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Unemployment among grad students in Tunisia

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Introduction

Tunisia has been developing in a rapid pace throughout the past decades. Reforms and investments have put Tunisia in a position where the step to becoming part of the group of developed countries does not seem too far.

Unfortunately Tunisian grad students face unemployment to an increasing extent. 21.9% of all Tunisians with tertiary education were unemployed in 2009, compared to 13.3% of the whole population being unemployed.

According to a study of 4763 graduates by the World Bank (2008), the following results were noted (statistics from 2005):

- Masters graduates and graduates with advanced technician diplomas represent 90% of graduates.
- 46% of young graduates did not have a job 18 months after graduation.
- Nearly 50% of Masters graduates and graduates with advanced technician diplomas are unemployed.
- The unemployment rate of technicians from higher institutes of technology (Instituts supérieurs des études technologiques (ISETs) is 45%, compared to 53% for the non ISET technicians.
- Young women represent 57% of graduates compared to 43% of young men 51% of men are employed compared to 38% of women.
- 10% of engineers are unemployed, the lowest percentage of unemployment of all the diplomas and specialties.

The future of a country lies in the younger generation; in order for a less developed country to progress and change the economy towards higher value-added activities, a highly educated workforce is needed, and with 33.7% (in 2008) of the Tunisian youth choosing to enrol at the tertiary level in school; Tunisia is well on its way. But statistics are showing that Tunisia is failing to a larger extent than before to get their well educated youth out on the labor market, which is imperative if the objective is to become one of the worlds developed countries.

With the recent uprising against the Tunisian president Ben Ali's government and the political turbulence that followed there is a good chance that a new governmental structure could be beneficial to the Tunisian education system. It might be that new political viewpoints are a

requisite to implement the necessary policies in order to turn the negative unemployment figures around.

Aim of the thesis

The purpose of the thesis is to find out why the younger Tunisian population with a tertiary education is facing an increasing risk of unemployment. The thesis will be an analysis of the reasons behind the unemployment among grad students in Tunisia based on economic theory and aggregate statistics. Both the demand and supply side will be examined, in the hope of formulating solutions that could be of help when creating new policies regarding the Tunisian labor market. The mechanisms of demand and supply of skilled labor in the Tunisian case will be analysed by using two theories explained by Borjas (2010, Chapter 6 & 7): "The structure of wages", illustrating new market equilibriums when demand and supply changes, and "The Schooling model" showing the incentives of students when choosing to enrol at the university. The supply side will also be investigated by studying if the solution lies in what the World Bank (2008) suggests in the English summary of their report: "to better align graduates' skills with the needs of the economy" and to "Identify mechanisms to adjust the flow of students that pursue different diploma specialties and better align the graduates' skills with the needs of the economy".

The average unemployment figures (as a % of total unemployment) among the OECD countries are even higher among people with post secondary education compared to Tunisia (see figure 4). Due to the lack of time and resources a more in depth look at these countries is impossible but hopefully my final conclusions in the Tunisian case can be applicable to some of the OECD countries if further studies are to be made.

The educational system in Tunisia

The Tunisian educational system is comprised of three main cycles: primary school (École de base), secondary school (L'enseignement secondaire) and the University (L'enseignement supérieur). School starts from the age of 6 and is compulsory until the age of 15. The first cycle out of two within the primary school stretches from grade one to six, and the second from grade 7 to 9. Arabic is the language of instruction and French is taught as a second language from grade 3 and English as a third language from grade 7. After the 9th grade the

students continue to the secondary school cycle if they choose too. Both primary and secondary school is free of charge. Secondary school consists of four years of studies, after the first two years students must choose between technical studies, letters, economics, business management and experimental science, or math. After these four years the students must pass an exam, and if successful they will receive the Baccalaureate.

All students holding the academic qualification called the Baccalaureate is guaranteed to be able to enter a tertiary education. The admission is centrally determined by the following criteria: student preference scores, program of instruction at secondary level, the ministry set quota for each field of study and institution.

The last main cycle is managed by three different institutions: The Universities, the "*Instituts Supérieurs des Etudes Technologiques*" (ISET) or Higher Institutes of Technological Studies and the "Instituts Supérieurs de Formation des Maîtres" (ISFM) or Higher Institutes of Teaching Training. The Universities has three cycles of schooling, the first one consists of two years of studies and prepares the students for the labormarket. After the first cycle students may continue to the second cycle consisting of two to three years of studies that specialises the student within the chosen subject. The last cycle leads to doctoral degrees. The ISET is shorter, consisting of 5 semesters, with an internship at a company included during the education. ISFM gives the student, after two years of studies, the possibility to teach at the primary school level. (Clark, 2006) (Tunisia - Higher Education) (Mission Universitaire de Tunisie à Montréal)

Champagne, an American professor teaching at the Tunisian university of La Manouba 2006-2007, discuss his experiences in an article published in 2007. He argues that dictatorial states opposed to democratic states have incentives that might hinder the success of a good educational system, especially at the university level: "Given the fact that the Tunisian government denies its citizens basic civil liberties such as freedom of speech, freedom of press and freedom of association, it is probably not all that surprising that this same government would not be particularly interested in developing among its university students the capacities for critical thinking" (ibid, p. 208). But according to The Global Competitiveness Report 2010-2011 released by the World Economic Forum (2010, p. 420) Tunisia has one of the best educational systems in the world. Tunisia ranks 20th (out of 139 countries) regarding how well the educational system meets the needs of a competitive economy, receiving a better rank than e.g. France (29th), United Kingdom (28th) and the United States (26th). The same report ranks Tunisia 8th when assessing the quality of the math and science education (ibid, p. 421).

Theoretical perspectives

The unemployment statistics of students with tertiary education in Tunisia reveal that there is a labormarket imbalance; supply and demand does not match. The theories used in the thesis explain this imbalance and the factors affecting supply and demand for skilled labor, e.g. the Schooling model, the changes of relative wages of skilled labor and overeducation. The implications of corruption and the financial market will also be discussed.

The labor market

The basic theory behind the labor market is the mechanisms behind the demand and supply of labor. The demand for labor depends on (*Foundations of Economics*, 2007):

- The price of the firm's output – when the price of output increases the demand for labor increases.
- The prices of other factors of production – when the capital and wage ratio changes so does the demand for labor.
- Technology – can have both a negative and positive effect on labor depending on the sector.

The supply side mainly depends on (*Foundations of Economics*, 2007):

- Adult population – if it increases, labor supply will increase.
- Preferences – if the workforce prefers more free time over work, labor supply will decrease.
- Time in school – low-skilled labor and high-skilled labor represent two different labor sectors. If an increasing number of people receive a higher education the supply of low-skilled labor decreases.

The schooling model

Borjas presents two major models within the area of skilled labor, the first one being the schooling model illustrated by the potential earnings streams faced by a high school graduate in the figure to the right, figure 1 (Borjas, 2010, Chapter 6).

This model helps to understand the Tunisian students' choice whether to enrol at the university.

When a student chooses to go to college an opportunity cost arises due to the fact that the student misses out on the earnings provided by a potential job. This opportunity cost is the wage a student would have received with only a high school diploma (W_{HS}). The opportunity cost and the expenses during the time spent at college (-H) gives the incentives not choosing to go to college. Offsetting this is the wage offered to the higher educated workforce (W_{COL}) opposed to the less educated part (W_{HS}). Under the assumption that students get no other benefits from attending college the future wage of the college student must be higher than the wage of the group of people that quits after High School.

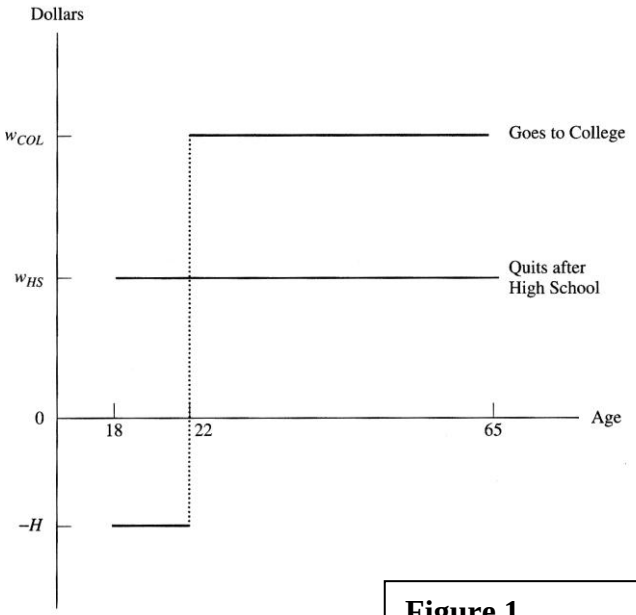

Figure 1
(Borjas, 2010, Ch. 6, p.241)

The final decision will be based upon the present value of the earnings stream if the worker only has a high a school diploma (PV_{HS}) and the present value of the earnings stream if the worker will get a college diploma (PV_{COL}).

$$PV_{HS} = w_{HS} + \frac{w_{HS}}{(1+r)} + \frac{w_{HS}}{(1+r)^2} + \cdots + \frac{w_{HS}}{(1+r)^{43}}$$

The worker's rate of discount: r. In Tunisia the Baccalaureate, equivalent of a high school diploma, is achieved at the age of 18 and the retirement age is 60 (Arfaoui, 2010). There are 43 terms, one for each year from 18 to 60.

$$PV_{COL} = -H - \frac{H}{(1+r)} - \frac{H}{(1+r)^2} - \cdots - \frac{H}{(1+r)^t} + \frac{w_{COL}}{(1+r)^1} + \frac{w_{HS}}{(1+r)^2} + \cdots + \frac{w_{HS}}{(1+r)^{43+t}}$$

Number of terms at the university: t. The first four terms gives the present value of the direct costs of a college education and the second part of the terms give the present value of lifetime earnings in the period after the university.

A person chooses to enrol at the university if:

$$PV_{COL} > PV_{HS}$$

Relative supply and demand affect wages

The second model, illustrated by the Figure 2, explains the mechanisms of what affects the wages among skilled workers. It shows the changes in the wage structure resulting from shifts in supply and demand for skilled labor relative to unskilled labor (Borjas, 2010, Chapter 7).

The demand curve is downward-sloping because employers will hire relatively fewer skilled workers in relation to unskilled workers when the relative wage of skilled workers is high. The supply curve is vertical, i.e. perfectly inelastic, as a result of the assumption that the supply of skilled workers is fixed. This is an assumption that is only valid in the short run, because an increase in the relative wage of skilled labor would in the long run lead to more people acquiring higher education.

If the labor market experiences a shift in the supply of skilled workers from S_0 to S_1, wages will drop, and market equilibrium will change from point A to B. If the demand for skilled workers rises, the demand curve will shift from D_0 to D_1. The result is new market equilibrium, point C. These two shifts, affecting both demand and supply, may in some cases "cancel each other out" resulting in the same relative wage as before, but if the demand shift is more important than the supply shift, as illustrated in figure 2, relative wages will rise from r_0 to r_1.

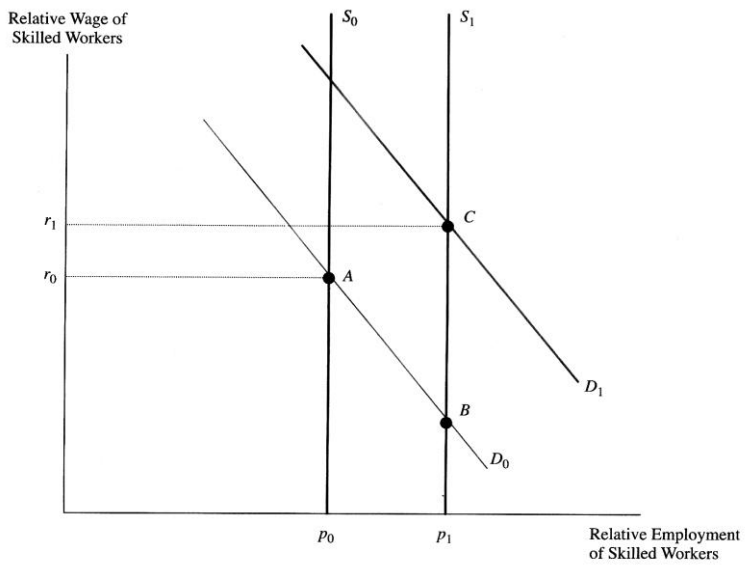

Figure 2 (Borjas, 2010, Ch. 7, p.297)

As pointed out before low-skilled labor and high-skilled labor represents two different labor sectors. When supply or demand increases or decreases in one of the labours sectors it affects the other, e.g. more people chooses to get a university degree, thus pulling more people from the low-skilled labor sector towards the high-skilled labor sector. This will lead to an increase in relative supply of skilled-labor, and if relative demand is fixed, the relative wage of skilled labor will decrease because of fiercer competition for the limited number of jobs in high-skilled labor sector. In the same way the laborpool in the low-skilled labor sector decreases thus increasing the wages in that sector.

Different scenarios may affect a shift in the supply of skilled workers, e.g. subsidies to universities or educational reforms. Borjas mentions that immigration might change the ratio between unskilled and skilled workers and thereby affecting the supply curve of skilled workers negatively or positively. If the flow of immigrants is composed of relatively more

unskilled workers compared to the domestic labor market, the supply curve of skilled workers will shift to the left (ibid, p.298).

Borjas also points out that the demand for skilled labor is affected by changes in import and export. Borjas exemplifies by writing about the US, where the workforce within the import sector tends to be less educated and the workforce within the export sector tends to be well educated (ibid, p.299).

Skill-biased technological change might affect the demand for skilled labor according to Borjas. If the introduction of a new technology favours skilled workers in relation to unskilled the demand for skilled labor would rise. The introduction of personal computers within the work place is a perfect example when illustrating an outward shift of the skilled labor demand curve (ibid, p.300).

Unions also affect the demand curve for skilled workers. These institutions principally attract workers without a university degree and they have the power to raise the wages and to protect the workers they represent from being dismissed. If the proportion of unionized workers drops, the employers will substitute the unskilled workers with skilled workers if they can, leading to higher demand for skilled labor (ibid, p.302).

Fixity

The unemployment rate among skilled labor rises if the relative wage by some reason does not change when relative demand of skilled labor decreases or relative supply of skilled labor increases according to the model above. On a more detailed level Upadhyay (1994) further discuss the theory behind the supply side of labor - "time in school". He presents a general equilibrium model with two sectors, one being the goods producing sector and the other one the education producing sector, where human capital is produced with increasing returns to scale. He argues that most governments in less developed countries subsidises tertiary level education in the goal of increasing welfare. This subsidy may in some cases push graduates into unemployment when wages for well educated people is showing "fixity" at high levels, meaning that the wages are showing rigidity and that they are not decreasing even when unemployment increases. When the wages of the educated proves to have this rigidity Upadhyay comes to the conclusion that an educational subsidy should rather be lowered than raised if a country's goal is to reduce unemployment. One result if this is being neglected is that output never reaches its full potential due to the lack of unskilled labor while skilled workers are unemployed.

Borjas (2010, Chapter 11) also discusses the efficiency wage theory, when a firm decide the wage level it does so by trying to maximize profits. Sometimes this means setting the wage higher than market equilibrium. When a dual labor market is generated with one high-wage sector and one low-wage sector the firms in the high-wage sector does not always lower the wage, because the workers would "shirk their responsibilities" (ibid, p.491), and as the high-wage sector is characterized by difficulties in monitoring the workers, this would lead to the firm loosing money. In a competitive model low-wage workers would flow to the high-wage sector until equilibrium is reached, but efficiency wages prevent this.

The theory of the impact of the minimum wage on employment illustrates the problem of wages that show rigidity (see figure 3).

When a minimum wage is set ($\bar{W}$) similar to wages that are fixed, employment decreases from E* to $\bar{E}$, and because of the higher wage more workers will enter the labormarket (from E_s to $\bar{E}$), consequently creating unemployment (Borjas, 2010, p.121). The minimum wage, or in the case of wages showing "fixity", must be above the market equilibrium in order to create unemployment.

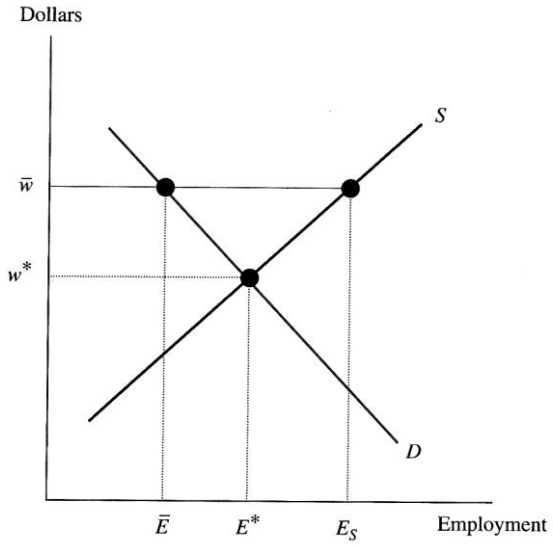

Figure 3
(Borjas, 2010, Ch. 3, p.121)

Employment subsidies

The government has some tools when dealing with supply and demand of skilled labor. By cutting subsidies given to universities the government can decrease the supply of skilled labor as discussed before.

When dealing with demand policy makers has the ability to shift the demand curve up by giving an employment subsidy. It can be targeted towards special groups, such as highly educated people.

In figure 4 an employment subsidy shifts the

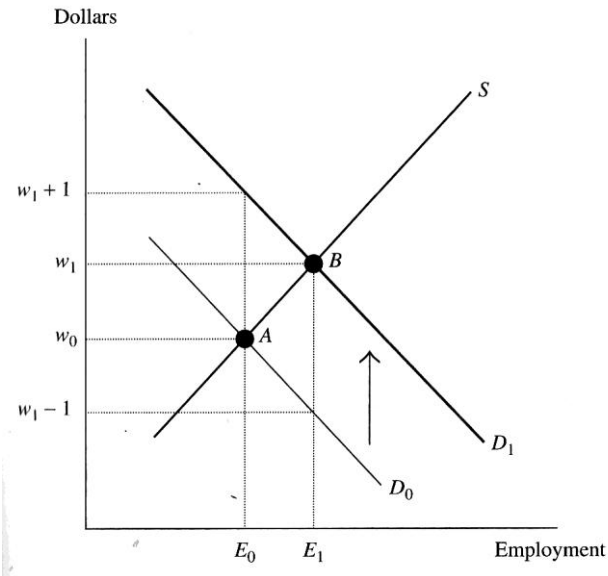

Figure 4
(Borjas, 2010, Ch. 4, p.161)

demand curve up, thus increasing employment. The wage a worker receives increases from w_0 to w_1 and the wage a firm pays decreases from w_0 to w_1-1. The success of such a subsidy depends on the elasticity of labor supply and demand.

Overeducation

Burris (2005) defines overeducation as "the growth of educational attainments in excess of the skill requirements of available jobs". Burris (2005, p.319) refers to the book Education and Jobs: The Great Training Robbery, by Ivar Berg (1970), which according to Burris spread awareness of the mismatch between the growing educational sector and the skill requirements of jobs. The book highlights what is perceived as typical patterns of overeducation: the educational achievements of students grows more faster than the skill requirements of jobs; productivity gain is not sufficiently justified by the economic returns to supplementary years of education; and finally the assignment of skilled workers to jobs that do not make use of the skills or which can lead to job dissatisfaction and social and economic costs because of the failure to match the aspirations obtained through schooling. According to Burris (2005, p.320) no research in the area of overeducation focusing on African countries has been published during the time period 1999-2005, 42 journal articles were published, 31 focused on European societies, 3 on the United States, 2 on Canada, 2 on Asia, and 4 were comparative. In the Tunisian case such research would of course be of great importance due to the obvious high unemployment figures among grad students.

McGuiness (2006, p.414) claim that "particularly at the graduate level, the incidence of overeducation is non-random with respect to subject studied as graduates from backgrounds such as Arts, Humanities and some Social Sciences are much more likely to end up overeducated. This raises the question with respect to the extent to which government should seek to re-orientate the educational system away from the Arts and Humanities towards more vocationally orientated subjects with higher levels of job relevant skills."

This type of measures discussed by McGuiness is called Manpower Planning. In *Economics of Development* (1996) Manpower Planning is explained as being a way of controlling the educational system to avoid manpower shortages and surpluses. This ability presumes the reliable predictions of the future need for educated labor. Criticism towards this theory is that the relationships it assumes to be fixed are often unstable and unpredictable in reality. The criticism continues with the following quote: "Further undercutting the logic of manpower planning is the absence of a unique education-occupation linkage. The knowledge required to do virtually any job can be acquired through formal, nonformal, or informal education.

Similarly, only a small fraction of what is learned in most educational programs is unique to a specific occupation; much more of it is applicable to a range of jobs" (ibid, p.260).
McGuiness (2006, p.414) also criticises this idea by continuing his argument on the subject: "Nevertheless, it is likely that such a strategy, whilst providing some benefits, is unlikely to provide a solution to overeducation, as the evidence suggests that the problem effectively relates to the supply of educated labour exceeding demand coupled with an inflexible labour market, whereby employers are either unable or unwilling to alter their production processes to fully utilize the skills of their overeducated workers."

The financial system

The degree of development of the financial system and the growth of output is mostly seen as being positively correlated. Agénor (2000) illustrates this in his book about *The economics of Adjustment and growth* by examining the ratio of private sector credit to GDP in different countries.
Agénor (ibid) brings up the importance of financial institutions in evaluating prospective entrepreneurs and financing those that carry the best promise of future innovation. He also mentions rate ceilings, high reserve requirements, and directed credit programs as being examples of government restrictions imposed on financial institutions. These restrictions have a negative effect on the efficiency of the institutions. He also argues the case that "by inhibiting the reallocation of labor and wage flexibility, labour regulations may lead to higher and more persistent, unemployment" (ibid).

Corruption

Hongyi et al. (2000, p.155) define corruption as "an illegal payment to a public agent to obtain a benefit that may or may not be deserved, or, the abuse of public offices for private gains". Government corruption is defined by Shleifer and Vishny (1993, p.599) as "the sale by government officials of government property for personal gain".
Murphy, Shleifer, and Vishny (1991) argue that corruption leads to a rent-seeking behavior among the most talented people in the population because of the larger gains. In less corrupt countries the talented people would rather become entrepreneurs and thereby spread their abilities on a larger scale. The innovation sector consequently becomes less important which affects technological progress. Entrepreneurs also need permits and licenses to start their businesses from the government which might be problematic in corrupt countries.

Corruption pulls a higher percentage of the workforce to the traditional sector, where mostly low skilled workers are demanded, which leads to a higher demand for low skilled workers relative to skilled workers (Hongyi et al., 2000).

According to Shleifer and Vishny (1993:616) the secrecy that is sometimes necessary in order to hide corruption leads to distortions in the economy. "The demands of secrecy can shift a country's investments away from the highest value projects, such as health and education, into potentially useless projects, such as defense and infrastructure, if the latter offer better opportunities for secret corruption". Shleifer and Vishny (1993, p.616) also conclude that there might be a solution: "political competition opens up the government, reduces secrecy, and so can reduce corruption provided that decentralization of power does not lead to agency fiefdom and anarchy".

Hongyi et al. (2000, p.160) explain that "fairer taxation and fewer regulations are associated with smaller unofficial economies in transitional economies of Eastern Europe and the Former Soviet Union. We thus expect a more corrupt country to experience a lower level of financial deepening."

Analysis

Firstly a closer look will be taken at statistics comparing youth unemployment with unemployment among grad students in order to analyze if it might be an entry problem to the labor market the students are facing, and if there is a difference in unemployment among grad based on gender. Secondly the problem of wages showing fixity (Upadhyay, 1994) will be studied and thirdly the supply and demand of skilled labor examined.

Unemployment among the youth and grad students

Unemployment with tertiary education in Tunisia was 1% of total unemployment in 1989, 3.6% in 1997, and 13.6% in 2005 (World Development Indicators database). The figures are lower compared to the average of the OECD countries, but while the trend seems to have stagnated in the OECD countries it seems to be increasing in Tunisia, see figure 5. This increase in Tunisia is further confirmed by unemployment statistics of people with tertiary education from the Tunisian government being 14% in 2005, 16.9% in 2006, 18.2% in 2007, 20.0% in 2008 and 21.9% 2009, see figure 6. In recent years these numbers surpass the unemployment

average by several percentage points with 13.3% of the whole population being unemployed in 2009.

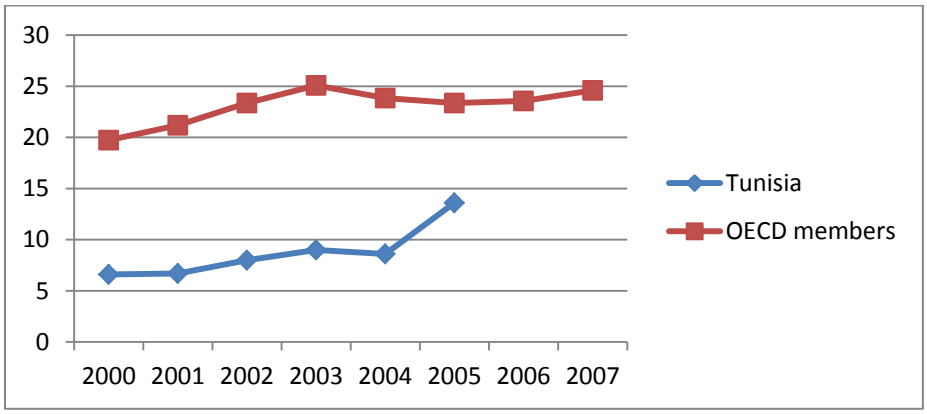

Figure 5
Unemployment with tertiary education (% of total unemployment)

Youth unemployment (age 15-24) has been close to the same levels since the 1990s, with 31.9% unemployed in 1997 and 30.7% in 2005. More students have been enrolling at the University level, increasing from 14.1% in 1997 to 30.8% in 2005 and 33.7% in 2008. These students consequently have little or no negative effect on youth unemployment, depending on the age they graduate, which might indicate that without the effort and money the Tunisian government has put into the development of higher education in the country, youth unemployment would have been higher.

High youth unemployment indicates entry problems to the labor market. Even though unemployment among grad students is still lower than youth unemployment, the trend is much different, rising at an alarming rate during the past decade which is easy to observe in figure 6 and 9. If it had only been a problem related to the entry to the labor market for grad students, higher levels of unemployment with tertiary education should have been observed earlier, since the youth unemployment figures have been persistently high from the mid 1990s to the mid 2000s.

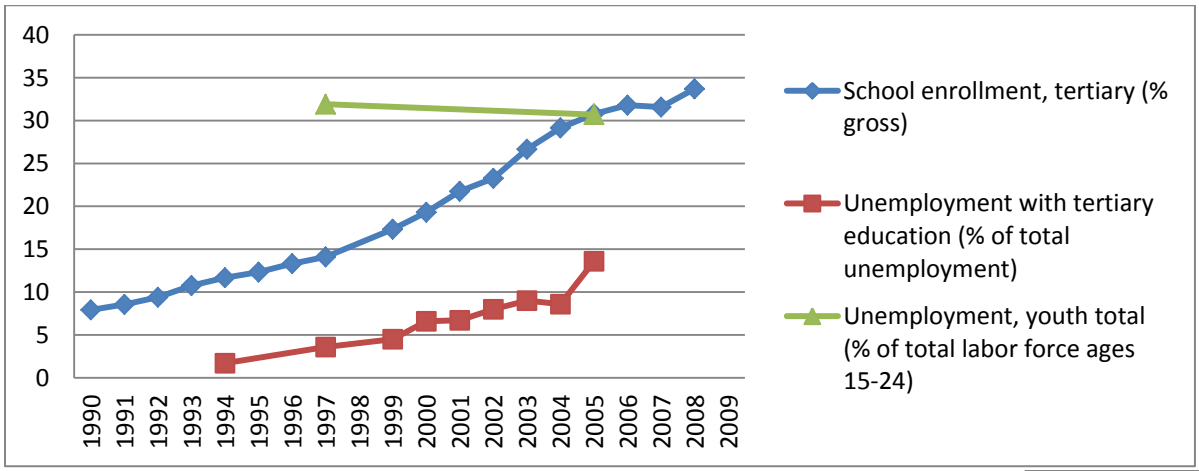

Figure 6

Morocco, who shares some of the history with Tunisia, both countries were colonized by France, has a similar problem. In 2005 total unemployment was 11.0%, unemployment with tertiary education was 21.6% and youth unemployment 15.7%. Unfortunately no comparative statistics from other North African countries such as Algeria, Libya and Egypt has been found.

The most recent statistics found separating the unemployment figures with tertiary education based on gender dates from 2005. As can be seen in table 1, women with tertiary education experience a much higher unemployment rate in comparison with men.

The Global competitiveness report (2010, p. 452) ranks Tunisia 129th (out of 139 countries) regarding female-male participation ratio in the labor force, based on statistics from 2008. Other North African countries also rank very low, Libya 133rd, Algeria 120th, Morocco 135th, and Egypt 130th, which might suggest that cultural aspects are the underlying reasons behind the inequalities.

Unemployment with tertiary education, female (% of female unemployment)	23.30
Unemployment with tertiary education, male (% of male unemployment)	9.00
Unemployment, female (% of female labor force)	17.34
Unemployment, male (% of male labor force)	13.12

Table 1 (Statistics from 2005)

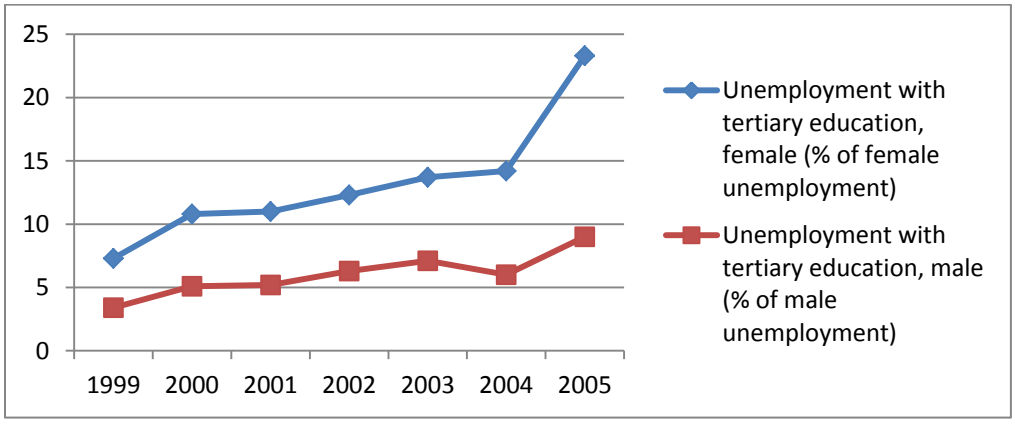

Figure 7

From 1999 to 2005 unemployment with tertiary education as a percentage of female and male unemployment rose more rapidly for women than men (see figure 7). This can partly be explained by the nature of the statistics in Figure 7 as they are based on the percentage of total male or female unemployment. The trend in enrollment at the university, where the number of women enrolling each year increased more than enrollment among men (see figure 8), thus increasing the percentage of women with tertiary education compared to women with other

levels of education and thereby contributing to a steeper increase in the unemployment figures relative to men in this specific category. This leads to the conclusion that the trend is probably fairly similar between male and female unemployment with tertiary education during the past years, which means that the inequalities between men and women has not become worse. The statistics clearly show that women face problems regarding the labormarket and because this thesis is based on laboreconomics another deeper analysis of the underlying reasons should be made.

Borjas (2010, Chapter 9) mentions three solutions regarding labordiscrimination based on gender: firstly "Legislation that prohibits emloyment discrimination based on sex" (ibid, p.391), secondly affirmative action, which means firms need to construct detailed plans which include employment goals for affected groups (ibid, p.392), and thirdly quotas, tightly related to the second solution.

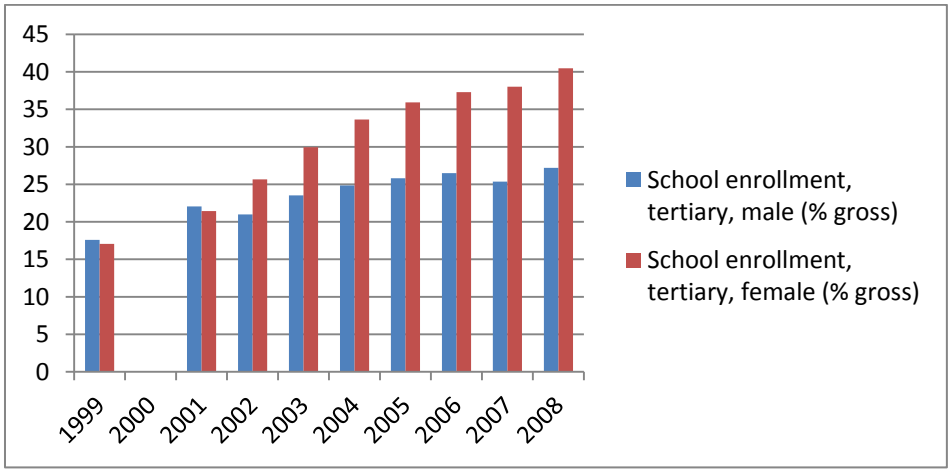

Figure 8

The theory of relative wages of skilled and unskilled labor shows that shifts in supply and demand of skilled labor create a new market equilibrium, thereby changing the relative wage. Unemployment rates of skilled and unskilled labor should in a sense follow the same trend because the relative wage changes according to the shift in demand and supply, thereby keeping the relationship between the unemployment rate of the low-skilled labor sector and high-skilled labor sector fairly constant. Figure 9 shows that this is not the case in Tunisia, people who are illiterate and those who have a secondary school education show stable unemployment rates between 2005 and 2009, the unemployment rate among people with a primary school education is decreasing compared to the unemployment rate of university graduates which is steadily increasing. Part of this increase could be attributed to more women enrolling at the university (Figure 8), as the Tunisian labormarket seem to be more in favor of men than women, but the increase in enrollment is too small to be the only reason.

The Global competitiveness report (2010, p. 445) further confirms that the wages in Tunisia are showing rigidity by ranking Tunisia 115th (out of 139 countries) regarding flexibility of wage determination, where the wages in countries with a high rank were set mainly by each individual company and the wages in the countries with a low rank were mainly set by a centralized bargaining process.

Apparently Tunisia experiences the problem of wages among workers with a university degree that shows fixity, discussed by Upadhyay (1994) and Borjas (2010, Chapter 11). As the wage structure, ones it is showing rigidity, is hard to influence by the government, supply and demand measures must be studied.

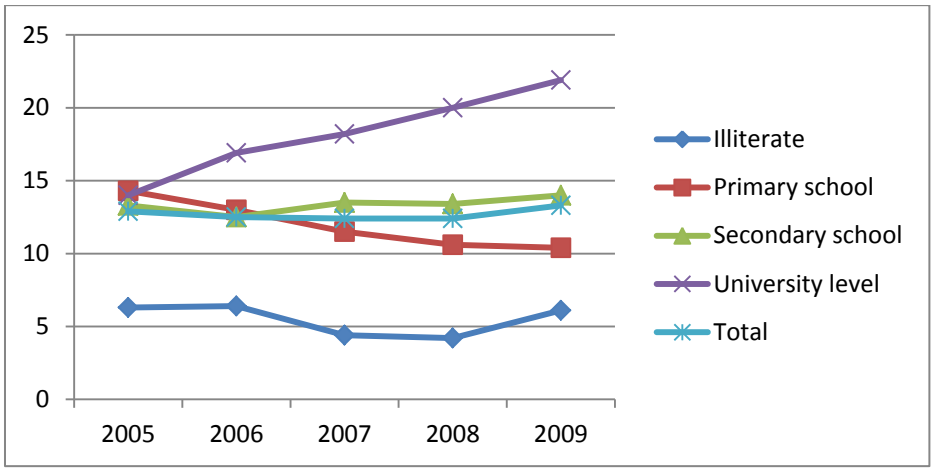

Figure 9
Unemployment rate (%) depending on education (statistics from the Tunisian Government)

The supply for skilled labor

Tunisia is focusing a lot of its attention towards education. The public education expenditure as a percentage of GDP was 7.06 in 2007, 1.59% more than the United Kingdom and 1.47% more than France. The number of students in public higher education has been steadily increasing during the past decade reaching 357 472 students in 2009/2010 according to the webpage of Higher education and scientific research in Tunisia (The Tunisian population being approximately 10 440 000 in 2009 according to the Tunisian national institution of statistics). Tunisia has thus succeeded in supplying the labor market with an increasing number of well educated workers; however these students are facing unemployment to an escalating extent.

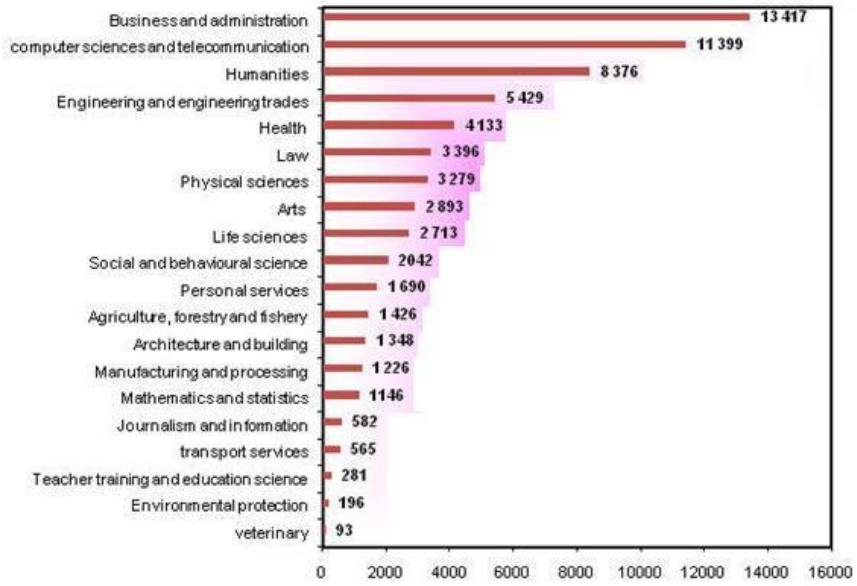

Figure 10
Distribution of graduates by field of study 2009 (retrieved from the webpage of Higher education and scientific research in Tunisia)

Revealed by figure 10, showing the distribution of graduates by field of study in 2009, the largest portion of students are studying business and administration.

The schooling model provides an insight to the decisions made by Tunisian students with a Baccalaureate. In Tunisia the minimum wage per month is 240 TND (48 h work weeks) or 208 TND (40 h work weeks). Newly graduated university students receive the following salaries depending on their line of work (Manpower, 2006):

Financial manager: from 11 000 TND	Logistician: from 9 500 TND
Accountant: from 4 500 TND	System administrator: from 9 500 TND
Marketing Manager: from 9 500 TND	Network administrator: from 9 500 TND
Marketing Assistant: from 7 000 TND	Project manager: from 12 500 TND
Secretary: from 4 500 TND	Technician: from 6 500 TND
Human relations manager: from 11 000 TND	Commercial: from 8 000 TND
Human relations assistant: from 7 000 TND	All are gross salaries.

Tunisian universities are almost free of charge, no tuition fee is demanded only a registration fee. The rent of dorm rooms is based upon family income and scholarships are given out by the National Offices of students if the student cannot afford to pay for the room. Needless to say Tunisian youth would in most cases choose to go to the university if the decision making strictly follows the theory in the schooling model. Due to the fact that the universities are practically free of charge and financial help is given to the poor the “H” in the model becomes smaller. The initial wage in the Tunisian labor market for recently graduated university

students is also high compared to the minimum wage which a young Tunisian might risk getting, leading to the conclusion that in most cases: $PV_{COL} > PV_{HS}$. The long-run implications of high unemployment rates among grad students might change this because a longer period of unemployment affects the present value of the earnings stream if the worker gets a university diploma (PV_{COL}) negatively.

The shift of relative supply of skilled workers in relation to unskilled workers discussed by Borjas (2010, Chapter 7) is affected by the conclusion above. The supply of skilled labor shifts to the right because of more students choosing to go to the university.
In order to further illustrate the increase in supply of skilled labor in relationship to other countries, statistics on government spending on tertiary students is of importance. In 2007 Tunisia spent 54.46% of their GDP per capita per student studying at the university level compared to 25.63% in the OECD countries.
The impact of immigration in Tunisia is almost nonexistent with only 0.4% of the population being born in another country according to the UN (2006).
The level of unionized workers in Tunisia was according to Ennaceur (2000), the former minister of foreign affairs, 20% in 2002 and had fallen to 15% in 2011 according to the webmagazine le Moci (2011), thus leading to a shift of supply of skilled labor to the right.

Several factors have increased the supply of skilled labor in Tunisia as mentioned above. Statistics show the unbalance in the labormarket where supply exceeds demand for skilled labor. The most obvious ways to deal with the problem is for the government to either cut back on government spending earmarked towards students studying at the university thereby decreasing the incentives for students to enrol at the university, or to control the educational choices of the students at the university in order to better match the demands from the employers. Theory seems more in favour towards the first solution. As noted before the labor market is unstable, and jobs needed today might very well not be needed tomorrow, therefore trying to control the career choices made by the students becomes a blunt tool when trying to solve the problem. McGuiness (2006) also points out that supply of educated labour exceeding demand indeed is the problem, but also an inflexible labour market, where employers do not change their production process in order to fully make use of the abilities of their highly educated workers. If the solution primarily lies in handling supply, Tunisia should lower its educational subsidy aimed at universities, as discussed by Upadhyay (1994).

The Global competitiveness report (2010, p. 419), using statistics from 2008, show that, Tunisia has not a comparably high enrollment rate at the university. Tunisia ranks 69th (out of 139 countries), several other countries in the same level of development are ranked higher, e.g. Turkey (60th) Lebanon (45th) and Libya (37th). This suggests that the supply of skilled-labor in Tunisia is not the main problem.

The demand for skilled labor

Providing more jobs for unemployed university graduates is of course one solution to the problem, but according to economist Murad Benturkiye Tunisia has a long way to go: "The economy can only absorb 25,000 jobs a year but it has over 60,000 educated people entering the job market" (Noueihed, 2011).

With Zine El Abidine Ben Ali removed from power in January 2011, after ruling the country for more than 23 years (Aljazeera, 2011), Tunisia has the potential to make a fresh new start.

Benturkiye is optimistic: "We can absorb this number of unemployed if we grow a little more, just one or two percentage points more a year. To do this, more focus should be placed on the private sector. The good thing for the next government is that all the sectors in Tunisia have not reached their full potential" (Noueihed, 2011).

The employment subsidy discussed by Borjas (2010, Chapter 4, p. 140) is probably the quickest tool the Tunisian government can use when trying to increase the demand for well educated labor. The evaluation of the different factors that affect the success of a subsidy is of great importance in this case, as the result may well be very costly for the government. Ali Marouani (2009) uses a dynamic multisectoral general equilibrium model when assessing which out of four different scenarios', all directly targeting highly skilled workers, is the most cost efficient when trying to decrease the unemployment rate of university graduates in Tunisia. The four scenarios are: removing social security contributions, providing a wage subsidy (half the wage), subsidizing investment (20% of the investment cost) and removing the production tax. These different scenarios are financed by an increase of all taxes (except tariffs). The conclusion is that wage subsidies are the most efficient, but the subsidy in this case only decreases unemployment among highly skilled workers by 6.9% by the year 2012. In the reference scenario unemployment among highly educated workers reaches 39%, which means the unemployment rate when using a subsidy would be 32%.

The Tunisian government has already introduced an employment subsidy targeting graduated students, explained on the webpage of the Tunisian Ministry of Vocational Training and

Employment. The subsidy, called ”Stages d'Initiation à la Vie Professionnelle” (SIVP), is given for the duration of one year and consists of a monthly payment of 150 TDN to the employer; the social benefits are also paid by the government and additional educational costs up to 200 hours.

One of the most important factors when increasing demand of skilled labor should intuitively be technological improvements as discussed by Borjas (2010, Chapter 7). The Global Competitiveness report (2010, p. 329) ranks Tunisia 42nd (out of 139 countries) regarding to what extent the latest technologies are available in the country, 33rd regarding to what extent businesses absorb new technology, and interestingly 13th regarding to what extent foreign direct investment (FDI) bring new technology into the country. This leads to the conclusion that in order for Tunisia to make technological advancements one major focus should be on attracting more FDI.
According to the Foreign Investment Promotion Agency (FIPA) Tunisia attracted (in million TND) 4 403 in 2006, 2 070 in 2007, 3 399 in 2008, 2 278 in 2009 and 2 265 in 2010.

Improving the business climate in Tunisia should also be given attention. This could decrease overall unemployment also leading to a decrease in unemployment among grad students.
The Global Competitiveness report (2010, p. 328) lists the most problematic factors when doing business in Tunisia (in order of significance):

1) Access to financing
2) Restrictive labor regulations
3) Inefficient government bureaucracy
4) Foreign currency regulations

As noted before the financial sector is of great importance in order for a country to grow but in the case of Tunisia this sector becomes even more important as the biggest portion of grad students studies business and administration (Figure 7) and the most problematic factor when doing business in Tunisia is the access to financing.
Notable reforms within the financial market, according to the Tunis stock exchange, have led to increased market capitalization. These reforms include the initiative to liberalize the economy in 1988 by changing the juridical framework in order to make the financial market more efficient, and even more importantly
The law of November 1994 which reorganized the financial market, making the Tunis stock exchange a private entity which made a huge impact on the Tunis stock exchange, boosting

market capitalisation of listed companies from 956 million USD in 1993 to 2560 million USD at the end of 1994 (in current USD). In 2007 the market capitalisation of listed companies arose to 5355 million USD. Even though the stock market is growing it is still far behind developed countries in terms of market capitalisation as a percentage of GDP, 15% in Tunisia compared to the Euro zone at 86% (2007).

The former government of Ben Ali seemed to have had the problem of businesses access to financing and the business and administration students in mind when Tunisia launched a financial sector reform program on June 11 2010.
According to an IMF report (2010) the aim of this program was:

- Consolidation of financial fundamentals of the banking sector (e.g. increasing the minimum capital of banks to 100 million dinars by the end of 2014).
- Increasing banks' presence in the economy and enhancing banking services
- Creation of a public banking hub "Tunisia Holding." The mission of the hub consists of devising strategies and monitoring the activities of the affiliated public banks.
- Creation of a financial institution specialized in financing small- and medium-sized enterprises (Al Moubadara).
- Strengthening the presence of Tunisian banks abroad and promoting Tunisia as a regional financial center:
- Consolidate the presence of Tunisian banking institutions in the Maghreb area and in Africa.
- Attract internationally reputable banking institutions by promoting Tunisia's modern regulatory framework and available logistical resources.

Many of these measures look promising both in the sense that they may very well help the financial sector to grow and thereby improve the whole economy and create valuable job opportunities to business and administration students and improve access to financing.
Other measures should be to make the Dinar, the Tunisian currency, fully convertible, due to the fact that The Global Competitiveness report (2010, p. 328) lists foreign currency regulations as the fourth most problematic factor when doing business in Tunisia. Even though Tunisia has been liberalising trade, e.g. signing a free trade agreement called Association Agreement with the EU in 1995 (fully active in 2010), an important step towards market economy and less protectionism should be a fully convertible Dinar. This will

hopefully also attract more foreign investments, which could also help technological advancements as discussed above.

Ali Marouani (2010) discusses potential solutions when trying to increase demand for skilled labor in Tunisia. He suggests "a massive increase in public research development and incentives for enhancing private research development" but also concludes that poor knowledge of its cost-effectiveness is a problem (ibid, 2010, p.936).
Research and development could increase by less costly measures, i.e. by reducing corruption or, as concluded before, by attracting more FDI.
Reform policies against corruption should also have a high priority due to the negative impact it has on investment (Hongxin et al., 2003). As stated before Hongyi et al. (2000) states that corruption also affects the financial sector negatively and pulls a higher percentage of the workforce to the traditional sector, where mostly low skilled workers are demanded. Murphy, Shleifer, and Vishny (1991) point out that instead of becoming entrepreneurs many students become rent-seekers, thereby hindering technological progress and innovation, important in the creation of jobs for skilled workers.
According to Kar and Curcio (2011) Tunisia loses 1.16 billion USD each year because of illegal financial activities and government corruption. Transparency international ranks Tunisia as 59 on their corruption perception index of 2010. The country receives a better rank than other North African countries but still worse than several other Arab countries such as Jordan, Saudi Arabia, Oman and The United Arab Emirates.
Several claims of nepotism has been made against Ben Ali throughout the years, e.g. radio licenses only given to relatives or close ones (M&C news, 2010), family members given land for free and securing board positions at Tunisia's biggest banks (Ratnesar, 2011).
Transparency international gave out a press release regarding the protests that led to Ben Ali fleeing Tunisia, and knowing that one of the most important demands was the issue of fighting corruption; the organisation reaches out and offers their help in strengthening national integrity systems. With Tunisia on the way towards true democracy the country can hopefully take a leap forward in the years to come concerning the fight against corruption, given democracy prevails, the right kind of expertise, e.g. Transparency international, outlines anti corruption reforms and policies, and finally for these reforms to be empowered.

Conclusion

The problems Tunisia is experiencing with high unemployment among grad students can be concluded not to be an entry problem to the labor market. Neither does Tunisia seem to be showing high university enrolment figures compared to similar countries, which means that the supply of well-educated labor is not the main source of the problem.

A highly educated workforce with a large fraction being unemployed might rather give Tunisia more possibilities than problems in the long run. This great reserve of human capital may well become a significant asset if the country succeeds in increasing the demand for skilled labor.

The quotes taken from the English summary of the World Bank report (2008) suggested the Tunisian government "to better align graduates' skills with the needs of the economy" and to "Identify mechanisms to adjust the flow of students that pursue different diploma specialties and better align the graduates' skills with the needs of the economy", but scientific articles often criticize this method. By the time a student graduates from the university the labor market might have changed, and it is hard to get a good prognosis of what specific jobs are needed 3-5 years in advance, the time it takes for a university student to graduate. Many programs at the university are in a sense general enough for the grad student to have the possibility to take on jobs outside of his or hers specialty.

The two main problems seem to be related to demand for skilled labor and gender. If Tunisia succeeds in increasing the demand, the current supply surplus of skilled labor could become an asset rather than a problem. When trying to increase the demand the financial sector should be the main concern, firstly because most of the students at university are studying business and administration, and secondly because of the positive effects it creates in terms of economic growth and helping businesses access to finance. Consequently the new Tunisian government should continue with the reforms of the financial sector started by the former government. Increasing FDI inflows could also become valuable as it, specifically in the Tunisian case, spreads new technology efficiently, thus helping in the creation of new jobs for skilled labor.

An employment subsidy targeting high skilled labor could also be implemented as discussed by Ali Marouani (2009). Although the Tunisian government already has implemented such a subsidy (SIVP), further subsidizing employment of skilled labor might become advantageous.

Dealing with the inequalities between men and women has been going on in the western countries for more than a century, and total equality has not yet been achieved. Tunisia seems to be far behind in this subject matter and should enforce legislation surrounding employment

discrimination on the basis of sex and also consider implementing affirmative action plans, and/or quotas, in order to get more highly educated women out on the labor market, hopefully in long run leading to a change in the behavior regarding gender.

The people of Tunisia have already taken a big step in the fight against corruption by taking the power away from Ben Ali. If Tunisia is successful in this struggle the country may hopefully reap the benefits of more entrepreneurs, less rent-seekers, higher innovational rate and more technological advancements, creating more high-skilled labor jobs.

If these measures turn out to be unsuccessful the government should limit the supply by cutting subsidies to universities, thereby decreasing the supply of skilled labor.

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