
| Total | Illiterate | 81 | 1406 | 179 | 2193 | 122 |
|  | Read and Write | 160 | 439 | 195 | 682 | 22 |
|  | Less than Intermediate | 161 | 440 | 197 | 949 | 22 |
|  | Intermediate | 235 | 868 | 167 | 686 | -29 |
|  | Above Intermediate | 241 | 343 | 164 | 235 | -32 |
|  | University | 310 | 792 | 226 | 500 | -27 |
|  | Post-Graduate | 451 | 61 | 298 | 48 | -34 |
|  | Total | 180 | 4349 | 191 | 5293 | 6 |
| Males | Illiterate | 94 | 937 | 187 | 1645 | 99 |
|  | Read and Write | 166 | 293 | 199 | 512 | 20 |
|  | Less than Intermediate | 165 | 293 | 203 | 712 | 23 |
|  | Intermediate | 261 | 579 | 184 | 515 | -30 |
|  | Above Intermediate | 258 | 229 | 180 | 176 | -30 |
|  | University | 325 | 528 | 253 | 375 | -22 |
|  | Post-Graduate | 462 | 41 | 344 | 36 | -25 |
|  | Total | 186 | 2899 | 205 | 3970 | 10 |
| Females | Illiterate | 35 | 469 | 109 | 548 | 212 |
|  | Read and Write | 46 | 146 | 119 | 171 | 158 |
|  | Less than Intermediate | 134 | 147 | 174 | 237 | 30 |
|  | Intermediate | 198 | 289 | 128 | 172 | -35 |
|  | Above Intermediate | 216 | 114 | 139 | 59 | -36 |
|  | University | 281 | 264 | 181 | 125 | -35 |
|  | Post-Graduate | 417 | 20 | 201 | 12 | -52 |
|  | Total | 159 | 1450 | 164 | 1323 | 3 |

Source: Researcher's calculations from LFSS 1988 and ELMS 1998

**Table 7: Log Earnings for the first 5 Percentiles in Egypt, 1988-1998**

| Percentiles | Total | | Males | | Females | |
|---|---|---|---|---|---|---|
|  | 1988 | 1998 | 1988 | 1998 | 1988 | 1998 |
| 1 | 2.932 | 4.164 | 3.481 | 4.237 | 2.303 | 3.997 |
| 2 | 3.624 | 4.225 | 3.861 | 4.282 | 2.862 | 4.031 |
| 3 | 3.912 | 4.257 | 3.870 | 4.332 | 3.114 | 4.104 |
| 4 | 4.120 | 4.282 | 4.105 | 4.372 | 3.619 | 4.164 |
| 5 | 4.220 | 4.325 | 4.230 | 4.387 | 3.822 | 4.164 |

Source: Researcher's calculations from LFSS 1988 and ELMS 1998

**Table 8: OLS Estimation for Earnings, 1988-1998, Log Earnings Equations.**

|  | 1988 | 1998 | 1988 | 1998 |
|---|---|---|---|---|
| Intercept | 2.237089 | 2.760829 | 2.982785 | 3.667772 |
|  | [0.3229388] | [0.278072] | [0.1694082] | [0.1171084] |
| Read and Write | 0.055634 | 0.099457 | 0.074178 | 0.1323424 |
|  | [0.020431] | [0.030216] | [0.0306463] | [0.0453244] |
| Less than Intermediate | 0.070444 | 0.153113 | 0.0939249 | 0.2028177 |
|  | [0.028504] | [0.025680] | [0.0427561] | [0.0385197] |
| Intermediate | 0.169845 | 0.153828 | 0.2264602 | 0.2043034 |
|  | [0.030657] | [0.073906] | [0.0459854] | [0.0358589] |
| Above Intermediate | 0.172000 | 0.153817 | 0.2293332 | 0.2010895 |
|  | [0.041337] | [0.029741] | [0.0620049] | [0.0446122] |
| University | 0.330271 | 0.267870 | 0.4403615 | 0.3544939 |
|  | [0.057893] | [0.125294] | [0.0868388] | [0.0379403] |
| Post-Graduate | 0.501374 | 0.478506 | 0.6684983 | 0.632675 |
|  | [0.157893] | [0.158067] | [0.0868388] | [0.0870999] |
| Experience | 0.064161 | 0.019970 | 0.0855475 | 0.0266137 |
|  | [0.026323] | [0.004273] | [0.0094848] | [0.0064094] |
| Experience squared | -0.000565 | -0.000275 | -0.0007528 | -0.000326 |
|  | [0.000078] | [0.000053] | [0.0001184] | [0.0000802] |
| Urban area | 0.054210 | 0.055590 | 0.0722794 | 0.071372 |
|  | [0.023511] | [0.015434] | [0.0352667] | [0.0231512] |
| Sector | 0.323924 | 0.417813 | 0.4318981 | 0.5562837 |
|  | [0.074767] | [0.028212] | [0.0371508] | [0.0243173] |
| Marital Status | 0.102929 | 0.013995 | 0.1372393 | 0.0183928 |
|  | [0.025997] | [0.005322] | [0.0389952] | [0.0079836] |
| R-Squared | 0.393 | 0.395 | 0.387 | 0.390 |
| Sample Size | 4045 | 4949 | 4349 | 5293 |

Note: Standard errors of coefficients are given in parenthesis
Source: Researcher's calculations from LFSS 1988 and ELMS 1998

**Table 9: OLS Estimation for Earnings, 1988-1998, Log Earnings Equations, males**

|  | Including Self-Emplyed | | Excluding Self-Employed | |
|---|---|---|---|---|
|  | 1988 | 1998 | 1988 | 1998 |
| Intercept | 2.424456 | 2.944509 | 3.232608 | 3.792678 |
|  | [0.228161] | [0.289784] | [0.1922413] | [0.1346758] |
| Read and Write | 0.055362 | 0.098027 | 0.0738163 | 0.1173695 |
|  | [0.020350] | [0.031941] | [0.0305244] | [0.0479119] |
| Less than Intermediate | 0.050242 | 0.127208 | 0.0669889 | 0.1669441 |
|  | [0.016284] | [0.027492 | [0.0244255] | [0.0412379] |
| Intermediate | 0.199508 | 0.163321 | 0.2660108 | 0.2150942 |
|  | [0.043905] | [0.046457] | [0.0508568] | [0.0396861] |
| Above Intermediate | 0.195351 | 0.176355 | 0.2604684 | 0.2311398 |
|  | 0.049216] | [0.035223] | [0.0738245] | [0.0528343] |
| University | 0.450617 | 0.378332 | 0.6008225 | 0.4964424 |
|  | [0.174365] | [0.075984] | [0.111547] | [0.0839766] |
| Post-Graduate | 0.455311 | 0.346605 | 0.6070818 | 0.4581396 |
|  | [0.126836] | [0.098768] | [0.1902545] | [0.1481527] |
| Experience | 0.056874 | 0.019958 | 0.0758321 | 0.0254103 |
|  | [0.027114] | [0.004965] | [0.0106713] | [0.0074475] |
| Experience squared | -0.000493 | -0.000463 | -0.0006569 | -0.000591 |
|  | [0.000186] | [0.000161] | [0.0001296] | [0.000092] |
| Urban area | 0.090182 | 0.085990 | 0.1202421 | 0.1133205 |
|  | [0.024973] | [0.017356] | [0.0374592] | [0.0260333] |
| Sector | 0.373818 | 0.408379 | 0.4984234 | 0.5442387 |
|  | [0.127122] | [0.118225] | [0.0406829] | [0.0273377] |
| Marital Status | 0.052643 | 0.008652 | 0.0701905 | 0.0114031 |
|  | [0.018848] | [0.003341] | [0.0282715] | [0.0050115] |
| R-Squared | 0.383 | 0.389 | 0.3699 | 0.3774 |
| Sample Size | 2690 | 3692 | 2899 | 3970 |

Note: Standard errors of coefficients are given in parenthesis
Source: Researcher's calculations from LFSS 1988 and ELMS 1998

**Table 10: OLS Estimation for Earnings, 1988-1998, Log Earnings Equations, females**

| | Including Self-Employed | | Excluding Self-Employed | |
| --- | --- | --- | --- | --- |
| | 1988 | 1998 | 1988 | 1998 |
| Intercept | 2.127809 | 2.574862 | 2.837079 | 3.433122 |
| | [0.1994096] | [0.252511] | [0.2691144] | [0.2287669] |
| Read and Write | 0.016588 | 0.132567 | 0.022117 | 0.1766223 |
| | [0.005345] | [0.0294436] | [0.0080173] | [0.0441654] |
| Less than Intermediate | 0.049810 | 0.213891 | 0.0664138 | 0.283854 |
| | [0.0194352] | [0.069718] | [0.0291528] | [0.104577] |
| Intermediate | 0.262642 | 0.127829 | 0.3501891 | 0.1691049 |
| | [0.0712542] | [0.0557032] | [0.1068813] | [0.0835548] |
| Above Intermediate | 0.326545 | 0.218410 | 0.4353934 | 0.2885467 |
| | [0.081944] | [0.059890] | [0.1229158] | [0.0898351] |
| University | 0.343688 | 0.267280 | 0.45825 | 0.353707 |
| | [0.076240] | [0.0587534] | [0.0543596] | [0.0431301] |
| Post-Graduate | 0.497996 | 0.369961 | 0.6639948 | 0.4920813 |
| | [0.0827862] | [0.0688884] | [0.0941793] | [0.1033326] |
| Experience | 0.068533 | 0.011855 | 0.0913774 | 0.0151395 |
| | [0.017679] | [0.005077] | [0.022019] | [0.0016156] |
| Experience squared | -0.000554 | -0.000176 | -0.000739 | -0.0002343 |
| | [0.000200] | [0.000033] | [0.0002995] | [0.0000497] |
| Urban area | 0.023079 | 0.015271 | 0.0307726 | 0.0203086 |
| | [0.008640] | [0.003739] | [0.0129604] | [0.005608] |
| Sector | 0.007748 | 0.279742 | 0.0103309 | 0.3721889 |
| | [0.001821] | [0.0534846] | [0.002281] | [0.0502269] |
| Marital Status | 0.149374 | 0.046929 | 0.1991659 | 0.0621717 |
| | [0.044430] | [0.007934] | [0.0666449] | [0.0105514] |
| R-Squared | 0.4083 | 0.4192 | 0.3947 | 0.4053 |
| Sample Size | 1355 | 1257 | 1450 | 1323 |

Note: Standard errors of coefficients are given in parenthesis
Source: Researcher's calculations from LFSS 1988 and ELMS 1998

**List of Abbreviations**

| | |
|---|---|
| AUC | American University in Cairo |
| CAPMAS | Central Agency for Public Mobilization and Statistics |
| EHDR | Egypt Human Development Report |
| EIHS | Egypt Integrated Household Survey |
| ELMS 98 | Egypt Labour Market Survey 1998 |
| ERF | Economic Research Forum |
| ERSAP 91 | Egypt Reform and Structural Adjustment Program 1991 |
| GDP | Gross Domestic Product |
| HBS | Household Budget Survey |
| HIECS | Household Income, Expenditure and Consumption Survey |
| ICA | Institute of Cultural Affaires |
| IFPRI | International Food Policy Research Institute |
| ILO | International Labour Organization |
| IMF | International Monetary Fund |
| INP | Institute of National Planning |
| LE | Egyptian Pound |
| LFSS 88 | Labor Force Sample Survey 1988 |
| OMSIC | Office of the Minister of State for International Cooperation |
| SFD | Social Fund for Development |
| UNDP | United Nations Development Program |
| WAP | Working Age Population |