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THE AMERICAN UNIVERSITY IN CAIRO

**Assessing The Socio-Economic Characteristics of Higher Education Subsidies’  
Beneficiaries in Egypt**

**Problem of Subsidizing the Rich**

In partial fulfillment of the requirements for

The degree of Master of Arts  
In Economics

By

Sarah El-Gerby

Under the supervision of

Dr. Mohammed Bouaddi

Fall/2012

The American University in Cairo

School of Business

**Assessing the Socio-Economic Characteristics of Higher Education**

**Subsidies' Beneficiaries in Egypt:**

**Problem of Subsidizing the Rich**

A thesis Submitted to the Economics department

By

Sarah Samier El-Gerby

[2012]

In partial fulfillment of the requirements for

The degree of Master of Arts

In Economics

has been approved by

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Dean of Business School

Date \_\_\_\_\_

## DEDICATION

*To my dear Baba and my beloved Mama  
To my sweetheart Mai, Aya, and  
Salah*

## Acknowledgement

First and foremost I want to thank Almighty God. I admit that this thesis would not have been possible without the guidance and the help of several individuals who in one way or another contributed and extended their valuable assistance in the preparation and completion of this study. I am deeply grateful to Dr Ray Langesten. Working with you has been a useful and interesting experience. You have been a steady influence throughout my thesis. Unfortunately, due to unforeseen circumstances, you couldn't complete the advising process with me. I would also like to thank my dear professor Dr Mohammed Bouaddi who has always been patient and encouraging in times of difficulties. Thank you, Dr Bouaddi for your precious time and support all along the process. Furthermore, I am very grateful to my readers Dr Dalia El-Edel and Dr Samer Atallah for insightful comments on this thesis, for their support, and for the motivating discussion. I offer my utmost gratitude to esteemed *Prof. Laila El-Baradei*, and Ford institution. I'm indebted to them for having my master from AUC.

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## **Abstract**

This thesis explores the socioeconomic characteristics which influence the decision of joining HE in Egypt. In the attempt to evaluate the efficiency of the free-university educational policy, the thesis assesses the characteristics of the beneficiaries. It also identifies the socioeconomic characteristics of students of private vs. free public universities in Egypt. It examines the socioeconomic correlates of joining higher education in Egypt; and among university students the correlates of the choice join a public versus a private university. It uses probit and logit models adjusted for self-selection bias. The study focuses on three key variables to assess equity issues: gender, wealth, and urban/rural/slum residence. Results show that the socioeconomic background of students' families is highly correlated with university attendance. The main determinants for joining university are wealth, high school score, and type of secondary school attended. The staggering finding is that socio-economic characteristics fail to differentiate between those who attend tuition-free public and those who attend private HE institutions that charge high fees.

Key words: Higher education, equity, socio-economic characteristics, free education policy

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## **Chapter I Introduction**

How "free" is higher education in Egypt? Who pays from its public subsidization and who stands to benefit from it? Education is the people's asset. It is one of the main assets that generate income worldwide and is usually a good insurance against unemployment. As more education is acquired, the chances of being and remaining employed in hard economic times get higher and higher. While the whole world is advocating education because of its vitality for nations (UNESCO), education and mainly higher education (HE) in Egypt is under serious pressures. According to Herrera (2006), HE in the Arab Region is under great stress and faces several challenges due to combinations of factors including political and military conflicts in the region, the lack of forethought and strategic planning of educational reforms that are largely market oriented and, last but not least, the lack of democratic governance (Herrera, 2006). In almost all of the Arab countries the government is the main provider of higher education expenditure and at the same time assumes complete control on higher educational institutions (Sabry, 2010). One of the major problems that Arab countries face, especially the non-oil producing ones, is that the cost of HE is very high, and at the same time it cannot be prioritized over other urgent social needs. The tremendous pressure in Egypt is due to the hyper and extensive growth in both population and students' populace, as this thesis will show later. Hence, demand for education, which results in inflation in students' numbers without adequate or sufficient financing sources. Thus, the burden on government spending increases. No one can deny the vital role educating the poor might play in ensuring equitable growth and poverty reduction. Nevertheless, in a developing country reality such as that of Egypt, it is hard to rationalize expenditure on higher education when quite a substantial share of the country's



population is illiterate (28%)<sup>1</sup> and poor. This becomes even more so when we consider that a significant part (25%) of the unemployed are university graduates (Population Council, 2010).

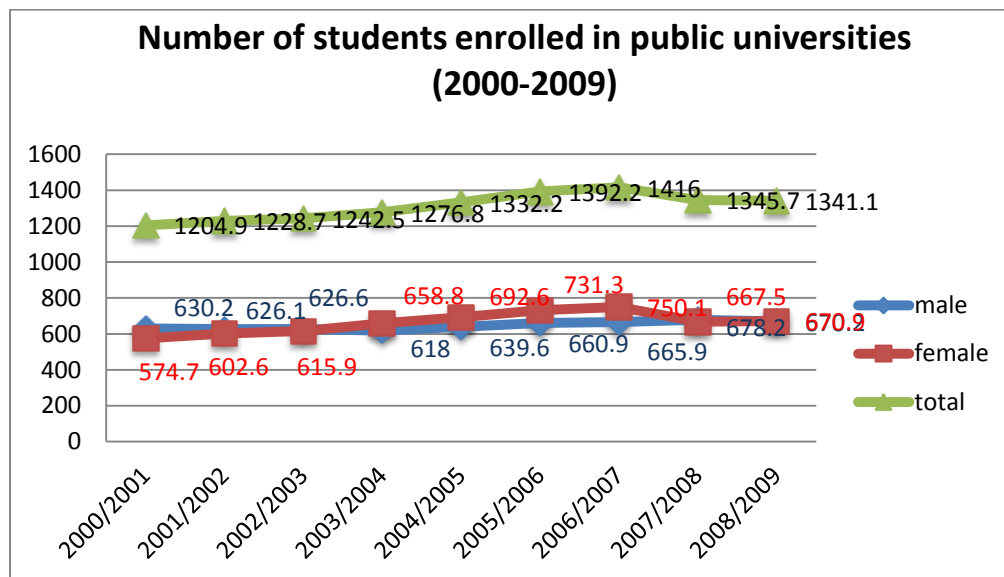
Higher education in Egypt is fully financed by the central government (MOHE, 2007). It is enforced by the constitution to be provided as a free service for all Egyptians. Egypt knew free-education for the first time when Taha Hussein became a consultant to the ministry of education in 1944. It was then that he first introduced primary stage education as a free service (MOHE, 2007). Afterwards, when he became the minister of education, he extended free education to cover the secondary stage as well (MOHE, 2007). Free university education in Egypt was first introduced in the academic year 1962/1963.

Subsidizing higher education in Egypt comes in the form of financing of tuition-free public universities by the central government. By constitutional stipulation, higher education subsidies are supposed to be enjoyed by all Egyptian students without any kind of discrimination. This means that all university students are eligible to be financed, regardless of their socioeconomic status or academic background. The only requirement for any Egyptian student to join higher education is having a high school degree “Thanwyh 'eamh” or its equivalent. Thus, students join higher education based only on their score in an “achievement test” like those used by other school systems around the world. These tests may be standardized and unified (just like in Egypt), or informally collected problems organized by the teacher. The standardized tests are used primarily with the aim sorting

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<sup>1</sup> World Factbook, CIA, <https://www.cia.gov/library/publications/the-world-factbook/geos/eg.html>.

students by grades (Wood, 1987). This single criterion for joining a public university contributes to the dramatic increase in the number of students.



Source: Information and Documentation Center, Minister's Office, Ministry of Higher Education and State for Scientific Research.

Figure 1

The universities' budgets reached about 6 billion Egyptian pounds in the academic year 2003/2004 with an average expenditure per student amounting to 6,300 LE (MOHE, 2007). The number of students enrolled in public universities in 2001/2002 was 1.20 million; by 2011 this figure had grown to 1.43 million (IDC, 2010). From 1999 to 2011 an overall increase of 30% in the number of students enrolled in public universities has been witnessed. It has to be said that 18 private universities existed in the country, but they barely help in absorbing or accommodating students. The proportion of students enrolled in public universities was about 76% in 2007/08. This number rises to almost 80% if we consider the students enrolled in all types of higher education, including upper intermediate and higher institutes. Data indicate that the number of students enrolled in the different public higher education institutions rose from 508,000 students in 1981/82 to around 2.2

million in 2003/2004 and then to almost 2.5 million students during the academic year 2006/07.

On the other hand, the average student's per capita expenditure from government spending is still low compared to other Arab and developing countries in the region. Egypt spent on average 902\$ per student in 2008 (PPP) compared to 2239\$, 3442\$, and 4421\$ in Syria, Morocco and Jordan respectively (El-Araby, 2010). Looking at the background of those students, in 2006/2007 3.8% of public university students came from private language secondary schools (Abdel Hamid , Saad , W. Gomma , Kalifa , & Gadalah., 2009) which amounts to around 54,000 students. Those students used to pay a large amount of money for their secondary schooling (Hartmann, 2008). However they were still able to join public universities where they would pay no fees at all.

## **Thesis Structure**

1. This thesis explores the socioeconomic characteristics behind the decision of joining higher education in Egypt. In other words, do subsidies to higher education serve their purposes in redistributing income and encouraging the poor to join? Chapter I includes the introduction, literature review and thesis statements.
2. Chapter II summarizes the different higher education systems and policies around the world, their statistics.
3. Chapter III describes the evolution and development of higher education in Egypt and students numbers since 1952 up until the present time.
4. Chapter IV includes the empirical part. In this section, the methodological approach as well as the explanatory and dependent variables for the

empirical analysis are detailed. The study develops probit models to identify the socio-economic characteristics of free higher education beneficiaries.

5. Chapter V presents conclusions and policy recommendations.

## **Importance of the thesis**

“This decision will provide the equal opportunity in education for everyone, there will be no situation where those able to pay fees continue their education while the others do not” (Al-Ahram newspaper, 27<sup>th</sup> July, 1962) Quoting from president Gamal Abdel Nasser’s speech in the Alexandria Stadium in 1962, when he announced that higher education in Egypt would be for free. The targeted group of this policy were the poor who, given their liquidity constraints, were prevented from joining university. This reform was therefore aimed at improving social justice.

Financing higher education through public spending imposes a transfer of resources from taxpayers to university students and their parents. This thesis explores the socioeconomic characteristics behind the decision of joining HE in Egypt. In an attempt to evaluate misallocation of HE subsidy of free-universities educational policy, the thesis assesses the socioeconomic characteristics of the beneficiaries and links them to their decision to join HE in Egypt. It also identifies the different characteristics of students who attend private and free public universities in Egypt.

## **Review of Literature and Relevant Topics**

It is my belief that governments usually use equity as a justification to interfere in education. Many studies have been conducted all over the world to oppose or defend free

higher education and whether it should be publicly subsidized or not. For example, papers done on Latin and South America's case. In their paper, "Public University in Argentina: Subsidizing the Rich" (2002), Rozada and Mendez argue, using probit models, that by providing completely free higher education the government of Argentina is subsidizing the rich. Their argument is built on the findings that individuals who attend public universities belong to the top decile of the income distribution and descend of relatively highly educated parents. They found that socioeconomic variables fail to differentiate between who attends tuition-free public institutions and who attends private ones which charge high fees. Additionally, poor students are less likely to join higher education and therefore, despite the availability of the subsidy, they will not take advantage of it. Furthermore, they estimated the expected income for college students to be high enough for them to afford repaying their educational loan if they take one. In Brazil, where free higher education is to a large extent restricted to the higher socioeconomic groups. This happens in Brazil because of limited places in public universities and highly competitive entry exams which decrease the chances of success for those students who received low quality high school education or who did not attend expensive preparatory courses (McCowan, 2007; Rozada & Menendez, 2002), thus implicitly excluding the poor. Equity between rich and poor in the opportunity to join HE is a severe problem in Brazil. McCowan (2007) claims that, for more equitable opportunities to join HE in Brazil, equity should be achieved by expanding free-of-charge public universities. It should not be based on expansion of the private universities because it would only improve the enrollment rate but not equity. Two main objections were raised to such conclusion. First, regardless of the absence of charge, it is still difficult for some social groups to join public universities because of indirect and opportunity costs, besides the limitation of places in public

universities. Secondly, governments are unable to expand HE system using public funds alone, especially in low and middle-income countries. Moreover, it is not necessary that expansion based on public universities will be equitable.(McCowan, 2007)

Literature regarding the Egyptian case is similar to the one reported above in that it opposes the free higher education policy. Most of those studies that have been carried out focus their concern on the free HE's impacts on quality of education and inclusiveness. The history of free higher education policy in Egypt began in 1962 with the aim of expanding the umbrella of educational opportunities to embrace the poor for the sake of social justice (Al-Ahram, 1962). In response to this policy, enrollment in public universities rocketed. Despite the common belief that expansion in public higher education enhances inclusiveness, in their study "Inclusiveness in Higher Education in Egypt" Cupito and Langsten (2010) found that females in wealth quintile are disadvantaged compared to males. During the period of analysis, they were only 70% as likely as males to join higher education, and the degree of disadvantage increases monotonically with each poorer quintile. The authors also show that students from the high wealth quintile maintain their absolute advantage in joining higher education (Cupito & Langsten, 2010).

In 1951, before the 1952 revolution and before the declaration of free HE, the number of students enrolled in public universities was only 35,000 and consisted mainly of the children of the Egyptian elite. This number more than doubled to 77,000 by 1958, and then almost doubled again to 140,000 in 1969. Starting from the 70s, a very rapid growth began to the point that 508,000 students enrolled during the academic year 1981/82. Public universities now enroll more than five times the student capacity they were designed to accommodate. Moreover, Supreme Council of Universities (SCU) has reported severe crowding in public universities and a very high students-to-faculty ratio. In terms of

disciplines, the worst faculty-to-student ratios are reported for commerce, law, and Arabic studies, which were 178, 159, and 121 to 1 respectively for the academic year 1985/86. By year 2009/2010 the students to faculty ratio for 17<sup>2</sup> public universities for all faculties collectively was 32:1<sup>3</sup>. This tremendous increase in the enrolled students in public universities without sufficient financing to meet the consequent new challenges led to a gradual deterioration in the quality of both education and graduates at the exit point (El Baradei & El Baradei, 2004; Sebai, 2006; Shann, 1992). Low quality higher education produces low quality graduates who show low returns to education. This poor quality education created another crucial problem which is the reliance on private tutoring among students. In turn, this stimulated the birth and growth of an informal sector for education. According to the Central Agency for Public Mobilization and Statistics (CAPMAS), over 60 % of investment in education is spent on private tutoring. This phenomenon further contributes to the inequality and stratification. The OECD argues that it is highly implausible that Egypt can realize its required enrollment expansion and quality improvement goals by financing public higher education institutions mainly through the government budget (OECD 2010 cited in (Loveluck, 2012)). According to The Bowles Hypothesis (1971), in capitalist less-developed countries (LDCs), benefits from higher education tend to be enjoyed by the elite, and benefits from primary education go to the masses (Sam Bowles as cited in (Bhagwati, 1985)). Therefore, one expects the rich in LCDs to privately spend more on higher education than on primary education. If one calculates

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<sup>2</sup> Cairo, Alexandria, Ein Shams, Assiut, Tanta, Mansoura, Zagazig, Helwan, Menya, Monofia, Suez Canal, South Valley, Banha, Fayoum, Sowhag, Kafer ElShiekh, Beni Suef

<sup>3</sup> Author calculation based on "Numbers of faculty members and their assistants bulletin for public universities in Egypt (20009/2010)" CAPMAS.

the returns on higher education and finds that this return is below the return on primary education, then it means that the government is over subsidizing higher education in this country.

Parental income is also one of the important signals considered by many governments when it comes to take the decision to subsidize higher education. Especially when we know that children of educated parents are more likely to receive higher education than those of less-educated ones. In a review made by the Irish Department of Education and Science (2003) on students' support in 13 countries, it is found that student grants, subsidized loans, and tuition fees are conditional on parental income in most countries. The relationship between family income, enrollment in HE and credit constrained schooling has been considered by many studies (Cameron & Heckman, 1998; Carneiro & Heckman, 2002; Del Rey & Del Mar Racionero, 2002; Dur, Teulings, & Rens, 2004). Their results show a positive correlation between family income and college attendance. What some countries, like the United States, do in order to try to avoid this problem is to give students from low income families larger subsidies for the same educational attainment (Dur et al., 2004). Dur et al. examine the efficiency and distributional effects of conditional education subsidies on parental income. The paper builds its argument on empirical studies' findings that there is a strong positive correlation between parental income and children's educational attainment. Dur et.al (2004) concluded that government should condition subsidies to education on parental income for two reasons. The first is that students from low-income families face credit constraints, which prevent them from taking up an otherwise profitable education level. The second reason is that this would be an efficient way of achieving income redistribution among citizens.



The human capital theory and the relationship between education and income became popular with the contribution of (Mincer, 1974; Shultz, 1960). According to this theory, equity in the distribution of public subsidies is not ensured by the provision of heavily subsidized or free education (Jimenez, 1986). In the same paper, Jimenez argued that rich people stand to gain more from government subsidies in education and health than the poor for four reasons: differential costs and benefits, rationing, patterns of government expenditure, and private costs. Jimenez underlines that “free provision is not free consumption”, meaning that if higher education subsidies cover the direct costs of education, they do not finance or cover the indirect costs. It is difficult if not impossible to estimate the indirect costs for each university student. These costs may be especially high for the poorest people, who may not utilize the service at all if they do not think it is crucial for surviving.

By their social contacts, upper-income families have another comparative advantage over lower income ones. In some contexts, those connections and contacts will help their children to easily find a job after graduation. If this is the case, then it constitutes a discouragement for some of the lower income families to get their children highly educated. One of the upsetting aspects of subsidizing higher education according to Johnson (1984) is the fact that subsidies’ recipients have a quite higher permanent income than who never joined any higher education. He claims that 30% of 4-years college graduates earn a lot more compared to those with less schooling. This raises questions as to the reasons why the whole population should be taxed so as to subsidize an activity that provides direct benefits only to the wealthiest (E.Johnson, 1984). Many studies came to the conclusion that poor families finance the education of children of high income families (Hansen & Weisbrod, 1969; Mehmet & Tsang, 1978; Selowsky, 1979) .

On the other hand, or on the side of supporting and defending the existence of free higher education for all, a number of studies in different countries argue that subsidies to higher education may be to the mutual advantage of both graduates and non-graduates. Some authors claim that the degree of public spending on social services is justified on equity and efficiency ground. They defend the idea that government spending is an effective technique of income redistribution (Jimenez, 1986). One of the justifications for the policy of subsidizing non-compulsory HE is capital market imperfections, which prevent students from borrowing against future human capital income. While all citizens benefit from the expenditure on compulsory education (primary and preparatory), only those who choose to join HE and continue their studies enjoy the reduction in the direct costs of higher education. Therefore, a subsidy to higher education which is financed mainly and almost solely by general taxation –like in the Egyptian case –implies reverse life time redistribution, that is a redistribution from the poor to the rich (Garcia-Penolosa & Walde, 2000). Thus, if it is to result in greater equity, social spending policy must target the poor or otherwise it will be useless. L.C. Solomon (1987) argued that even massive student aid programs in the US during the 1970s have not assured equal access to everyone who desires to enter post-secondary education. Even though most of the very poor students can receive the direct costs of HE, aid does not finance forgone earnings (opportunity cost). Besides, few poor students attend the most expensive private colleges and universities, which are viewed as providing better quality education. Therefore, poor students get a lower quality higher education than rich students do. Solomon (1987) concluded that tradeoffs between equity and quality have to be made after all (Solomon, 1987). Due to its positive externalities and spillovers, in his paper “Externality in Education” McMahon argued that subsidizing higher education is essential especially for rural areas (McMahon,

1987). One of the rationales for letting poor subsidizing medium to rich people in getting their HE is the one made by Johnson (1984) in the previously mentioned paper. He explains why poor or unskilled workers agree or are satisfied with subsidizing HE by saying that those unskilled workers know that there is complementarity between them and the skilled highly educated ones.

## **Research problem**

After the 1952 revolution, the main reason for providing higher education for free and spreading it over various regions in Egypt was to achieve the principle of equal opportunity. Abdel Nasser took two important decisions that are affecting the higher education system until now. The first is providing HE for free to all Egyptians. The second, which is as crucial as the first, is offering the employment guarantee scheme in the 1960s, which granted employment in the public sector to all university graduates, a promise that would fuel university enrollment rates in the following three decades and cause a distortion in the labor market (Birdsall & O'Connell, 1999). The Egyptian population doubled in the period from 1947 to 1976, and then doubled again from 36.6 million in 1967 until it reached 72.8 million according to the last 2006 census<sup>4</sup>. Egypt is no exception to the world wide phenomenon of rising HE enrollment. Not only has population doubled, but also the number of students who pass the secondary school exam, and thus become eligible to join higher education has been increasing. Students' numbers have risen by around 21.4% from 1999 to 2011. The combination of the factors mentioned up to now and the social image

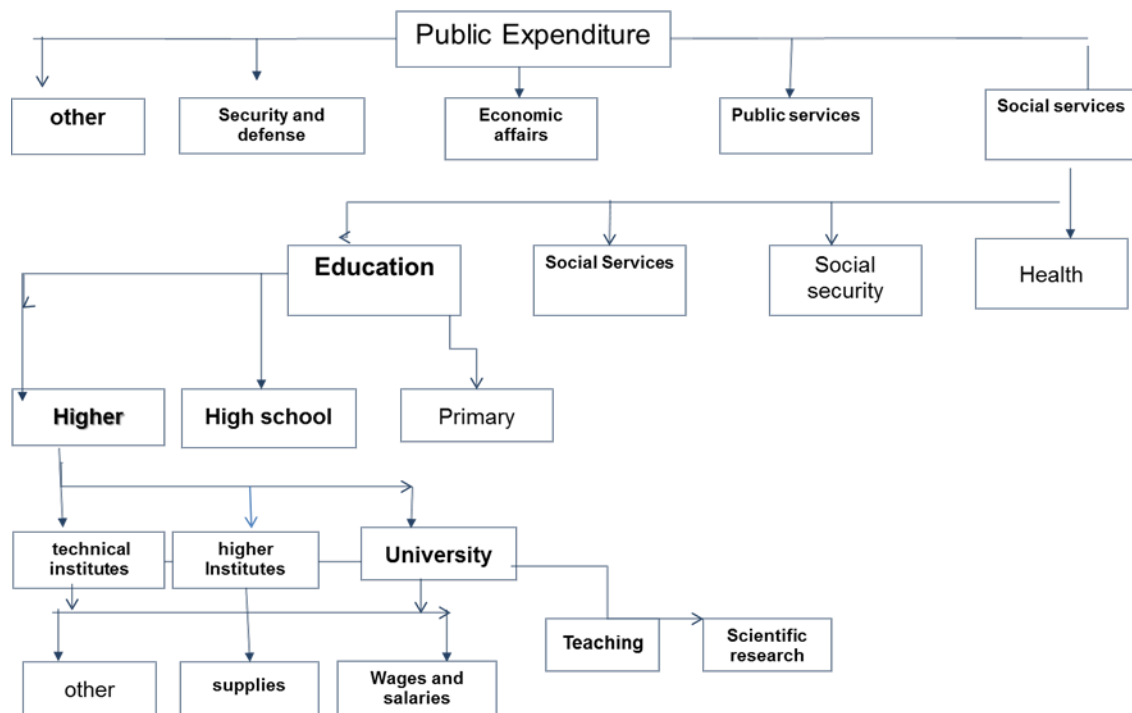
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<sup>4</sup> CAPMAS [http://www.t-series.capmas.gov.eg/census\\_all.aspx](http://www.t-series.capmas.gov.eg/census_all.aspx) according to CAPMAS on May14, 2012 population = 82,053,126 in 6 years increased by 10 million.

given by higher education graduates has resulted in a tremendous increase in gross enrollment rates (GER) between 1982/83 and 2002/03. It was then that the gross enrollment rate rocketed from 16% to 24% for the age group 18-23 years. Another increase occurred in the period from 2002/03 and 2006/07 where the GER was 27.3% (Abdel Hamid et al., 2009). That increase accompanied with a huge accelerating increase in demand for HE with its limited budget, thus making the need for a new funding policy and financing sources a priority. Especially, when the government is providing this service totally for free to the ones who can afford at least paying a quite share of their higher education costs. As can be seen from figure 2, it shows a simple structure of the distribution of public spending in the state budget. The figure shows the location of the higher education budget in the whole budget, and how heavy a burden it is on the budget. During the School Year 2011/2012 the total number of students enrolled in all pre-university education was 17.49 million. Of these, 1.23 million were enrolled in general secondary education<sup>5</sup>. The average enrollment rate at higher education between 2001 and 2010 has been 26.33% of secondary school graduates and the number of high school students who took the general exam “Thanwyh 'eamh” in 2012 was around 418,000 thousand students (El-Bedewi, 2012).

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<sup>5</sup> Egypt's Information Portal 2012.



Mohaia Zaitoon (2005) "Education in the Arab world in the light of globalization and the culture of the market," Center for Arab Unity Studies

Figure 2

Developing countries need to subsidize social services for the sake of maintaining equity and social justice among their citizens. Hence, the problem now is not in providing HE for free in a developing country, but rather understanding if it is a real totally for free service. As long as the family wealth quintile or family income is one of the highly decisive factors in joining university decision, then it is only ostensibly free.

As mentioned earlier, the method primarily used to sort students is according to their obtained score in standardized tests (Wood, 1987). This single criterion for joining a public university led to a dramatic increase in the number of students. But who are those students and what are their characteristics? Who gets the high grades qualifying them to join their desired faculties in free public HE? According to Survey of Young People in Egypt (SYPE 2010), almost 50% of young people between 10 and 29 years of age receive private tutoring and around 40 % of them take group support classes. Furthermore, according to

the surveyed the main barriers to education are high out-of-pocket education-related costs. Moreover, as deducted from SYPE only 4.3% of those who are currently enrolled in universities come from the lowest wealth quintile. The majority of those enrolled in university come from the highest fourth and fifth wealth quintiles. Among those who completed university education, 52% come from the highest wealth quintile, showing the strong relationship between schooling achievement and the wealth of students. The poor are more represented among students in two-year institutions, though they are still underrepresented, since they constitute only around 11% of the students. Students who belong to the poorest families represent about 25% of primary school students in Egypt, a suspected 14% in secondary education, and only 4% of higher education students (El-Araby, 2010)

Educating the public as an investment contributes to growth and the distribution of it affects the distribution of income. Income growth of the poor is positively affected by overall growth. Controlling for the level of education, Birdsall and Londono (1997) reported that the inequality of distribution of education has a robust and strong negative effect on growth as a whole. Moreover, the distribution of education explains much of the widely reported effect of income inequality on growth. (Birdsall & O'Connell, 1999). To continue applying Nasser's free higher education policy as it is with this hasty expansion of access to education will be at the expense of the equity and quality of this type of education. It will continue to feature overcrowded classrooms, low salaries and unqualified teachers. Despite the good efforts for spreading higher education among Egyptians, the learning outcomes are disappointing and the economic results are very poor. In the cross countries' study presented in table 1 by Birdsall and O'Connell (1999) they found that Egypt

has the second lowest income inequality, the third lowest land inequality, and regardless of free education it has the highest education inequality. Undereducated parents in one generation without effective public spending will produce more and more generations of undereducated children and grandchildren.

**Table 1**

Country	Income inequality	Education inequality	Land inequality
Egypt	.320	.700	.480
Kenya	.544	.600	.746
Jordan	.407	.615	.686
Brazil	.596	.461	.852
Indonesia	.317	.494	.556
Korea	.336	.257	.351
Thailand	.515	.456	.366

Source: (Birdsall & O'Connell, 1999)

Egypt now has 19 public universities run by the state government, but they are underfunded and students and professors have been disappointed by the decline in education standards.

The research problem is that a considerable share of government expenditure is directed toward an unintended group who may not be eligible for this type of public expenditure. It is surprising to know that, as Dr Mona El-Baradie stated, only 9% of the poor attend universities and at the same time 48% of the people who can afford the costs of education also attend governmental universities (Khaled, 2010). The matter of which requires rethinking about enhancing the efficiency of that disbursement. Enhancing efficiency, equity and productivity can be achieved by redirecting subsidies toward merited beneficiaries, who really deserve this expenditure. The problem this thesis is to identify

who the actual beneficiaries of the subsidies are, and what are their socioeconomic characteristics.

## **Thesis Questions**

Does the socioeconomic background of students' families have an impact on the decision of attending university?

Considering that subsidies were introduced to enhance equity among students, are higher education subsidies' beneficiaries in Egypt really the intended or targeted group for government expenditures on higher education?

## **Methods**

The research will employ both descriptive and quantitative approaches to answer these questions. The methods include:

- Using econometric models (probit and logit models) to analyze the characteristics of students attending and not attending public and private universities in Egypt and why, and to calculate the probability of attending university among the young in order to identify to whom the subsidies are allocated.
- Using a descriptive method to characterize and analyze the higher-education system in the past since the declaration of free higher education and up until the present time, and to describe government expenditure on higher education.



Research mainly depends on secondary data collected by SYPE. It targets the age group from 10 to 29. The sample is designed as a multistage stratified cluster sample and is nationally representative for:

- Rural, Urban & Informal Urban (Slums)
- The Urban Governorates, Upper/Lower Egypt and Frontiers Governorates.

The research also relies on published data from both the Ministry of Education (MOE) and Ministry of Higher Education and Scientific Research (MOHE). Variables that may be included in the models include: wealth quintile, age and sex, urban vs. rural vs. slum, parents education, number of siblings in the family, last attended school (free or tuition charging school), private tutoring at high school, school interruption, high school score percentage, any failed or repeated years, satisfaction with schooling experience.

Figure 3 demonstrates the first model, which calculates the probability of attending university or not attending.

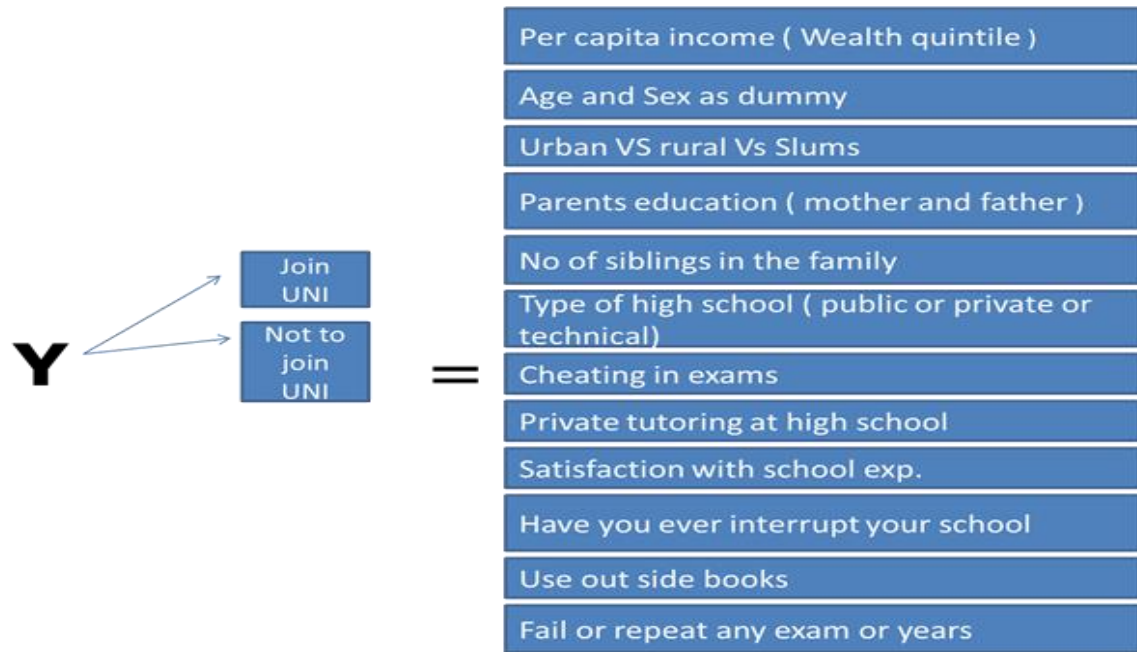


Figure 3

Figure 4 illustrates the second model, which calculates the probability of joining private universities versus public ones. It is similar to the first model except for the dependent variable.

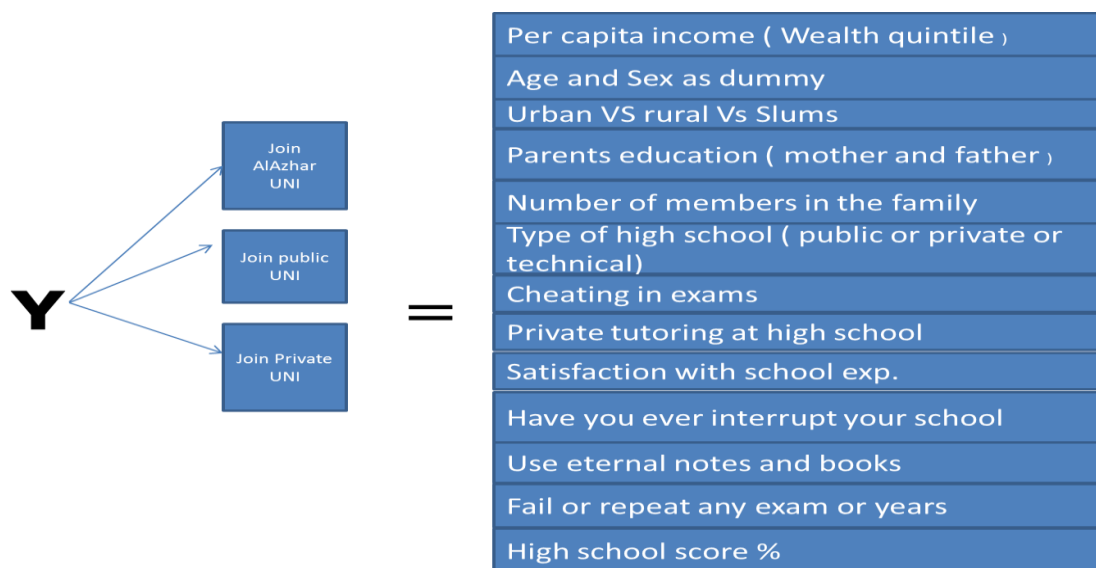


Figure 4

The computer packages used are SPSS and E-views. They are used to construct the models and identify the socio economic characteristics of free-higher education beneficiaries, as well as the socio-economic characteristics of private universities students.

## **Chapter II: Higher Education around the World**

The main aim of this chapter is to present the various international experiences in higher education all over the world, which may help policy makers to compare different systems. Furthermore, this chapter shows the growth in higher education students' numbers, and methods of financing HE. It also demonstrates gender, income and location disparities.

Since the year 2000, number of students in higher education across the globe has dramatically increased until it reached almost 153 million in 2007. For every 100 higher education students in 2000 there were roughly 150 students in 2007. Much of this growth comes from Asia. HE financing across the globe and other data on HE expenditure are usually presented by total government expenditure as a percentage of GDP and as expenditure per higher education student (UNESCO, 2009b). Education spending accounts for between 10 and 20% of all government spending. On average, countries around the world spend 4.9% of their GDP, or 15.7% of their total public expenditures, on this field. In terms of GDP per capita, around 17% is spent per student on primary education; 22% per student on secondary; and 57.7% per student on higher education. As a general pattern, developing countries tend to spend relatively more on the primary education level than do developed ones. Though the MENA region is still has one of the lowest average spending on students at the primary level, at 14.3% of GDP per capita. On the other hand, developed countries spend a higher percentage on higher education and research than do developing ones. Despite the free education policies in most of its countries, the Middle East and North Africa region is the one which spends the least in the world on education as a percentage of

GDP (4.5%) followed by East Asia and Pacific countries at 4.7%, which is still lower than the world average of 4.9% (Graham, 1987; Klein, 2011).

**Population and enrollment at different levels in major areas of the world: 2000 and 2008** [In millions]

**Table 2**

Area of the world	Population	Enrollment		
		Elementary	Secondary	Postsecondary <sup>6</sup>
<b>Africa</b>				
2000.....	803.0	108.4	37.7	6.3
2008.....	969.4	153.2	54.4	9.3
<b>Asia</b>				
2000.....	3,650.2	398.8	259.0	40.6
2008.....	4,004.4	408.3	321.5	75.6
<b>Europe</b>				
2000.....	771.2	41.7	70.5	25.1
2008.....	777.5	37.0	59.9	33.0
<b>Central and South America</b>				
2000.....	520.4	69.7	54.7	11.1
2008.....	577.7	67.7	59.1	19.7
<b>Northern America</b>				
2000.....	313.4	27.4	25.1	14.4
2008.....	337.7	26.9	27.3	19.6
<b>Oceania</b>				
2000.....	30.4	3.1	3.4	1.0
2008.....	34.1	3.2	3.5	1.4

SOURCE: United Nations Educational, Scientific, and Cultural Organization, unpublished tabulations, (UNESCO) and U.S. Department of Commerce, Census Bureau, International Data Base

**Table 3**

Region	Primary Education drop-rate	Lower secondary education drop-rate	Primary and lower secondary education
Arab States	61.2	58.5	60.1
Central and Eastern Europe	51.7	56.7	54.1
Central Asia	57.6	59.8	58.8
East Asia and the Pacific	48.2	47.9	48.1
Latin America and the Caribbean	49.6	48.0	49.0
North America and Western Europe	44.0	45.0	44.4
South and West Asia	57.6	55.2	56.1
Sub-Saharan Africa	54.5	55.9	55.1

Source: (Bruneforth & Wallet, 2010)

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<sup>6</sup> Include all types higher education institutions

As can be seen from Table 2, post-secondary enrollment rates increased in all major areas in the world from 2000 to 2008. The highest increase in postsecondary enrollment occurred in Asia with an estimated 86%, followed by 77% in Central and South America and, followed by Africa and North America with 47% and 36% respectively. It is worth mentioning that the drop rate in Arab states is still very high. It is considered the highest compared to the other regions for both primary and secondary education (Bruneforth & Wallet, 2010).

## **Higher Education Gross Enrollment Rate (GER) across the Globe**

Over a quarter of higher education age youth in the world were enrolled in HE in 2009 (27%). This figure represents a 9-percentage points (50%) increase with respect to 1999 (18%). Europe and Central Asia have consistently had the highest higher education GERs than any other region. In these two regions, over half (55%) of students in HE age were enrolled in 2009, a 19.2 % increase over 1999, while the Sub-Saharan Africa region is the one lagging behind the most, with only 3.9% youth enrolled in HE in 1999 and 6.6% in 2009 (Klein, 2011).

Table 4

<b>Gross enrolment ratio. Tertiary. Total</b>						
<b>Country \ date</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Arab States</b>	21.2595	21.43093	21.87149	22.37225	22.96911	23.67422
<b>Algeria</b>	21.16109	21.73291	24.05358	...	30.78653	30.76359
<b>Egypt</b>	30.78255	30.6375	30.89869	30.43758	...	32.36732
<b>Jordan</b>	38.24865	37.74555	38.57138	41.11881	41.83822	37.7403
<b>Morocco</b>	11.44791	11.9864	11.53637	12.59655	13.21557	...
<b>Qatar</b>	18.3	19.25453	13.44688	11.45495	10.09578	9.96832
<b>Cent. &amp; Eastern Europe</b>	57.98797	60.14919	62.07171	63.85762	65.91759	65.69095
<b>Turkey</b>	31.93063	36.00965	38.13048	39.62291	45.81872	55.42347
<b>Greece</b>	88.56289	93.08601	89.3785	...	...	...
<b>Argentina</b>	63.98607	67.08708	66.71943	68.67273	71.23081	...
<b>Brazil</b>	25.63098	...	...	...	...	...
<b>France</b>	55.24036	55.41379	54.62271	54.19524	54.53309	56.69268
<b>Israel</b>	58.07575	57.67101	60.5268	59.76502	62.4802	...
<b>Australia</b>	72.10297	71.21877	72.05897	72.2682	75.91419	79.91686
<b>UK</b>	58.68555	58.91223	58.64594	57.0372	58.52579	59.74994
<b>USA</b>	82.17795	82.63953	83.40297	85.40345	89.08218	94.80865
<b>Sub-Saharan Africa</b>	5.68786	5.77853	6.05343	6.31298	6.57609	6.81368
<b>World</b>	24.1409	24.94929	25.92984	27.00869	28.07203	29.16863

Source: UNESCO institute for statistics 2012

Table 3 shows that except for Qatar, all other countries have witnessed an improvement in their GER. In the Arab states in general after WWII, higher education and particularly the number of universities and enrollments in Arab world had boomed have rocketed. In 1939, there were only 10 universities in the area. By 1961, 22 years later, the number had doubled to 20, then 47 universities could be counted in 1975. By the year 2000, 200 universities were operating in the Arab world. This enormous boom took place mainly during the 90s (UNESCO, 2009a). Establishing universities was one of the priorities of postcolonial Arab governments. This was achieved either by reforming and restructuring existing operating institutions, like in Tunisia, Morocco and Iraq, or by starting from scratch and establishing new universities that were not exist before, like the cases of Saudi Arabia, Jordan, Libya and Lebanon. The Egyptian GER is high compared to Arab states' averages. Jordan and Morocco represent two extremes in GER relatively to Arab states' averages with 42% and 13% respectively in 2009. Though Morocco had a great improvement in its GER since the year 1996, in which there were 11 universities, and a quite large number of higher education

specialized institutions have been established, which however account for only 4% to 5% of total enrollment rate of the total student population (Yousif, Goujon, & Lutz, 1996).

Turkey is a Central and Eastern Europe and an OECD country. It shows a noticeable improvement in its GER for the period between 2005 and 2009 from 32% to 55%.

France, Israel, UK, USA and Australia are examples of other OECD countries and we notice from table that they are characterized by relatively high GER in higher education.

## **Gender, Income, and Location disparities in GER**

### **Gender**

As a general pattern, levels of gender disparity in HE attendance are much lower than levels of income and location disparities.

Globally, the gender parity index (GPI)<sup>7</sup> for higher education enrollments has increased from 0.98 in 1999 to 1.08 in 2009. The global female GER is now higher than the global male GER. Latin America and the Caribbean regions and Europe and Central America regions have consistently had higher female GERs; the Middle East and North Africa region is the only region within +/- 0.05 of gender parity in 2009 while East Asia and Pacific has reversed from a male bias to a female bias. The only two regions that persistently show a male bias over time in HE gross enrollment rates are Sub-Saharan Africa and South Asia (Klein, 2011).

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<sup>7</sup> The Gender Parity Index (GPI), commonly used to assess gender differences. It is the value of an indicator for girls divided by that for boys. A value of less than one indicates differences in favor of boys, whereas a value near one indicates that parity has been more or less achieved. Gender parity is sometimes considered to have been attained when the GPI lies between .97 and 1.03



Table 5

GPI for gross enrolment ratio. Tertiary					
Country \ Data	2005	2006	2007	2008	2009
<b>Arab States</b>	0.92961	0.94301	0.97241	0.9969	1.01363
<b>Algeria</b>	1.28105	1.25909	1.39849	...	1.44183
<b>Egypt</b>	...	...	...	...	...
<b>Jordan</b>	1.08394	1.14005	1.12152	1.12357	1.12314
<b>Morocco</b>	0.80485	0.80609	0.89071	0.88304	0.87141
<b>Qatar</b>	3.6944	3.7136	4.43044	4.84141	5.41661
<b>Central and Eastern Europe</b>	1.25662	1.25665	1.25884	1.26696	1.25873
<b>Turkey</b>	0.73763	0.75295	0.7604	0.77686	0.79277
<b>Australia</b>	1.24642	1.26985	1.28373	1.30099	1.33023
<b>Argentina</b>	1.45677	1.52334	1.5227	1.52458	1.51176
<b>France</b>	1.26636	1.2705	1.27526	1.27487	1.27929
<b>Greece</b>	1.14376	1.12968	1.10182	...	...
<b>Israel</b>	1.3258	1.27154	1.30671	1.29255	1.29715
<b>UK</b>	1.39061	1.40573	1.40526	1.40819	1.39699
<b>United States of America</b>	1.42301	1.42922	1.4235	1.41094	1.40884
<b>Sub-Saharan Africa</b>	0.6297	0.63199	0.63189	0.62198	0.62785
<b>World</b>	1.04643	1.06365	1.07152	1.07229	1.07465

Source: UNESCO institute for statistics

As presented in table 5, except for Morocco, the overall Arab world has changed from a male bias to a female bias between 2005 and 2009. As for Morocco, changes in the sex composition in students enrolled in education were associated with the growth of students' numbers. The sex ratio (male to female) in HE has declined from 4 in 1970 to 1.98 in 1987 and then to 1.49 in 1992. This decline in the sex ratio indicates a significant increase in female students' enrollment rates at the HE level (Yousif et al., 1996). Except for Turkey and Sub-Saharan Africa all other countries and regions are female biased.

## Income

Income is the largest source of disparity in HE gross enrollment ratios in all regions.

Income disparity ranges from 8% in Sub-Saharan Africa to 34% in Latin America and the Caribbean (Klein, 2011).

## Location

Also the place of residence does have an impact on the probability of entering higher education. Living in a rural area compared to an urban one results in lower attendance ratios that ranges from 5% in Sub-Saharan to 15% in Latin America and the Caribbean than urban areas (Klein, 2011).

## Higher Education Finance

In this section, an analysis is provided of the funding system of some Arab countries, Turkey, the USA and also a general review of the OECD countries

Table 6

Public expenditure on education as % of GDP					
countries\ Year	2005	2006	2007	2008	2009
Algeria	...	...	...	4.3373	...
Egypt	4.79443	4.00178	3.68461	3.76083	...
Morocco	...	5.49705	...	5.5602	5.3758
Qatar	...	...	...	2.45342	...
Turkey	...	2.86247	...	...	...
Australia	4.71518	4.541	4.45482	4.41809	5.10569
Argentina	...	4.51593	4.92687	5.3927	6.02585
France	5.67246	5.60903	5.61511	5.62047	5.90055
Greece	4.09111	...	...	...	...
Israel	6.12783	6.09924	5.89225	5.9319	5.84987
UK	5.42287	5.54963	5.45612	5.39464	5.6266
USA	5.27884	5.61588	5.45982	5.49948	5.43391

Source: UNESCO institute for statistics 2012

Algeria and Egypt have similar education systems. As former socialism-based countries, their educational reforms were based on the socialism philosophy prevailing during Nasser's era. Education was set to be a free service for all citizens with Arabic as the language of study. Their education systems are under the supervision and the authority of the Ministry of Higher Education and Scientific Research. Morocco is somehow different from the other North African Arab countries. In Morocco students between the age of 7 and

15 are provided with free education. In the period from 1961 to 1988 the share of state budget allocated to education increased from 17% to 23% (Yousif et al., 1996). Compared to other Arab countries, where data are available, Morocco has the highest percentage of GDP allocated to education (5.5%).

The financing of HE institutions in Turkey is based on a detailed itemizing of their expenditure. Funding for the 95 public HE institutions comes from the government budget. On the other hand, the 51 non-governmental and non-profit universities are funded by their foundations and students' fees. In year 2006 public government expenditure on education in Turkey was 2.9% of its GDP where 32% of it was allocated to HE (UIS, 2012). The Council of Ministers is the body which decides and announces the tuition fees of public universities depending on the duration and the type of study of different disciplines. Various scholarships and forms of financial support for students are offered to cover either in full or partially the costs of HE. There is also a centralized state grant and loans' system for undergraduate and graduate students with Turkish citizenship. The Higher Education Loan and Dormitory Authority (YURTKUR) is the authority that has the power over state loans, merit-based scholarships, and lodging in HE. (CoHE, 2010). We can say that the change in the Turkish HE system has led to a tangible evolution in research and education's quality, as well as in the number of students who benefit from HE in the country (Doğramacı, 2007), with visible improvements in GER as indicated in Table 4.

In the USA the majority of government institutions do charge fees, but are also subsidized through public funds. Federal subsidies to HE in the US began in 1862 with the Morrill act. Starting from 1965, the federal government provided increasing amounts of funding for HE

through the expansion of loan programs, grants, and the addition of new programs. Federal funds for HE has rocketed from \$10 billion in 2000 to \$30 billion in 2008. During the fiscal year 2008, the gross amount of loans for HE students reached \$110 billion. In order to encourage more students to borrow and join higher education, interest rates on loans for these purposes have been cut by “The College Cost Reduction and Access Act of 2007”. Additionally, “The Ensuring Continued Access to Student Loan Act of 2008” was passed with the aim of giving the Department of Education more authority to fund student lending and to increase the borrowing limits. As recently as 2009, President Obama proposed to eliminate all student loans coming from private financial firms, and thus let all the loans come directly from the treasury. He also proposed to put the spending on automatic pilot by increasing the Pell grants and budgeting for them and transforming them in an “entitlement” so that there will be no need for annual budgeting action by the Congress (McCluskey & Edwards, 2009). In the USA it has been estimated that during the academic year 2009/2010, annual prices for undergraduate students’ tuitions, rooms, and board were \$12,804 at public institutions and \$32,148 at private ones, which is equal to an increase of 37% between 1999/2000 and 2009/2010 in public institutions and 25% in private ones, adjusted for inflation. Financial aid for full-time undergraduate students in the USA including loans, work-study, and grants were received by 80% of university students in 2007/2008. Aid for full-time undergraduates comes from federal or non-federal sources. It is worth mentioning that the market value of endowment funds for colleges and universities in the United States decreased by 21% to \$326 billion in 2009 compared to 2008. The highest with the largest endowments in 2009 were Harvard University (\$26 billion), Yale University (\$16 billion), Princeton University (\$13 billion), Stanford University (\$13 billion), and the University of Texas System (\$11 billion)(Snyder & Dillow, 2010). As long

as the sex gap is concerned, in USA title IX of the education amendment law of 1972 prohibits any type of discrimination based on sex for any education-related program receiving federal assistance. This act was seen by many as an interfering one that jeopardizes the independency of higher education institutions (McCluskey & Edwards, 2009).

From table 6, Australia, France, Greece, Israel, the UK and the USA as examples of OECD countries where there are higher education systems, universities and colleges owned, controlled, and entirely financed by the government. In countries such as the UK, higher education institutions do charge fees even if they are publicly owned or administered (M.Woodhall, 1987). The “Education at Glance Report” of the OECD countries, indicators, which has international comparisons among members and published by the secretary general of the OECD, has international comparisons among members and provides educational performance indicators. Funding education in OECD countries comes from three main sources 1) public sources of funds 2) private sources of funds, 3) and private sources of funds publicly subsidized. OECD countries spend on average \$18,258 per student/annum at higher education level. Keeping in mind that expenditure on research and development (R&D) at the higher education level represent around 30% of the total expenditure per student. In some countries like Portugal, Sweden, Switzerland, and the UK it can amount to as much as 40% of total expenditure per university student. After being stable between 1995 and 2000, expenditure per university student has increased on average by 14% in OECD during the period from 2000 to 2008. At the university level, the spending of the OECD countries is almost twice as much per student as spending at the primary level. It is worth noting that during the period from 2000 to 2008, the indicator of

spending per university student shows a decrease in 7 of the 30 countries due to the failure of the expenditure to keep up with the students' rate of enrollments in university e.g. Israel, Chile, Netherlands, Brazil, Hungary, and the USA. Expenditure on core educational services (e.g. schools, universities, educational administration, and student welfare services) represents around 82% of total expenditure on education per student in the OECD, and in some countries like Mexico, Brazil and Poland exceeds 95%. Overall, 84% of the population with HE education is employed across OECD. On the other hand, just like Egypt, students who never joined HE are less likely to participate in the labor force compared to the highly educated ones, especially, less likely to enjoy full time positions. Although it is a noticed phenomenon that vocationally educated persons have recently been doing well in the labor market in OECD countries and demand for them has increased (OECD, 2011).

Public expenditures on HE in OECD countries as a percentage of total public expenditure, ranges from the lowest 1.7 in Italy and the UK to the highest 5.5% in New Zealand in 2008. This 5.5 % in New Zealand represents around 6.4 of its GDP. This expenditure includes public subsidies for households such as loans, grants, fellowships and scholarships to students/households, which are not spent on educational institutions. At the university level, the subsidies are largest in relation to GDP in Norway (1.3% of GDP), followed by New Zealand (0.8%), Denmark (0.6%), Sweden (0.5%), the United Kingdom (0.5%), the Netherlands (0.4%), and Austria (0.4%). It is worth mentioning that public universities in 8 of the OECD countries charge no fees at all, while one third of the countries with the available data charge annual tuition fees started from US \$1,500 for national students. In those countries tuition fees are differentiated according to the field of study and depending

on whether the student is a national or a foreigner. In New Zealand, Australia, Norway, Chile, the Netherlands, and the United Kingdom loans and grants/scholarships are mainly introduced and public subsidies to households account for at least 29% of public HE education budgets.

One of the interesting facts in OECD countries that 100% of the higher education students in Sweden benefit from public loans, though public education is totally free, while in countries like Japan only around 30% of HE students take advantage of public loans, where average tuition fees in public insitiuions around \$4500 /year.

Although high tuition fees result in increasing available resources for educational institutions, at the same time they raise the burden for students, especially the poor ones.

On the other hand, low tuition fees or for free education exert a lot of pressure on governments and make it more difficult to retain an appropriate quality of education. For instance, the Irish government pays public institutions' fees directly for full time undergraduate students from EU countries. Other countries that do not charge any kinds of fees at all are the Czech Republic and Mexico's HE institutions, as well as all the five Nordic countries (Finland, Iceland, Sweden, Denmark, and Norway). In comparison to one third of the OECD countries with available data, public universities and educational institutions in countries like Korea and the USA charge national student fees that exceed \$1500 and in some cases reach \$5000 (OECD, 2011).

- Changes in policies on tuition fees and public subsidies to students in OECD

Since 1995, almost half of the OECD countries with available data have undertaken reforms for their HE's tuition fees systems, and have adopted various approaches.

Reforms in tuition fees are most likely to be combined with reforms in student support. Those students' support programs are targeting the less advantaged groups to give them a greater opportunity to access HE or to reduce their liquidity constraints. This is done through grants, loans, scholarships, or by providing different rates of contributions. (OECD, 2011)

- Some other important facts about HE in OECD countries

Sweden and Finland are the only countries with no tuition fees in either public or private universities. Furthermore, in Austria tuition fees charged by public universities equal those charged by private ones.

There is a strong positive relationship at the primary level between per student spending and GDP percapita, but this relationship is weaker in the higher education level (OECD, 2011).

In Greece, the recently bankrupted country, it is by constitution prohibited to operate private higher education institutions. According to Article16 of the 1975 constitution, education is free and it is a responsibility of the state. The purpose of having such legislation in Greece, and in many other countries including Egypt, is to insure equal access opportunity for all citizens (Patrinos, 1992). However, this iniquitous system makes the wealthier get higher benefits relative to the poor. This preserved effect is due to the limitation of the slots available each year for students, which must be obtained through highly competitive examinations. Like in Brazil, as mentioned in the previous chapter, only children from wealthier families can afford



the cost of private tutoring and preparations for those exams. Moreover, the Greek students who cannot find a place in higher education level in Greece have to travel abroad to have this opportunity which is considered as a brain drain, besides it exhaust the country's foreign reserves. Tuition fees for HE in Greece were abolished in 1964, and by 1967 text books were provided for free as well (Patrinos, 1992).

Some countries around the world became aware of the problem that education subsidies do not reach the poor and have reformed their system accordingly. For instance, Honduras and El Salvador have more equitable distributions of public education expenditures with greater investment in the poorest students (Quintile 1) and less investment in the richer students (Quintile 5) (Klein, 2011).

### **Private HE in the Arab Region**

In the Arab region, starting from the 90s, all education sectors and levels –including HE– have witnessed extensive privatization. During the 90s alone, 12 new private universities opened in Jordan, 7 in Lebanon, 6 in Egypt, and several more in Sudan and Yemen. Many of them are profit-driven and have been established in cooperation with European or North American universities. In the UNESCO report on higher education in the Arab region, UNESCO takes a cautious view regarding the growing privatization of HE in Arab countries saying:

“[T]here is as yet no evidence that these new universities have succeeded in lifting the strain and alleviating the pressure on the higher education system in the region. Nor is there any evidence, with few exceptions, that they have provided students with more diversity or

are succeeding to meet the needs of students, society, the labor market and the requirements of the global economy” (UNESCO, 2003).

To sum it up, this chapter shows the growth in higher education students' numbers, and methods of financing HE. It also demonstrates gender, income and location disparities. Since year 2000, number of students in higher education across the globe is dramatically increased. Much of this growth is coming from Asia. Education spending accounts for between 10 to 20% of all government spending. Countries around the world are spending 4.9% of their GDP or 15.7% of their total public expenditures on education. Despite the free education in most Middle East and North Africa region countries, they spend less on education as a percentage of GDP (4.5%) followed by East Asia and Pacific countries at 4.7%, which is lower than the world average 4.9% (Graham, 1987; Klein, 2011). Over half (55%) of students of HE age in Europe and Central Asia were enrolled in 2009 which represent a 19.2 % increase over 1999. While in the Sub-Saharan Africa region they are the most lag behind region in GER in HE with 3.9% of youth enrolled in 1999 and 6.6% in 2009 (Klein, 2011). Higher education, in Arab states after WWII, particularly enrollments and number of universities in Arab world had boomed. Establishing universities was one of the priorities that postcolonial Arab governments made either by reforming and restructuring existing operating institutions, or by starting from scratch and establishing new universities. Egypt GER is high comparing to Arab states' averages. Turkey is one of the countries who had a great improvement in its GER in a short period of time.

Income is the largest source of disparity in HE gross enrollment ratios in all regions and Gender is the lowest in all world regions. MENA is the only region within +/- 0.05 of gender parity in 2009 while, East Asia and Pacific has reversed from a male bias to a

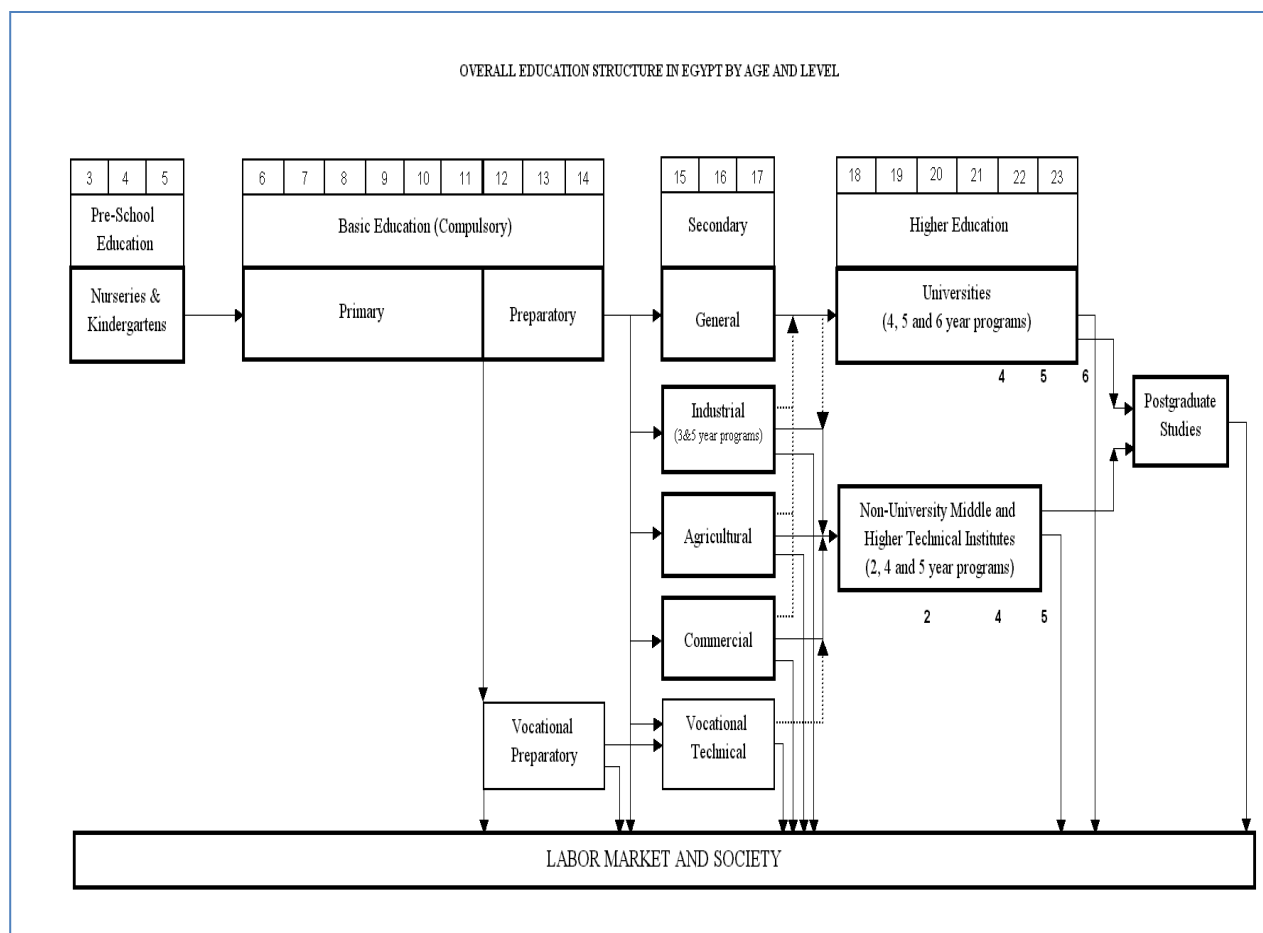
female bias. The only two regions that are persist on its male bias over time in HE gross enrollment rate are the Sub-Saharan and the South Asia regions (Klein, 2011).

Financing HE institutions in Turkey is based on detailed itemizing of their expenditure.

Funding is coming from the government budget. In USA the majority of government institutions do charge fees but are subsidized out of public funds. Financial aid for full-time undergraduate students in USA including loans, work-study, and grants were received by 80% of university students in 2007/2008. Aid for full-time undergraduates comes from federal or non-federal sources. Funding education in OECD countries comes from three main sources 1) public sources of funds 2) private sources of funds, 3) and private sources of funds publicly subsidized. Public expenditures on HE in OECD countries as a percentage of total public expenditure, ranges from the lowest 1.7 in Italy and UK to the highest 5.5% in New Zealand in 2008. The Czech Republic and Mexico's HE institutions, as well as, in all the five Nordic countries (Finland, Iceland, Sweden, Denmark, and Norway) are charging no fees at all. In comparison to one third of the OECD countries with available data public universities and educational institutions charge national students fees that exceed \$1500 and in some countries reached \$5000 like in Korea and USA.

## Chapter III Egypt

The formal education system in Egypt consists of six years of primary, three years of preparatory, three years of secondary (vocational or general), and then either two years of post-secondary schooling “institutes” or four years of university, except for practical faculties where it may take 5 to 7 years to get the degree. Basic education (primary and preparatory school) is compulsory for all citizens starting at the age of six (Population Council, 2010). HE in Egypt is composed of public universities (dominant and large), public non-university institutions (small and limited), a number of small private universities and a large number of private non-university institutions.



Source: (UNESCO, 2009b)

Depending on the field, a Bachelor or Licensee's degree is obtained after four to seven years of study (Salmi, 1999). The previous graph shows a simple map of the overall education structure in Egypt by age and level.

The Egyptian national higher education system is organized and controlled by the state. While the Ministry of Higher Education is the one who specifies targets for higher education admissions, the Supreme Council of Universities (SCU) is the authority responsible for determining the number of students to be admitted each year in each university (Cupito & Langsten, 2010).

## **History of Higher Education Egypt at Glance**

Egypt used to situate itself as the regional leader in national higher education. Higher education has existed in Egypt since 988 AD with the opening of Al-Azhar Mosque. Al-Azhar, which was founded by the Fatimid, is considered to be the world's oldest university still operating until now. After that Mohammed Ali pasha came up with the idea of building the so-called modern Egypt. He established for the first time public higher education schools for skills such as accounting, administration and engineering. While Egypt was still under the British mandate rule, in 1907 King Fouad was the first university to be established in Egypt —later it took the name of Egyptian University and, in 1952, of Cairo University. It was first conceived by nationalists under the leadership of Saad Zaghlul pasha. It used to have a liberal arts focus, offering courses on economics, philosophy, history, and literature. It was initially a private university staffed by visiting foreign professors (Abdel Hamid et al., 2009), before it was nationalized in 1925. Until the early 1950s Cairo University represented the “liberal ideas”, then Abdel Nasser came with

Arabization and socialism ideas (1956-1970). By providing a national university model to the Arab region and by supplying expertise and staff, Egypt played a vital role in advancing national HE in all Arab countries. Despite its economic constraints Egypt offered scholarships to thousands of students in Arab, African, and Muslim countries. Not only that, but Egypt also opened branches for its universities in other Arab cities – Beirut and Khartoum—and admitted foreign Arab students into Egyptian university programs. This Egyptian influence on Arab HE started to wane following the 1970s oil boom in the Gulf area. We cannot ignore another important phase of higher education started in 1919, when a group of Americans who were interested in spreading the American culture in the Middle East founded the American University in Cairo (AUC) as an English-language university.

The new phase of HE in Egypt started with the law no.101 for the administration of private universities, which opened the door for them to operate in Egypt. The first private university opened its door to students in 1996 (Abdel Hamid et al., 2009; Herrera, 2006). By the year 2011 there were 19 private and 19 public universities<sup>8</sup> operating in Egypt excluding Al-Azhar University<sup>9</sup> and the American University in Cairo.

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<sup>8</sup> Damanhur University is the newest universities, used to be a branch of Alexandria University until academic year 2011.

<sup>9</sup> Supervision and administration of the Al-Azhar higher education system is the responsibility of the Central Administration of Al- Azhar Institutes. The latter is a department of the Supreme Council of Al-Azhar, responsible for the development of the general policy and planning for the propagation of Islamic culture and the Arabic language throughout the Al-Azhar higher education system.

## Egyptian Public Universities and their dates of founding

Table 7

	Name of the University	Founding date	Location/ Region	Description of the location
1	Al-Azhar	969	Cairo	Capital of Egypt
2	Cairo	1925	Giza	Greater Cairo Area
3	Alexandria	1942	Alexandria	Third largest city
4	Ein shams	1950	Cairo	Capital of Egypt
5	Assiut	1957	Assiut	“Upper Egypt” South Egypt
6	Tanta	1972	Tanta	Provincial
7	Mansoura	1973	Mansoura	East Delta area provincial
8	Zagazig	1974	Zagazig	East Delta provincial
9	Helwan	1975	Cairo	Suburb Cairo
10	Menya	1976	Menya	South- Mid size city
11	Monofia	1976	Monofia-	West - Mid size city provincial
12	Suez Canal	1976	North East	Mid size city
13	South Valley	1995	New Valley	Remote area
14	Banha	2005	Banha	East of Cairo City-provincial
15	Fayoum	2005	Fayoum	South Small city
16	Sowhag	2006	Sowhag	South Small City
17	Kafer ElShiekh	2006	Kafer el Shiekh	South Small city- provincial
18	Beni Suef	2006	Beni Suef	South Mid size city

Source : (Sabry, 2010)

Table 8

Another type of private higher education has been operating in Egypt for many years, even before the 101 law, and needs to be considered here. It consists of private non-university institutions, which absorbed almost 23% of the total enrollment of higher education in 2002/2003 (Farag, 2000).

For what concerns the private education in pre-HE level, Egypt has private schools which are publicly funded and privately managed, and private schools that are privately funded and managed. In addition, several international education systems are allowed to operate

International General Certificate of Secondary Education (IGCSE), GCSE, American Diploma, International French Lycée , German Abitur in parallel to the governmental system, but governed by agreements signed between Egypt and the concerned countries (El Baradei & El Baradei, 2004). The last mentioned schools are the most expensive schools in Egypt.

Recently, Public universities have introduced foreign language programs for which tuition is charged. These programs allow students, usually come from language schools, to pursue their study in English or French. This type and quality of education ensures better job prospects to those who are already endowed with a high economic and cultural background (Farag, 2000)<sup>10</sup>.

## **Education in the Egyptian Constitution**

In the first Egyptian constitution issued in 1923, Article (no. 19) stipulated that "primary education is compulsory for all the Egyptian children".

To enhance and ensure more equity and equal opportunities, the 1971 constitution came with more articles i.e. Education is a basic right and the state is responsible for education and the supervision of such is to ensure equity (Article 18).

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<sup>10</sup> For further readings in details about the evolution of higher education in Egypt and information about all the public universities and their faculties see "A Guide on: Faculties and Institutes of Higher Education in the Arab Republic of Egypt 2008-2009 issued by: Minister of Higher Education's Bureau Information Unit"



Basic education (primary and preparatory) is compulsory (Article 18 for primary education was extended to include preparatory education under the educational law no. 139 the year 1981).

Education in the institutions of the state is free in all its different stages (Article 20).

Literacy is a national responsibility (Article 21).

Before the issuance of the law no. 139 of 1981, education was compulsory for the primary stage only. Basic education, which covers both primary and preparatory stages, has been considered as compulsory since the year 1981. The Egyptian constitution stated, "the state has to extend compulsory education to other educational stages including public higher education" (UNESCO, 2010).

In the 2013 constitution, all articles on education or higher education or even research were "copied" from the previous constitution that was issued in 1971. The constituent assembly of the new constitution has made no effort to repair the education situation in Egypt.

## **Financing Higher Education in Egypt**

Most developed countries depend on the principle of cost sharing in order to finance HE. According to (Johnstone 1986, 2000, 2002, 2003, 2004a) the costs of higher education are borne by four parties: governments (or taxpayers), parents, students, and generous donors (Johnstone, 2005). In Egypt, because of the free-higher education policy, the government is the main responsible authority for funding HE. Financing higher education through public spending imposes a transfer of resources from taxpayers to university students and their parents. The massive expansion in HE in Egypt took place without a proper corresponding government finance and will thus cause an educational and unemployment disaster. The

main drivers of costs in subsidizing higher education are the direct educational expenses of the faculties, and administrative services. Egypt has 80,966 professors, lecturers, and assistants who work in Universities, Technical Colleges, and HEIs<sup>11</sup> ; a share of 28% of the age group 18-23 years old is in higher education; the Higher Education and scientific research budget allocated to cover all these expenses, consisted of only 8.35 billion Egyptian pounds in 2009 (UNESCO, 2009b). For the academic year 2010/2011 the budget reached 11.1 L.E billion, on face of 2.5 million students enrolled in HE (Helal, 2011). The following table shows the average current educational cost per student according to specialization.

Table 9

Area of study	Average cost per student
Medicine	L.E 26,000
Engineering	L.E 14,000
Economics and Law...etc	L.E 4,800

Source: (Helal, 2011)

It is not surprising that the faculty of medicine has the highest average cost per student (26 thousand L.E.) followed by the engineering field (14,000 L.E) (Helal, 2011). In 2006/07 the number of students in medical science faculties was 160,997 comparing to 141,834 in 2002/03, an increase of around 13.5% in students and consequently a parallel increase in costs. A similar pattern can be seen with engineering students, who increased from 175,000 to 214,000 during same period<sup>12</sup>. If we look at the distribution of students by discipline in Egypt in 2006/2007, most students were studying social sciences (41%) or culture and literature (19%).

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<sup>11</sup> Higher Education Institutes.

<sup>12</sup> Notice that total number of students during this period increased by around 173,500 students

## Public Expenditure on HE as percentages of GDP

Table 10

Years	HE expenditure as % of GDP	GDP in Millions
2007	1.24	1.36
2006	1.26	1.27
2005	1.26	1.19
2004	1.33	1.14
2003	1.35	1.09
2002	1.43	1.06

Source: (Helal, 2011) , and for GDP from ministry of finance

In a seminar held by doctor Hani Helal, the former minister of Higher Education and Scientific Research, he said that higher education budget has increased to reach 11 billion Egyptian pounds “which is less than \$2 billion dollars”, but is still insufficient to face the growing numbers of students attending university each year. Shortage of money remains the key challenge to enhance quality of university education, he added (Khaled, 2010). The shortfalls in per-student funding have certainly resulted in major deterioration in the quality of higher education.

## Private Consumption and Returns to HE in Egypt

Households’ spending on higher education is about 26.2 % of their total spending on education, mostly in the form of tuition fees and private tutoring (Fahim & Sami, 2009). The average amount of private expenditure on education in Egypt is around 17% of the household’s total private expenditure, which is more or less equal to 3706 LE annually. 42% of it goes to private tutoring, 38.8% of total private expenditure on education is the share spent on tuition fees, followed by textbooks and stationeries which account for 6.9% and a similar amount spent on transportation. Expenditure on tuition fees in urban areas

occupies the top ranking in education spending with 44.2%. This is in contrast with what happens in the rural areas, where private tutoring occupies the highest ranking with 47.3% of annual household spending on education. More than 75% of private spending on education in rural areas is allocated to public education, while in urban areas it is only around 46% (CAPMAS, 2011). The highest rate of annual expenditure on education, according to its level, is 25% in urban areas for each of the basic private and basic public education, followed by 16% on private university education, and public secondary education. Following, there are public university education came by 11% and private secondary education with 7%. In the rural areas, public basic education makes up for the highest annual expenditure on education, reaching 52%, followed by 25% in public secondary education, public university education with 11%, and private basic education for 6%, while the percentage of private university education is only 5%. Private tutors and after school tutoring account for 33% and constitute the supreme ratio of the family total gross education expenditure. Tuition fees and expenses have also reached the same rate in family expenditures on education followed by 20% on other educational expenses and 14% for transportation (CAPMAS, 2009). The proportion of students taking private lessons is more than 51%. The average cost of tutoring is almost 993LE/student per year, thus, private tutoring in the traditional four university year amounts to around LE 3,732/student (Selim, 2008).

Average private return to investment in HE in Egypt is high. It is the highest even compared to all other world regions' averages. Table 11 shows returns on education in Egypt, refutes the trepidation of abandon higher education if it is not totally free. With this high private return to higher education, especially for females, which is higher than the

return to secondary and even primary education—which is surprisingly so low compared to the rest of the world averages— especially, for males. According to Ragui Assaad (1997), who reached the same conclusion with different numbers, private returns to schooling are considerably higher at the university level than at the secondary or primary level in Egypt. They also seem to be higher in the private sector labor market relative to the public one. Assaad also finds that the gap between returns to schooling in the private and public sectors is largest for engineering graduates, who seem to be highly valued in the private sector. He concludes that returns to primary education are 3.7% for males and 8% for females in the public sector. Furthermore, in his paper he calculates the private rate of return on baccalaureate other than engineering to be 8.2 % in public sector for males and 8.6 for females in public and 20% for females in the private sector (Assaad, 1997). Logically, with this high private rate of return on higher education, rich people will be willing to join and finish higher education no matter if it is a free of charge or fee charging service.

### **Egypt private returns to investment in Higher education, regional average**

**Table 11**

<b>Region</b>	<b>Primary Education</b>	<b>secondary Education</b>	<b>Higher Education</b>
Sub-Saharan Africa	41.3	26.6	27.8
Asia	39	18.9	19.9
MENA region	9.2	28	38.6
Latin America and Caribbean	26.2	16.8	19.7
OECD countries	21.7	12.4	12.3
World	29.1	18.1	20.3
Low and middle income countries	29.9	18.7	18.9
<b>Egypt</b>			
Males	8.3	31.7	62.1
Females	19.9	69.2	99.3

Source:(Birdsall & O'Connell, 1999)

The averages just exposed for Egypt are contradicted by what Psacharopoulos (2004) concluded in his study, where he found that in developed countries the returns to primary education are much higher for men than for women. Women, however, experience higher returns to secondary education. Moreover, he found that private returns are higher than social returns especially for women, who receive higher returns to their schooling investments in developing countries because of subsidized education (Psacharopoulos & Patrinos, 2004). Here in Egypt private returns on education for females are higher for all levels of education. Psacharopoulos argues that the private rate of return on education is always higher than the social one (where social return means a private return plus any external benefits which occur in a country as a result of educating the people) in the developed countries studied, yet it is still not as high as in Egypt. In the same study, he states that returns are no longer seen as prescriptive, but rather as indicators, suggesting areas of concentration. What makes private returns greater than public or social returns are the education subsidies. George Psacharopoulos calculates the social rate of return to education in the richer economies for the year 1993 as being 14.4% per year for primary education, 10.2% for secondary education and 8.7% for Higher education (Clark, 2003; Psacharopoulos & Patrinos, 2004)

### **Egypt distribution of education over time for population 25 years and older**

**Table 12**

Year	Mean years of schooling	Incomplete-secondary %	Complete Secondary %	Incomplete-Higher Education	Complete Higher Education
1975	1.38	2.9	2.8	0.4	3.0
1980	2.16	3.9	3.7	0.6	4.9
1985	3.93	7.6	7.2	0.6	0.4
1990	2.62	8.1	7.8	0.9	6.6

Source: Barro and Lee 1993.

As can be seen from the previous table, the percentage of students that complete secondary and higher education has evolved steadily between 1975 and 1990. In 1975 only 3% of the student population completed their higher education. This rose to 6.6 % in 1990. During the same period, the share of students who do not complete HE rose only from 0.4 to 0.9%, despite the huge increase in the students' population.

In 2006/2007 around 3.8% of public universities enrolled students were coming from language secondary schools working according to foreign systems not the Egyptian one (Abdel Hamid et al., 2009). This implies that around 54,000 students, who used to pay a lot through their education years, started enjoying public universities almost for free.

### **Accessibility versus Affordability**

It is not a matter of accessibility any more it is a question of affordability. It is assumed that the Egyptian constitution solves the problem of affordability by letting HE be free for every citizen, but has it solved the problem of accessibility? The total number of students enrolled in private pre-university education is around 1.531 million which corresponds to around 8.8% of the student population enrolled in pre-university education as a whole. When we look at the source of students admitted to public university in Egypt in year 2006/2007 we find that 3.8 %, which is equal around 54,000 students, come from private and language high schools, which are very expensive (some schools charge in dollars). The same percentage for students belong to the lowest wealth quintile is only 0.6%. This indicates that poor people , who generally prefer to join technical high schools, tend to stay away from universities despite the subsidy (data refer to the year 2006/07) (Abdel Hamid et al., 2009).

The following two tables show the evolution of the number of students enrolled in private universities and number of students enrolled in private pre-university education. A clear pattern emerges from the tables: the rapid increase in the number of pre-university students has not been matched by a comparable increase in the number of private university students, despite the existence of 18 private universities<sup>13</sup> (SCU, 2012)

**Total enrolled students in private pre-University education - School Year - Ministry of Education**

**Table 13**

<b>Date</b>	<b>(Million Student)</b>
1993	0.9
1994	1
1995	1
1996	1
1997	1.1
1998	1.1
1999	1.1
2000	1.1
2001	1.14
2002	1.17
2003	1.18
2004	1.17
2005	1.22
2006	1.23
2007	1.24
2008	1.29
2009	1.33
2010	1.37
2011	1.531

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<sup>13</sup> AUC not included.



**Total number of students enrolled in private universities - School Year - Ministry of Higher Education and Scientific Research and Technology**

**Table 14**

<b>Date</b>	<b>(Student)</b>
1999	53,125
2000	49,224
2001	37,867
2002	33,763
2003	32,373
2004	30,733
2005	28,330
2006	24,097
2007	18,279
2008	10,617
2009	6,274
2010	71,715

Mona El-Baradei, Chief Executive of the National Council for Competitiveness, suggests that free education should be limited to poor students. Especially when it is considered that only 9% of the poor attend universities and 48% of those who can afford the cost of education attend governmental universities ([Khaled, 2010](#)).

The Information and Decision Support Center (IDSC), Egyptian Cabinet, conducted a field survey aimed at measuring the views of final year students for the academic year 2008/2009 in the public and private universities and higher institutes on issues of higher education. They did so in order to identify the motivation behind joining higher education, and measuring the degree of student satisfaction with their education in general, and on the performance of faculty members. In addition, they asked about the satisfaction with management systems and services. In order to measure the degree of satisfaction of students with special needs for educational services provided and identifies the problems they face and other issues. The sample of students consists of 4286 students from 6 public and private universities (12 Colleges), and 9 private higher institutes. Results from this

study show that 47% of the students who had their high school from private secondary schools joined public university while only 16.3% of them went on to private universities.

Table 15

Cross tabulation			general secondary	Private general secondar y	American diploma &IGCSE	Technical institute	Tech. seconda ry	Total
UNIV TYPE	PUBLIC UNIV	Count % within 24 What of secondary school certificate that qualified you to join HE?	1772 56.2%	118 47.0%	16 61.5%	76 78.4%	29 5.2%	2011 49.2%
	HIGHER INSTITUTES	Count % within 24 What type of secondary school certificate that qualified you to join HE	1119 35.5%	59 23.5%	6 23%	8 8.2%	392 70.9%	1584 38.9%
	PRIVATE UNIV	Count % within 24 What of secondary school certificate that qualified you to join HE	99 3.1%	41 16.3%	0 .0%	0 .0%	0 .0%	140 3.4%
	WORKERS UNIV	Count % within 24 What is the type of your secondary school certificate that qualified you to join HE?	164 5.2%	33 13.1%	4 15%	13 13.4%	132 23.9%	346 8.5%
Total		Count % within 24 What type of secondary school certificate that qualified you to join HE?	3154 100.0%	251 100.0%	26 100.0%	97 100.0%	553 100.0%	4081 100.0%

Source: Field survey to measure the students' views on issues of higher education in Egypt IDSC, 2008

61.5% of the students who attended high school in IGCSE or American diploma providing schools join public universities, while a staggering 0% is reported for private universities.

Of the students coming from the public governmental secondary, so those who are assumed

to constitute a substantial share of the targeted and deserving group of the subsidies of higher education, 3.1% continued their studies in private universities and 35.5% were in higher institutes, 70.9% of students coming from technical secondary joined higher institutes and only around 5% of them joined public universities.

Data show that a lot of the students enrolled in public universities and public institutes can actually afford to share in their costs instead of leaving the whole burden on the government budget and by turn or indirectly on the poor who contribute to the rich's education through taxes.

### **Constraints on securing funds for HE in Egypt:**

Egypt suffers from poor quality of higher education. Moreover, the available funds are mainly directed to the fields of social sciences and humanities rather than science and engineering or practical fields, which would cost more (Fahim & Sami, 2009). To improve the quality of higher education and to secure funds for practical fields, pure and applied sciences and medicine, the existing pattern needs to be changed, which in turn will require additional resources (Fahim & Sami, 2009). According to Hani Helal, the former higher education minister, there are some barriers and challenges in front of securing funds for HE in Egypt. These include 1) the fact that HE is free of charge by constitution, 2) most endowments by Egyptians are habitually directed toward religious purposes, 3) the culture and attitude toward having loans for educational purposes is not spread enough 4) and last but not least, the private business and businessmen sector is still young and has not assumed yet the supposed role in financing education (Helal, 2011).

## **Chapter IV Research Methodology**

The main aim of this research is to examine the socioeconomic characteristics of the enrolled students in public and private higher education in order to assess the 3 types of equity between rich and poor, male and female and urban versus rural students in their opportunities to join free public higher education, and the “misallocation of resources” of free public higher education. This chapter describes the sources of data, target population, variables used, and the analysis procedures and statistical methods used to obtain the results for the research questions of this study.

### **Source of data**

Data used for analysis in this chapter is a secondary and have been collected by SYPE (Survey of Young People in Egypt 2010) for age group from 10 to 29 years old. It is designed as a multistage stratified cluster sample. The SYPE sample is a nationally representative sample covering all governorates in Egypt:

- Rural, Urban & Informal Urban (Slums)
- The Urban Governorates, Upper/Lower Egypt and Frontiers Governorates.

The Primary Sampling Unit (PSU) selected from CAPMAS, the master sample is a stratified cluster sample that contains 2400 PSUs, divided into 1,080 Urban and 1,320 rural, from enumeration areas (EA) covering the entire country prepared by CAPMAS from (the 2006 population census). Each EA is drawn up in such a way as to contain roughly 1,500 dwelling units. The sample is stratified into governorates and each governorate is further stratified into urban and rural segments, where relevant. The distribution of PSUs across strata in the master sample reflects the distribution of the population so as to produce a self-

weighted sample. The total sample counts 20,200 young people in the eligible age group from 11,372 households. The selection criteria for the eligible ones in the household were based on the Kish grid technique. The objective of the selection process is to eliminate sample bias by randomly selecting young people from the household to be interviewed (PopulationCouncil, 2010)<sup>14</sup>.

## **The Targeted Population of the Study**

As stated above, this study targets young people between 16 and 29 years old, with 16 being the youngest age at which it is possible to join higher education in Egypt. The sample eligible for the analysis counts 13,235 persons, but only 2,559 are actually used in the first model and 1,513 in the second model. The attrition was due to missing observations for some of the individuals. The individuals with missing data have therefore been removed from the sample.

## **The Models and Variables Used (Methods of Analysis)**

In order to answer the research questions, the study applies a binary probit model corrected for self-selection bias in the first model and unordered choice model multinomial logit corrected for self-selection bias in the second model<sup>15</sup>. These models are appropriate because they denote the dependent variables in a form that is regarded as uniformly

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<sup>14</sup> The Population Council conducted the Survey on Young People in Egypt (SYPE) in collaboration with the Egyptian Cabinet, Information and Decision Support Center. website: <http://www.popcouncil.org>

<sup>15</sup> Binary logit in the first model and multinomial probit for the second model have been tested also. The choice between them and the models used in this thesis was done according to the Schwarz criterion.

affected by unit changes in the independent variables. Logit and probit models are basically used because of the qualitative nature of the dependent variables in both models. The two models have the same independent variables. The first model serves the purpose of assessing the socio-economic characteristics of public universities' students and graduates in Egypt. It uses joining versus not joining university as the dependant variable. The dependant variable for the second one is joining Al-Azhar, public or private HE. SYPE data are originally stored in a STATA file, but the models are run through E-views.

## Model I

Model I is a binary probit model for the probability of joining a university in Egypt given the values of the independent variables. Model I helps to identify factors that affect the decision of joining university. We want to predict the probability of  $Z_i$  a random variable as follows

$$Z_i = 1 \text{ with probability } P_i \text{ join university}$$

$$Z_i = 0 \text{ with probability } 1 - P_i \text{ never join university}$$

Using the concept of Z-score we write:

$$Z_i^* = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \dots + \beta_k X_{ki} + \epsilon_i = \beta' X_i + \epsilon_i$$

Where

$$Z_i = 1 \text{ if } Z_i^* \leq 0$$

$$Z_i = 0 \text{ if } Z_i^* > 0$$

$X_{1i}, \dots, X_{ki}$  is the socioeconomic characteristics that may affect the decision of joining university in Egypt.  $Z_i$  can be interpreted as the probability of joining the

university. The factors that determine the likelihood of joining university  $X_i$  and the probability  $Z_i$  can be written as :

$$Z_i = \beta' X_i$$

And is called the Z- score.

F is the standard normal CDF<sup>16</sup>. The function for the model is:

$$\begin{aligned} F(I_i) &= \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{I_i} e^{-z^2/2} dz \\ &= \frac{1}{2\pi} \int_{-\infty}^{\beta_1 + \beta_2 x_i} e^{-z^2/2} dz \end{aligned}$$

Where  $Z_i$  is a standard normal variable , i.e.  $Z \sim (0, \sigma^2)$ . The probability of joining university is measured by the area of the standard normal curve from  $-\infty$  to  $I_i$ . The independent variables used in both models are wealth quintile, place of residence, age, father's education, number of members in the family, type of high school completed general vs. technical secondary, free vs. charging fees-school, high school score, corporeal punishment in schools, and 6 dummies which take either value 1 or zero. These are respectively a dummy for sex which takes value 1 if the person is female. Significance would indicate gender bias against female in the university enrollment. A dummy for the use of external books it takes value of 1 if the students used external books and zero if not. The third dummy is for cheating and takes value 1 if the student did it; a fourth dummy is for the presence of failed or repeated any school year and takes value 1 in case this happened to the student; the fifth dummy takes value 1 if the student interrupted school attendance before; and the final dummy represents subjective satisfaction with school experience as whole and takes the value 1 for positive answers.

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<sup>16</sup> Cumulative Distribution Function

## Dependent variable model 1

**Table 16**  
H\_Edu S. in HE

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0 never join university	6602	49.9	49.9	49.9
1 joined university	2462	18.6	18.6	68.5
missing	4171	31.5	31.5	100.0
Total	13235	100.0	100.0	

## Results

$$\begin{aligned}
 Y = & 2.211910 + 0.071887 \text{ WIQ} - 0.987583 \text{ SEC\_COMP} + 0.000956 \text{ FATH\_EDU} - 0.038603 \text{ TYPEHSCH} + 0.005006 \\
 & \text{SCORE} + 0.026028 \text{ SATISFAC} - 0.010124 \text{ RESIDENC} + 0.005514 \text{ AGE} + 0.014967 \text{ SEX} - 0.077144 \text{ EXTERNALBOOKS} \\
 & + 0.029286 \text{ CORPORALPUNISHMENT} + 0.034584 \text{ CHEATING} - 0.021744 \text{ F\_R\_ANYYEAR} - 0.005498 \text{ FAMILYSIZE} - \\
 & 0.008524 \text{ INTERRUPT}
 \end{aligned}$$

*P* (0.0000) (0.0000) (0.9158) (0.2214) (0.0000) (0.1260) (0.4530) (0.0431) (0.3701) (0.0000) (0.0076) (0.0465) (0.352) (0.2825) (0.0838)

Model 1 explores the relationship between the dependent variable Y, joining higher education or not, and all the regressors mentioned earlier except mother's education which is omitted due to the high multicollinearity with fathers' education. Collectively, all the coefficients are statistically significant, since the P value of the log likelihood ratio test is 0.0000. As can be seen from the result of model one, the wealth quintile of the student's family has a positive coefficient and is highly significant for the decision of joining university i.e for every one unit increase in wealth the Z score increases by 0.071, which is in line with our expectations. The completion of general secondary education versus technical education is also highly significant but has a negative sign which indicates that students who completed technical high schools are negatively affected and they are less likely to join universities. On the other hand, free vs. tuition-charging high schools is not significant in this model. This means that students are not affected in their decision to join



university by whether they completed their secondary school at a paying tuition-school or at an experimental public “Tagreeby” or private because both types are general secondary certificates qualifying students for university. Besides, a significant number of students belong to the fourth and fifth quintile are in free-public secondary schools (Population Council, 2010). The variable for high school score has a positive and highly significant coefficient, indicating that higher scores are generally associated with a higher probability of joining the university. Holding other things constant, satisfaction with school experience as a proxy for satisfaction of the quality of schooling is not a significant variable, meaning that whether the student is satisfied with his/her schooling experience or not does not affect his/her decision of joining the university. Surprisingly, neither place of residence (urban, rural, or slum) nor sex is significant in taking the decision of joining university. Neither being a male or female nor living in rural or slum areas affect the enrollment decision. Using external books and tutoring notes besides school books is a highly significant indicator, and may also be an indicator of wealth, but surprisingly it has a negative effect on the final decision. One explanation for that argued by Dr Shebel Badran the dean of faculty of education, Alexandria university, where he claims that external books combine the triple (indoctrination, rote, and remembering) that convert students’ minds to banks where information is placed and retrieved, but without sustainable benefits. According to Badran, external books and notes don’t also add any innovative ideas in terms of contents, the fact that the information they contained is the same information adopted in the school textbook, though they differ in the way of the narrative and supply (El-Boghdady, 2012). In addition, in a survey study in Chile 1983 looked at the attitudes of teachers and their use of schools’ textbooks in both private and public schools, they found that less experienced teachers are less likely to use school textbooks than those with more

experience (Schiefelbein, Farrell, & Sepulveda-Stuardo, 1983). Then maybe it is the case here also and the less experienced teachers are more likely to use and make their students use external books. Hence, external books and cheap mimeographed notes may be a proxy for low quality teachers. The coefficient for failing and repeating the whole year is negative, but it is insignificant for the purpose of the model, indicating that not necessarily a student who failed or repeated a school year at any stage or level that s/he would or would not join university after all. On the other hand, interrupting schooling or leaving school for a while is significant at 10%. Moving on to family characteristics, the model finds that education of the father and a number of members in the family are not significant and are not determinant in taking the decision of joining university.

**Table 17**

Variable	Coefficient	Std. Error	z-Statistic	Prob.
<b>C</b>	2.211910	0.131593	16.80876	0.0000
<b>WIQ</b>	0.071887	0.008863	8.111099	0.0000
<b>SEC_COMP</b>	-0.987583	0.021300	-46.36467	0.0000
<b>FATH_EDU</b>	0.000956	0.009046	0.105700	0.9158
<b>TYPEHSCH</b>	-0.038603	0.031571	-1.222732	0.2214
<b>SCORE</b>	0.005006	0.000810	6.179013	0.0000
<b>SATISFAC</b>	0.026028	0.017010	1.530218	0.1260
<b>RESIDENC</b>	-0.010124	0.013489	-0.750486	0.4530
<b>AGE</b>	0.005514	0.002726	2.022540	0.0431
<b>SEX</b>	0.014967	0.016700	0.896231	0.3701
<b>EXTERNALBOOKS</b>	-0.077144	0.017840	-4.324232	0.0000
<b>CORPORALPUNISHMENT</b>	0.029286	0.010969	2.669990	0.0076
<b>CHEATING</b>	0.034584	0.017375	1.990435	0.0465
<b>F_R_ANYYEAR</b>	-0.021744	0.023360	-0.930795	0.3520
<b>FAMILYSIZE</b>	-0.005498	0.005115	-1.074759	0.2825
<b>INTERUPT</b>	-0.008524	0.004929	-1.729234	0.0838
<b>Number of observations</b>	2,559			

School characteristics that affect the decision of enrollment are cheating in exams and corporal punishments at school. Both of them are significant and positively affecting the chance of being enrolled at university.

## Model II

The second model tries to assess the decisive factors that make students choose to join private universities instead of public ones. In other words, how are the socio-economic characteristics of students who attend private universities different from the ones of students who attend public ones? The second model has exactly the same regressors as the first one. The only change is in the dependent variable. The model applied is an unordered multinomial logit corrected for self-selection bias for analyzing data. The multinomial logit model serves to predict categorical data for more than two possible outcomes.

$$pr(y_i = m | X_i) = \frac{\exp(X_i \beta_m)}{1 + \sum_{j=2}^J \exp(X_i \beta_j)} \text{ For } m > 1$$

The multinomial model generates j-1 sets of parameter estimates

### The independent variable for model II

Table 18

publicVSprivate join public VS private and Azhar university				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00 Azhar	130	1.0	5.3
	2.00 Public	1849	14.0	75.7
	3.00 Private	463	3.5	19.0
	Total	2442	18.5	100.0
Missing	System	10793	81.5	
Total		13235	100.0	

As a preliminary conclusion, it can be seen that the majority of students at the age of university join public universities.

## Results

$$\begin{aligned}
 Y = & 2.870197 + 0.002355 \text{ WIQ} - 0.224019 \text{ SEC\_COMP} + 0.018207 \text{ FATH\_EDU} - 0.201569 \text{ TYPEHSCH} - \\
 & \quad (0.8582) \quad (0.0000) \quad (0.1372) \quad (0.0000) \\
 & 0.013416 \text{ SCORE} + 0.023266 \text{ SATISFAC} - 0.017016 \text{ RESIDENC} - 0.007521 \text{ AGE} - 0.058626 \text{ SEX} \\
 & \quad (0.0000) \quad (0.3183) \quad (0.3501) \quad (0.0489) \quad (0.0096) \\
 & +0.03371 \text{ EXTERNALBOOKS} + 0.017205 \text{ CORPORALPUNISHMENT} - 0.026620 \text{ CHEATING} + 0.032261 \\
 & \quad (0.1849) \quad (0.2493) \quad (0.2443) \quad (0.344) \\
 & \text{F\_R\_ANYYEAR} + 0.006146 \text{ FAMILYSIZE} + 0.006256 \text{ INERUPT} \\
 & \quad (0.4290) \quad (0.3814)
 \end{aligned}$$

Using a multinomial logit to regress public versus private or Al-Azhar universities on the regressors, it appears that collectively the coefficients are statistically significant, since the value of the log likelihood statistic is -1036.739 with a  $p$  value of 0.0000. However, once coefficients are checked one-by-one, some surprising results come out. First and for most is that the wealth quintiles coefficient is insignificant. Although private universities are very expensive compared to public ones, when it comes to joining a private university the wealth of the family does not seem to play a driving role. As we saw earlier in chapter 3, around 3.8% of private secondary graduates join private universities, which is not a small number. Completing general secondary—either public or private—is significant and positively affects the enrolment in public and private universities. Paying tuition in secondary school is significant and positively related to the ones who got their secondary degree from private or “Tagreeby” schools, meaning that they are more likely to join private universities.

Table 19

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	2.870197	0.188916	15.19295	0.0000
WIQ	0.002355	0.013174	0.178729	0.8582
SEC_COMP	0.224019	0.041062	5.455601	0.0000
FATH_EDU	0.018207	0.012249	1.486361	0.1372
TYBEHSCH	0.201569	0.041611	4.844129	0.0000
SCORE	-0.013416	0.001156	-11.60832	0.0000
SATISFAC	0.023266	0.023312	0.998037	0.3183
RESIDENC	-0.017016	0.018209	-0.934470	0.3501
AGE	-0.007521	0.003818	-1.969868	0.0489
SEX	-0.058626	0.022627	-2.591005	0.0096
OUSIDEBOOKS	0.033716	0.025423	1.326195	0.1848
CORPORALPUNISHMENT	0.017205	0.014934	1.152020	0.2493
CHEATING	-0.026620	0.022864	-1.164280	0.2443
F_RANYEAR	0.032261	0.034108	0.945857	0.3442
FAMILYSIZE	0.006146	0.007771	0.790974	0.4290
INTERUPT	0.006256	0.007187	0.870453	0.3841
Number of observations	1,513			

High school score is also positive and highly significant for the decision, thus the higher the high school grade, the higher the chance to join public university and the lower the grade the higher the chance to join private university. The coefficient for the sex of the student is significant and negatively related to the decision to join private university, indicating the presence of a bias against female enrollment in private universities. This bias can be explained by cultural factors, such as the fact that some parents may prefer to pay more for their boys to be engineers, pharmacists, or physicians than for their daughters, who will be generally allowed to join a public faculty or even a public institute. All the other variables are insignificant.

## **Chapter V Conclusion**

The main purpose of this study was to better understand the socio-economic reasons behind the decision of enrolling in higher education. Moreover, assessing the characteristics and the decisive factors that make an Egyptian at age of higher education choose to join public versus private higher education. This chapter includes the summary of the study, conclusions of the findings as drawn from the data analysis, and some recommendations. In order to assess three types of disparities or equity in Egypt between rich and poor, male and female and urban versus rural students in their opportunities to join free public higher education. Equity has a wide variety of meanings, but in the sense applicable here it is associated with equality. This study has examined the characteristics of the beneficiaries of the subsidy provided by the government to public universities' students.

### **The answers to thesis questions**

The first thesis question was, does the socioeconomic background of students' families have an impact on the decision to attend university? After looking at the results of the first model the answer is *yes*. This is clear from the significance of the wealth quintile and the type of secondary school the student comes from (general vs. technical). On the other hand interrupting school is negatively affecting joining HE. This and this is particularly important to notice when it is acknowledged that, according to SYPE (2010), the poor are usually more likely to interrupt their schooling in order to work and help the family. All these characteristics are significant for the decision of joining university. They have an impact on students' decision of joining higher education or not. That is, the highest the

wealth quintile a student belongs to, the higher the probability of joining higher education. We can deduct from this result that students who belong to the high and highest wealth quintiles, possess a general secondary diploma with high score in secondary exams, and did not interrupt their schooling at any previous stage, have the highest probability of joining HE in Egypt.

The second question is, considering that subsidies were introduced to enhance equity and efficiency among students, are higher education subsidies' beneficiaries in Egypt really the intended or targeted group of such a policy? By looking at the socio- economic characteristics that affect students' decisions about joining universities, the study finds that the higher the wealth quintile, the higher the opportunity for the student to join university. Students who never interrupt school are more likely to join university. Students who attend general secondary schools have a higher chance to join university than those who go to technical ones. Therefore, we can conclude that the targeted group of free education policy the government intended to subsidize is here underrepresented. In other words, university subsidies do not reach the targeted group or the poor and the poorest in low and lowest wealth quintile students (subsidies' misallocation).

Hence, this misallocation of public subsidies is considered as an inefficient use of a scarce resource. Another type of misallocation does not result only from paying for the rich, but it is deriving from the subsidization of those who are unqualified, and who generally coincide with a part of the poor. Dr Hani Helal, the former minister of higher education, said in one of his lectures "how can the university continue to provide education free of charge for a student who fails to obtain his degree in 10 years? Free education should not mean waste or

open-ended opportunities." (Khaled, 2010). Poor and poorer and even the poorest students are in bad need for this type of education. Turning to the second model's results, which assess the socio-economic characteristics of public versus private university students, the research shows that the wealth quintile is not significant in choosing whether to join public or private university. This result represents especially students who already decided to join higher education, no matter what their wealth quintile is. As secondary education curricula do not provide students with the skills necessary for the labor market. Students who are unable to get into a university program usually find it hard to find a job good enough to earn a living. Another factor which is not quantifiable and therefore can't be a variable in the model is level of influential acquaintances rich parents have. That students belonging to rich and upper-middle class families enjoy good acquaintances to find well paid jobs for them. As a consequence, some of the poor who do not have such opportunity to have their children hired may see no point in getting them a higher education, given the high opportunity and indirect costs. Therefore, for the sake of equity, the government must enhance the quality of higher education to make it worth for the poor, as well.

## **Recommendations**

This study is not to say that education is a bad investment or that higher education expenditures should be decreased. Rather, they show that achieving greater equity should be the purpose of the existing subsidies to higher education. One possible approach to ensure greater equity is to charge full or part of the cost of higher education to both the recipient and her/his family. Besides, the government could ensure the participation of lower-income groups through a type of scholarship/loan/subsidy scheme, or even quotas. The government ought to target the less advantaged groups to give them a better



opportunity to access HE or to reduce their liquidity constraints. It should provide different rates of contributions to students coming from different level to ensure not only equity, but also justice or fairness. In addition, cost recovery in higher education could benefit the society for reasons other than equity, such as income redistribution. If the government conditioned education tuition fees on parents' income or wealth, it could achieve efficiently some income redistribution among citizens. The additional resources generated could possibly be used to improve the quality of higher education, increase the amount spent on research, improve the quality of teaching at the lower levels, build more school buildings, increase teachers' salaries, and so on.

### **How free should it be?**

It can be expected that if higher education becomes a cost sharing instead of a totally free service, students in the upper and middle wealth quintile will still join, especially considering that socioeconomic variables fail to differentiate between those who attend tuition-free public and those who attend full-charge private institutions. Because the opportunity cost of attending university is lower for wealthier people, and the benefit-cost ratio will be much greater for them relative to people with lower incomes (Jimenez, 1986). If the wrong student is chosen from the upper and high middle wealth quintile to be subsidized and receive free higher education, then the subsidies will not serve their purpose and will be considered as inefficiently distributed.

The conclusions reached by this thesis support the idea that argues that equity between rich and poor in higher education in Egypt can be improved by charging tuition fees. This can be done either partially as in cost sharing programs such as in some programs in those

public universities' programs charging fees on the justification of using a foreign language as medium of instruction in faculties of commerce and law for instance (Sabry, 2010). Alternatively it could introduce a mixed system of fees and scholarships, fellowships, or loans. Aid should possibly be offered to students from poor families who are capable and talented enough to join university. A third, and probably quicker way, could be to increase selectivity at the admission level. This would be a good and urgent solution that may generate more resources to be devoted to other educational, university and research developments. What is needed for tuition subsidies is to be allocated according to a need-based aid program which does not end up subsidizing the rich. The research recommends not to cancel the subsidies but to use them in two major perspectives. The first one 1) is to balance social representation in universities. The second 2) is to use those subsidies to enhance the quality of HE in Egypt. Thus making it worthwhile for both the rich and the poor. Policy decisions on tuition fees charged by educational institutions not only affect the cost of higher education to students, but also the resources available to the higher education institutions. Also, paying fees has some other indirect benefits for both HE institutions and students, who will be induced to demand and depict a better quality education from universities and complete their education more quickly.

Increasing government expenditure on higher education is not one of this paper's recommendations. Indeed, increasing education expenditures eventually may not improve education provision, if the expenditures are not targeted toward promoting equity. To improve equity in education provision, public education expenditures should be targeted toward those with the greatest need (Klein, 2011). At the same time, one last word for

policy makers should keep in mind: “Don’t treat them equally because they are not equal, treat them progressively”.

This thesis has not aimed to solve the problem of equity in the distribution of subsidies but rather to point out the problem and support the argument with the relevant data and analysis. Further research need to be carried out, and particular answers should be provided to the question of how to design and implement a university fee policy which is sustainable, affordable, and ensures equal access, high quality and participation in higher education.

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# عبد الناصر يعين مجازة التعليم في جميع مراحل

## الثورة في الجمهورية العربية المتحدة مستمرة لبناء الدولة الاشتراكية... دولة الخدمات

### سعود دفع في الشهرين الماضيين ٢٥ مليون ريال سعودي للتأمر ضدنا في اعياد الثورة

# عبد الناصر يعين ان الجمهورية العربية لن تتخلى عن الشعب السوري

## لاستطيع ان نقف موقف المتفرج على ضرب الشعب السوري بواسطة الرجعية

### انا نقول للشعب السوري: انا معك ايها الشعب الكاف بقلوبنا وروحنا ودمائنا



ملعون موانئ احتشادوا في شوارع الاسكندرية يحتون الرئيس ابي وقد قطعت سيارته المسافة بين المنصورة وعلم البلد في ساحة نصف ساعة (تصور محمد يوسف كير مصوري الاحرام)

اعاد الرئيس جمال عبد الناصر احياء مجازة التعليم في جميع مراحل من المدارس الى الجامعات...  
وقال الرئيس ان الثورة كانت طوال السنوات الماضية حركتها على وجه التحديد...  
وقال الرئيس ان الثورة كانت طوال السنوات الماضية حركتها على وجه التحديد...

عبد الناصر يعين مجازة التعليم في جميع مراحل من المدارس الى الجامعات...  
وقال الرئيس ان الثورة كانت طوال السنوات الماضية حركتها على وجه التحديد...  
وقال الرئيس ان الثورة كانت طوال السنوات الماضية حركتها على وجه التحديد...

# بن بيللا في طريقه الى عاصمة الجزائر وفيه خبر سار

## الشعب والجيش يفتان ولاد المكنت السياسي - بلفاسم ديميات مجازات الموت في دمج

الشيخ عبد الله بن بيللا...  
وقال الرئيس ان الثورة كانت طوال السنوات الماضية حركتها على وجه التحديد...  
وقال الرئيس ان الثورة كانت طوال السنوات الماضية حركتها على وجه التحديد...

# الرئيس قطع السافة

## بين المنصورة والاسكندرية في ٢٤ دقيقة

الرئيس جمال عبد الناصر...  
وقال الرئيس ان الثورة كانت طوال السنوات الماضية حركتها على وجه التحديد...  
وقال الرئيس ان الثورة كانت طوال السنوات الماضية حركتها على وجه التحديد...

### تقنية جديدة

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### الولايات المتحدة

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