ECONOMIC RESEARCH FORUM
منتدى البحوث الاقتصادية
2016

working paper series

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Working Paper No. 1031

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July 2016

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First published in 2016 by
The Economic Research Forum (ERF)
21 Al-Sad Al-Aaly Street
Dokki, Giza
Egypt
www.erf.org.eg

Abstract

This paper is about the institutional and regulatory system governing higher education in Tunisia; its focus is on autonomy and accountability and it also compares the performance of public higher education graduates to the private sector's. The main idea guiding this paper is that better educational outcomes depend, among other things, on the institutional arrangements and the incentives structure they generate. The paper analyzes the current incentive system underlying the functioning of the university system in Tunisia. In spite of the reforms attempted to improve the quality of the education system this system remains very disconnected from the demand side of the labor market. Management and academic staff have little incentive to adapt their training and research programs to the market needs. This is to a large extent because they enjoy little autonomy and are hardly accountable. The paper also relies on data drawn from the recent Tunisia Higher Education Graduates' Survey (THEGS 2015) initiated by ERF which builds on similar studies previously undertaken by ERF in Egypt and Jordan. This data is used to compare the outcome of the public universities with the private institutions with a focus on the employment performance of their graduates. Private universities behave differently, and some try to innovate in terms of pedagogy and to be closer to the potential employers' demands. However, they remain small and attract less than 8 percent of the total student body. They are all profit driven and tend to have few if any permanent academic staff; instead, they rely mostly on temporary teachers. Nevertheless, based on the THEGS 2015 data, they manage to perform quite well compared to their public counterparts.

JEL Classification: H44; H52; I21 ; I23; I28

Keywords: higher education, incentives, public-private institutions

ملخص

تناقش هذه الورقة النظام المؤسسي والتنظيمي الذي يحكم التعليم العالي في تونس. وتركز على الاستقلالية والمساءلة وتقارن أيضا أداء خريجي التعليم العالي العام إلى القطاع الخاص. الفكرة الرئيسية التي توجه هذه الورقة هي أن النتائج التعليمية الأفضل تتوقف، من بين أمور أخرى، على الترتيبات المؤسسية وبنية الحوافز التي تولدها. تحلل الورقة نظام الحوافز الحالية التي يقوم عليها عمل النظام الجامعي في تونس. وعلى الرغم من الإصلاحات ومحاولة تحسين جودة نظام التعليم في هذا النظام الا أنه جانب الطلب في سوق العمل منخفض جدا. الإدارة وأعضاء هيئة التدريس لديهم حافز قوي لتكيف برامج التدريب والبحوث لاحتياجات السوق. وهذا إلى حد كبير لأنها تتمتع قليلا بالحكم الذاتي ، وبالكاد المساءلة. تعتمد الورقة أيضا على بيانات مستمدة من المسح الأخير لخريجي التعليم العالي في تونس والتي بدأها منتدى البحوث الاقتصادية والتي تستند إلى دراسات مماثلة تم تنفيذها من قبل المنتدى في مصر والأردن. وتستخدم هذه البيانات لمقارنة نتائج الجامعات الحكومية مع مؤسسات القطاع الخاص مع التركيز على الأداء لتوظيف خريجيها. الجامعات الخاصة تتصرف بشكل مختلف، والبعض يسعى للابتكار في مجال التربية ولتكون أقرب إلى مطالب أرباب العمل المحتملين. ومع ذلك، فإنها لا تزال صغيرة وتجذب أقل من 8 في المئة من إجمالي الجسم الطلابي. وتعتمد على تحقيق الأرباح وتميل إلى أن تكون قليلة أن وجدت هيئة التدريس دائم. بدلا من ذلك، فهي تعتمد في الغالب على المعلمين المؤقتين. ومع ذلك، استنادا إلى البيانات المسح لعام 2015، فان المعلمين المؤقتين لديهم أداء جيدا جدا بالمقارنة مع نظرائهم في الجامعات العامة.

1. Introduction

Tunisia has over the last five decades achieved great progress in terms of access to education, fighting illiteracy and increasing the education attainment of its labor force (Table 1). In 2014, more than 62 percent of the labor force has at least a secondary education degree and 23 percent have a tertiary education degree.

The democratization of secondary and tertiary education required the rapid expansion in all parts of the country of the number of education establishments, including at the university level.

Historically, Ezzitouna University is one of the oldest universities in the world as it goes back to the eighth century. Its contribution to Tunisia's cultural heritage and to its recent transformation, especially in the nineteenth and early twentieth centuries, is tremendous but its capacities were very limited and its methods and areas of interest were not always adapted to modern needs. The creation of more appropriate and larger modern universities was therefore part of the priorities of the development driven post-colonial national government formed in early 1960s. The process started then with one major modern university, the University of Tunis founded officially in 1959, followed by many more. The creation of new universities and institutions accelerated in the 1990s as tens of public and private universities were created under the pressure of the increasing demand for enrollment, often with little planning.[1]

Until the end of the 1980s, most university graduates were easily absorbed by the labor market, primarily by government and public sector institutions, and the rate of unemployment for the graduates was well below 5 percent. The reversal of this balance started in the 1990s and reached alarming levels in the mid-2000s. The persistent and increasing youth unemployment clearly indicates that the current education system is not producing the skills the country needs. The more educated are the most hit by unemployment. For the last six years, more than 30 percent of the youth with tertiary education are unemployed and 50 percent of the university graduates wait for at least one year before finding a job as shown by the survey conducted in 2011 by a the MHE (unpublished). Actually, this rate varies from 20 to 70 percent over establishments (see Figure 1).

Yet, higher education remains key to increasing productivity and mastering new technologies. The challenge is in terms of a more rational use of resources allocated to education, to teach the relevant skills and to put in place the right scientific capacities. The gap between the skills supplied and those needed by the country has widened in spite of the previous attempts at reforming the education system, including the 2002 basic education reform and of the 2008 new higher education fundamental law; which are indeed intended to improve the employability of the graduates and the quality of the education system. The awareness about the need to reform the education system in order to meet these challenges is manifested by the ongoing reform process; but it is still at a preliminary stage. The reforms just mentioned have generated little evidence showing improvement on the field.

There is a wide consensus that the institutional and regulatory system governing higher education does not generate the right incentives for quality assurance, the production of the right skills and the enhancement of the employability of the graduates. This is not to say that governance and the incentive system are the only explanatory factors of the unemployment and the deterioration of educational quality. The rapid expansion of the number of students and the low level of labor demand, especially of skilled labor, are also key factors. The rapid expansion of enrollment in tertiary education and the increasing unemployment rate are also the outcome of rapid demographic growth (which lasted until 1990s) and of the easier access to secondary and tertiary education. Demand for skilled labor has been too low mainly because the level of

[1] See Table A1 in Annex.

investments and economic growth has been below what is required to generate more jobs. Inappropriate policies, institutional weaknesses, and various forms of imperfections, including in the functioning of the labor market, are among the underlying factors limiting investments and good job creation.

The main idea guiding this paper is that better results and educational outcomes depend, among other things, on the institutional arrangements and the incentives structure they generate; which determines the ability of universities and schools to decide how to achieve the right objectives. Universities and their establishments and units cannot be accountable if they do not enjoy sufficient autonomy and cannot establish rules and ways on how to operate. There is an urgent need for changing the regulations and the institutional set up and thus for more autonomy and accountability. The purpose is also to assure incentive compatibility between the behaviors of all actors at all levels and the desired objectives. Perfect incentive compatibility may not be possible but there are large possibilities for improving the Tunisian higher education system from this perspective and thus for reducing the gap between the needs and the production of skills and knowledge.

The main purpose of this paper is to analyze the current incentive system underlying the functioning of the university system in Tunisia, and it argues that university autonomy and accountability are essential for better quality higher education. The methodology is based on analyzing the structure and functioning of the higher education institutions, and it is also evidence-based, and relies on data drawn from the recent Tunisia Higher Education Graduates' Survey (THEGS 2015). This survey was initiated by ERF and conducted in Tunisia in cooperation with ASSF.[2] It builds on similar studies previously undertaken by ERF in Egypt (Barsoum, 2014) and Jordan (Barsoumand Mryyan2014). Both studies attempt to assess, explain and compare the performance of public and private universities through the performance of their graduates in the labor market. They conclude that in the current situation, the emergence of the private higher education institutions has not improved the quality of the educational outcome, which has been quite low. Two other papers (Assaad et al.2014a) and (Assaad et al.2014b) confirm this result.

The remainder of this paper is organized in four sections. The first one gives an overview of the education system. This is necessary to understand the evolution of the higher education quality in the context of the very rapid expansion of the numbers of students.

The second and core section examines the functioning of the tertiary education system with a focus on incentives and accountability. Incentives and accountability constitute a central axis for this paper because they determine the behavior and performance of universities, students and teachers, researchers, employers... Obviously, public and private universities operate under very different institutional and incentive setups; that is why, across this paper, a special attention is paid to the public-private distinction.

Within the context of Tunisia, we know that some educational establishments, or some of their departments, perform better than others. The third section addresses these variations based on the survey data, and attempts to give possible explanations and ways to improve the system. The fourth section compares cases of public university and private universities, with a focus on their economics departments. The paper ends with the main recommendations and conclusions.

[2] ASSF: Applied Social Science Forum which is a Tunisian scientific association.

2. The Tunisian education system: An overview

2.1 The main components

Figure 2 gives a simplified overview of the Tunisian education system. The establishment of the compulsory 9-year basic school in 2002 was a major development in the history of the massive expansion of education in Tunisia. Basic school comprises the primary 6-year phase and the 3-year lower secondary phase. Secondary education comprises the lower secondary phase and the upper secondary phase. The upper secondary cycle corresponds to the four years general high school education, subdivided in one preparatory year followed by three years of specialization (the options offered are mathematics, sciences, humanities, etc.). Upper secondary schools (high schools) prepare students for the "baccalaureate", which is the degree required to access tertiary education institutions. In Tunisia, any Tunisian national baccalaureate graduate is legally entitled to enroll at a public tertiary establishment. Secondary and tertiary education cycles are indeed largely public, with more than 95 percent of the students. They charge no or negligible tuition. While private primary schools are developing rapidly, private secondary and tertiary schools have remained much less attractive. They are profit-driven, and have limited educational and scientific capacities as they rely mainly on public sector teachers working over time.

Basic school is compulsory and available free for all Tunisian children in public schools. However, law enforcement is still incomplete, as significant numbers of young children do exit the education system at an early age, even before completing basic school. According to the Ministry of Education, more than 100 thousand students, or 1 percent of the primary school students (first stage of basic school) and close to 10 percent of secondary school students, dropped out of school in 2012-2013. Students may do their upper secondary education in vocational schools. In theory, when they reach 16 years old and finish basic education, they may be oriented towards either general secondary or vocational education (TVET). In fact, so far, most students go to general education, and only a minority, around 8 percent**,** to TVET, usually not because it is their choice but because they failed in general public schools. Some students from general secondary education, after they drop out or when excluded fall back on TVET schools as their last resort. There are also TVET programs for some of those who quit basic school at an earlier stage. The TVET system is under the supervision of the Ministry of Vocational Training and Labor, and not the Ministry of Education, which is in charge of basic and general secondary education.

Tertiary education is under the central supervision of the MHE. The private higher education institutions remain small and attract less than 5 percent of the students.[3] Figure 3 gives a simplified description of the Tunisian tertiary education system according to the duration of the programs, the number of credits and the type of degree. Four major paths of studies and training are distinguished:

- Medical studies, including dentistry, veterinary and pharmaceutical studies,
- Engineering,
- Technical and applied,
- Humanities and social sciences.

Programs may last for two or three years (license), to six years or more at the graduate level. Most of the programs follow the LMD pattern; that is the three-year license then the two-year master's and the three-year doctorate.

[3] Ministry of Higher Education and Scientific Research, BEPP, "Higher Education and Scientific Research Statistics", 2012-2013.

Undergraduate studies used to last for four years as a general rule and to be organized in two cycles (first and second); while graduate studies cover the two years Master's and the doctorate degrees with soft constraints in terms of duration. Only medical studies and architecture still follow this three-cycle scheme. Engineering starts with pre-engineering for two years and then takes an additional three year training period. Access to engineering schools is highly competitive and open only to pre-engineering students.

There are thirteen public universities, including a distance-university (Université Virtuelle de Tunis or UVT), distributed across all the geographical regions of the country: seven concentrated in the North of the country (Tunis, Tunis El Manar, Carthage, Manouba, Jendouba, Ezzitouna and UVT), three in the Center (Sousse, Monastir and Kairouan), and three in the South (Sfax, Gabès and Gafsa). Most of them are recently created after 1986, and many after 2000. Before 1986, there was a strong concentration of higher education institutions in Tunis, Monastir and Sfax. In 2014-2015, 203 public higher education establishments including 25 ISETs[4] formed the bulk of the higher education system. The 61 private higher education institutions are much smaller, but the private tertiary education is growing, since we recorded 44 establishments in total in 2012. Their size is growing in terms of students' numbers but hardly in terms of faculty and capacities.[5]

Public institutions belong to the 13 universities located throughout the territory. ISETs are out of the university system and supervised by the Directorate General of Technological Studies within the MHE. The 25 technical institutes (ISETs) offer short-term programs. According to their initial design, they should be more professional and more applied but in practice, they are not always so. They provide short term training (three years). The MHE and other ministries (health for medical studies, Communication for ICT and computer sciences, agriculture for agricultural engineering…) jointly supervise some 30 institutions.

At the beginning of the academic year 2014-2015, as in table 2, there were 12193 full time faculty members and 1520 temporary teachers constituting the total main teaching body of all the public higher education system, unevenly distributed between universities. 2314 are at the senior professorial level (professors and associate professors belonging to the so-called A-category). Almost half of the total faculty (48.74 percent) are women. In addition, 3595 experts in various fields contribute to the training programs of these establishments. ISETs have their own staff, including 2172 full time teachers. These numbers have increased constantly but not as fast as the number of students as shown by the evolution of the students to teacher's ratio in table 3. Medical schools employ almost as many teaching faculty, most of them at the senior professorial level who are also practitioner medical doctors.

2.2 Enrollment in tertiary education and the demographic pressure

The total number of students in public universities has increased very rapidly between 1975 and 2010, and much more so starting in the 1990s. Figure 4 indicates that between 1975 and 2010, the total number of students went from 17 thousand to 350 thousand, and from 110 thousand to 350 thousand between 1995 and 2010. In 2009, it reached its highest level, 360 thousand, just for public universities (and around 370 thousand including private universities) and started decreasing ever since. In 2014, this number fell down to 292.3 thousand students enrolled in public universities. This downturn is expected to be the beginning of a decreasing trend because the number of students in secondary schools reached its peak in 2004 and has been steadily decreasing.

[4] Institut Supérieur des Etudes Technologiques (ISET).

[5] See Table A1 in Annex.

Female students out number male students and hold 63.45 percent of the higher education student body (in 2014). Overall, 30 percent of youth between 20 and 24 are enrolled at the tertiary level. The number of foreign students remains small, at less than 20,000.

Enrollment in private universities reached 30,334 in 2014 (10 percent of the total number), and it is increasing (see figure 5). The same trend is valid for the number of graduates. As in Table 6, after a peak (86,035 graduates) in 2010, this number started to go down, but there are still too many graduates compared to the total skilled labor demand.

The evolution of the number of students wishing to enroll in public universities is the outcome of the population growth and the higher access to primary and secondary education. Population growth rate, as indicated by figure 6, was high (above two percent annually) until the end of the 1980s, even though it gradually slowed down ever since. It reached one percent in 2005, and is stabilizing. Tunisia is at an advanced stage of its demographic transition. This will have a significant impact on higher education and the labor market in the coming future, but for the moment, the demographic pressure has not yet faded away.

The distribution of youth by level of education shows the extent of the progress made in the area of education; as 80 percent have at least a secondary education (upper secondary but not always completed) and the illiterates are a small minority (less than 4 percent) and concentrated in rural areas. Table 4 shows that all the regions benefited from this progress but not equally and less so in the western regions and in the rural communities.

The lack of opportunities and the uneven distribution between the educated have reduced the social value of education and the expected return to investment in human capital for Tunisians in general. The relative social depreciation of education is reflected by the persistence of the rather high dropout rate at nearly 10 percent after primary.[6] It is also well known that the mismatch between the skills produced and those demanded by employers is a major root of the unemployment problem.

From the government perspective, the very rapid expansion of the number of students has been for a long time seen as a major constraint, and creating places for new students was by itself a big challenge. Because of the fast increase in the number of students, an overwhelming preoccupation of the government was to be able to provide enough places for all students and to offer each new baccalaureate laureate an opportunity to register somewhere at a public tertiary education institution, this being a legal requirement. As a result, all public institutions had, with various degrees, to accept an excessive and increasing number of students. When new establishments or programs are created, the priority was often for the less costly studies and the easier to expand. This inflationary process lasted for about twenty years (1990 to 2010) but less since 2008-2009.

Students do not choose where to enroll; they have to accept the outcome of the centrally and electronically managed orientation process. They are allowed to express their preferences by filling an application form but they have no guarantee to obtain either their first or second choice. Through this process, students have to compete for their favorite places based on their score (calculated according to fixed formula). Hence, only the best students, a minority, have access to the highly demanded schools (medical and engineering mainly), while the majority of the students are left with little choice and end up in the less attractive places which often do not match their interests and qualifications. A big incentive issue from the start.

[6] More than 100,000 teenagers per year leave the general school system; less than a third of them go to VET. In addition, about ten thousand per year leave before finishing primary school most of them after finishing three to five years at school, but the dropout rate from primary schools have decreased gradually and significantly from 7 percent in 1990 to 1 percent in 2012. Ministry of Education, Planning and Computing Department, 2010-2013, “Schooling statistics”.

After years of trying to promote technical and engineering studies, enrollment is still mostly in humanities and non-professional fields. as indicated by table 5. The number of graduates in engineering is still very small: 5,473 in 2014; that is 8.9 percent of the total number of graduates. Overall, the distribution of students and graduates by area of studies has changed but slowly, so slowly that in 2013 it was hardly different from what it was ten years ago. Around 80 percent of the students are still in the low cost and often low employability areas (literature, business administration, computer science and multimedia, law, social sciences, theoretical sciences…).

In short, the main problem with the higher education and training system is that it has been operating under the demographic pressure with little concern about quality and clear strategic purpose. Moreover, although the system was highly centralized, under the supervision of the MHE, a large number of stakeholders and agencies are involved but not well coordinated and, as we will see in the following section, they did not operate according to any appropriate incentive scheme.

3. The Functioning of the Higher Education System: Incentives and Accountability

3.1 Why do incentives and accountability matter?

In Tunisia, the management of the higher education system remains highly centralized under the authority of the MHE in spite of the ongoing reforms in favor of decentralization and the autonomy of the universities. The comparative study undertaken by the World Bank (World Bank, 2013) on the governance of a sample of 100 universities in the MENA region revealed that overall the Tunisian public universities are among the least autonomous and the least accountable as shown by the following diagrams.

Why does autonomy and accountability of universities and schools matter for good and efficient governance? The basic idea is simple. If the State (or a business community or any well-defined client or boss) expects a university (or an establishment) to act in accordance with the goals assigned to it and to be accountable, it has to be able to decide about which inputs to use and how and to be in this sense autonomous. Clearly, accountability and autonomy also require that all the people who share part of the responsibility (teachers, students, management, employees…) are motivated to do what is necessary for the achievement of the desired goals. Incentives (positive and negative in various forms) and values determine people's behavior. It is therefore essential that each university and its establishments can make sure that the right incentives are put in place. If the goals are to assure good quality training and to teach the right skills, then the departments, students, staff and teachers must have the incentive to contribute to these goals. The set of rewards and penalties put in place inevitably have a significant impact on the efforts they exert. Incentive compatibility is essential for a well-functioning system; this is true in general and particularly for universities and schools and to for the people involved in education in general, even though some specific issues are to be addressed when designing the education incentive scheme.

In short, accountability, autonomy and incentives must be consistent with each other. A simple three-actor theoretical framework capturing the link between accountability and incentives is proposed in World Bank (2013). This model is based on the growing literature on incentives and contracting[7], and it is depicted by the diagram depicted in Figure 9 below. In this framework, a principle or a policy maker (for instance the ministry or a university) supervises the design and engineering of incentives and programs implemented by a number of agents (schools and teachers). These agents provide training services according to choices made by students and parents who participate in the process and express their choices and opinions about the system. Schools and teachers are accountable to them and to the policy makers. If incentives

[7] See for an overview Laffont and Tirole (1993).

are well designed then schools and teachers would respond well to the choices of student and teachers.

This model suggests that in a well-functioning higher education system, schools and teachers should behave in accordance with the policy makers' objectives and respond to students and parents' demands. Parents and students are supposed to have a voice and to be able to interact with the schools and teachers. This simple model captures the link between accountability and incentives but not the complexity of the higher education system and the multiplicity of the links and partners (Government, MHE, universities, schools, departments, teachers, students, labor market…). However, it does not fully take into account the essential link between the labor market and the higher education system. It is often stated that the higher education system should adapt its programs according to the needs of the labor market, but it is hardly ever mentioned that the employers (private business and government) should also adapt their capacities according to the structure of the labor supply and of the skills available. They are expected to reveal their current and future demand for skills, to participate in the design of the training programs, to contribute to the financing of the system, etc. Actually, they seldom do because they lack the right incentive to do so.

3.2 The current Tunisian higher education system and the ongoing reform process

3.2.1 Lack of autonomy and accountability

In practice, so far, no adequate mechanisms and incentives are available to promote quality at the university level. Universities do not have the right incentives to respond to the changes in the labor markets and to the needs of the economy in terms of skills and knowledge. In practice, the operational objective of the higher education system was to provide all the Tunisian students who passed the baccalaureate examination obtain with a place within a public higher education establishment and to make sure that the necessary inputs are made available according to acceptable standards. The concern over managing inputs instead of outcomes has predominated. Yet, the willingness to meet the challenges of producing appropriate skills was well stated, reforms were designed and legislations were passed to this end. The real issue is with implementation. This willingness was not significantly translated into facts because of the lack of incentives, autonomy and accountability of the universities.

Universities and higher education institutions have little or no say about the number of new students they have to admit and about their faculty.

A centralized selection procedure managed at the level of the MHE determines the students to be enrolled in each higher education institutions. Students may alternatively withdraw and give up their right and may prefer to go to a private institution or to a foreign institution if they had the resources to pay for, but only a minority can afford to do so.

Universities and institutions convey their needs for additional personnel to the MHE but do not decide about the actual number of new faculty members and not at all about who will be appointed and assigned to any specific institution. Selection of the newly recruited faculty members is made by national committees, and it is up to the MHE to decide about who will be appointed to which institution. Faculty members' remuneration is almost totally independent of their effort and their performance; it depends on their position (from assistant to full professor) and also, but much less, on seniority. Remunerations and promotions are uniformly set for all institutions of the country. For example, an associate professor with a given experience in terms of years, is paid exactly the same salary in any institution (except for medical studies). Research and publications do not really matter except for recruitment and promotion.

Universities and institutions have a very limited possibility to negotiate their budget, which depends mainly on their size and previous level of expenditures. Again, the quality of the

training provided by the establishment of the university or its scientific production are not systematically evaluated and taken into account. The evaluation system is not operational and effective yet. This means that the mechanisms for accountability are not ready yet in spite of the decision to establish them as per the 2008 law.

Nevertheless, some progress was achieved on the way to decentralization. Universities took over some responsibilities in the area of personnel management. University establishments enjoy some authority and autonomy with respect to program design and pedagogical methods but not yet enough to ensure a significant control of their educational outcome and of the adequacy of the skills and training they offer. In general, it remains hard for universities and establishments to build strong and sustainable connections with the labor market.

3.2.2 The ongoing reforms: Changing the behavior of the key education actors

Indeed, there is an ongoing reform process, and more reforms are in the making. The stated objective of the law passed in February 2008 is to meet the quality and employability challenges. This law, which remains the fundamental higher education law, defined the main principles and objectives underlying the design of the higher education system in Tunisia and it established the LMD (License-Master's-Doctorate) scheme. The issue is with the implementation of this law; and this has to do with incentive compatibility. This law, in principle, is about the transition towards quality assurance and better employability of the students. In its first two articles, it states that higher education should produce knowledge and skills according to the national community's needs and that the employability of the graduates is one of the system's major objectives. Its fifth article is about the pursuit of a higher quality education. The focus of the eighth article is on reinforcing the professional dimension of the training provided by all universities and institutions. In terms of governance, the law asserts the need for autonomy and accountability of the universities, that national agencies and commissions for accreditation and evaluation are to be created and that establishments should be restructured according to the evolution of the labor market requirements. Thus, the government and the MHE have expressed since 2008 their strong awareness about the employability issue as well as their willingness to empower universities and their establishments and to endow them with the necessary means, resources and authority to enjoy this autonomy.

The LMD scheme became compulsory for all establishments and all fields in 2008, except for engineering and medical studies (medical schools, dentistry and veterinary medicine). As of 2012-2013, 705 licenses and 520 masters' programs were approved. The accreditation and evaluation committees are created but yet not fully functional. The main problem with the LMD reform is that it was passed without ensuring that the prerequisites are fulfilled.

Overall, in practice, the LMD reform has led to limited changes and remains shallow. There was a problem of ownership because the key partners' participation to its design was weak. It was based on a rather top-down procedure and it allowed for limited discussion and interaction with the stakeholders, including the institutions themselves, the student community and the university staff and their representatives. Because no significant changes in their incentive system were introduced, their behavior remains unchanged. Moreover, the employability issue, which should have been the major concern underlying this reform, was not at the heart of the debate when the project was at the preparation stage. An initial evaluation of the LMD reform indicates that its implementation was precipitated and that the prerequisites in terms of equipment, training and retraining the faculty and the management teams were not assured. As a result, not enough trust was built in the new institutions including in the evaluation committees and not enough progress was achieved in terms of university autonomy and accountability. In practice, the linkage between the universities and the employers remains weak. In particular,

the observatories created to strengthen the communication between the two parts are not yet operational.

The debate is not over. A tripartite national commission comprising representatives of the ministry, of elected faculty and of the labor unions is in charge of preparing proposals. Many documents are already circulating covering various aspects of the higher education system, including its governance. It comes out from various partial reports that there is a consensus about the need for higher quality universities and for addressing the employability issue. The institution of the mechanisms and procedures for quality assurance, including systematic evaluation, accreditation and other accountability mechanisms seem to be in progress. There is also a serious concern about the availability of financial and human resources for higher education and that there is an urgent need for better communication channels and for building more trust and understanding between all partners (Government and MHE, faculty, management, students, business…) and somehow towards private higher education establishments. Yet, so far, the debate remains internal between different pillars of the higher education system. Business and employers in general, students and the public are not systematically involved.

Moreover, the reform of the higher education system is still to be integrated in the reform of the education and training system.

4. Quantitative Analysis, the Survey Data Results

The main objective of this empirical section is to give a quantitative assessment of the performance of the Tunisian higher education system based on the THEGS 2015 survey data. The focus is on the learning and employment experience of university graduates. It also gives information about curricula, the perception of some key aspects of the training quality, professional experience and satisfaction.

4.1 Sample description and methodology

The survey covers only graduates in economics, business and computer sciences and related specialities and is limited to urban areas.[8] The questionnaire contains two parts, one on the household and the other on the graduate. A rich set of information is obtained on the graduate's household socioeconomic characteristics, educational path, higher education, diploma and speciality. We find also information on working opportunities and record, especially the duration before finding a first job, the chronology of all jobs and the characteristics of each job. A particular attention is paid to the current occupation for those who are employed, to periods of unemployment, short and long, and to the effort made to search for employment. Domestic work, work characteristics and conditions are investigated. Next, we report on the responses given by graduates on their own assessment of the quality and benefits of their higher education.

The sample is drawn from the Tunisian National Employment Agency (ANETI)[9] database, which is an exhaustive database regarding graduates interested in its services. In fact, since the majority of graduates need ANETI's services, the database is almost exhaustive for the targeted population. The initial sample includes 15,500 addresses located throughout the urban areas of the 24 governorates of the country. It contains the addresses, date of birth, date of graduation and speciality diploma, etc. Based on sampling information from INS, we set a sub-sample of around 2,500 individuals. This sub-sample is representative at the regional level but hardly at the governorate levels. There are seven regions, which are Greater Tunis, the North East, the North West, the Mid East, the Mid West, the South East, and the South West. Because the information obtained was not fully updated it was hard to reach all individuals; the final size of

[8] A similar survey was already conducted in Egypt, Jordan and Turkey; the latter being regarded as a benchmark for the region.

[9] Agence Nationale de l'Emploi et du Travail Indépendant (ANETI).

the sample reached is 1,225 graduates aged 25-40 years distributed by region as shown in Table 7. We record 74 graduates from private higher education establishments. This corresponds to 6 percent of the total; which is consistent with the proportion of the private sector at the national level (less than 5 percent in 2012 and 7.8 percent in 2014).[10]

4.2 Characteristics of the graduates

In the perspective of a comparative analysis between graduates of public and private higher education institutions a description of their profile is given in order to detect the existence of significant differences between the two groups. The professional status of parents and educational path prior to the access to university are important indicators. The constraints and rigidity of the orientation system constitute an important push factor out of the public universities. However, only when they are not satisfied with the place obtained in the public sector, students and parents switch to the private sector if they can afford to pay the tuition. However, table 8 shows that parents who work in the formal private sector or are employers tend to encourage their children to go to private institutions.

From Table 9, we see that the majority of graduates in the sample, more than 97 percent, come from public primary and secondary schools. However, the proportions are lower for graduates of private universities (up to ten percentage-points difference). For this cohort, only private primary schools were more common and surely more attractive than private secondary schools. Another striking fact concerns the students from middle schools and high schools for talented students (elite schools accessible through competition). Most of these students obtain very high scores in the baccalaureate exam and access the school corresponding to their first choice. The few that do not make it because of bad luck do not accept the place offered to them in the public sector and go to private universities (between 4 and 5 times more likely).

4.3 Comparative analysis of the learning experience in public and private higher education institutions

This sub-section provides a public-private comparative analysis of some key features of higher education, namely the teaching methods and student participation in the evaluation of all components of the training. It also takes a closer look at the role of universities in bridging education and future jobs and subsequently tracking of graduates after their graduation.

From Table 10, it is first noted that the appropriate proportions of the choice of institution and speciality are almost similar. This is due to the main specificity of the Tunisian educational system which is the introduction since nearly 40 years of the centralized orientation system of the baccalaureate holders. The founders of this system argue that it has the main advantage of ensuring equity among all candidates regardless of their socioeconomic characteristics. Opponents of the system believe that it is too mechanical. Sometimes, educational outcomes especially of the final examination, does not really reflect the true profile of candidates. Pupils are formed and accumulate knowledge in a precise goal to ensure a good score which could allow them access to socially rewarding areas like medicine and engineering. Parents are investing in private lessons in order to help their children to obtain better grades. This is a kind of intellectual doping which may be effective in the short term. If the true acquired intrinsic capacities and skills are below the value of the grades obtained, the graduates are likely to fail professionally.

In some cases, students are very unhappy with the place and the university to which they are assigned by the orientation process, which may deeply harm their performance. They may

[10] MHE (2014), (In French). The figure of 7.8 percent is announced after the conduct of the survey.

totally fail. This is a real issue even though the system offers their first choice to about 65 percent of the candidates and their third choice or better to over 93 percent.

We can see from Table 11 that most of the training in all fields of economics and computer sciences is in French as the main communication tool. French remains the main language for these fields. The use of English as the language of instruction is not frequent. Tunis Business School is a prominent example. It is a public school of economics and management exclusively in English and following the American model.[11] Some private schools offer programs in English, but they remain rare exceptions.

Regarding the graduates' assessments on teaching methods, they are roughly similar in both types of higher education institutions, public and private (Table 12). Teachers in private schools are trained in public institutions, and often belong to the permanent staff of public schools and taking a second job in these private schools. There are nevertheless some important differences in teaching methods. The same teacher may behave differently to some extent in private schools. First, public institutions still tend to maintain the classic mode of teaching based on lectures as the main vector of transmission of knowledge. This is may be due to the massive number of students present in these institutions. Working in small groups is much more feasible in private institutions. For this reason, they are more likely to adopt more modern teaching methods. They put more emphasis on research projects, oral presentation and information technology.

Table 13 shows that the assessment of the capacities of public universities to prepare for working life is not systematically superior to private sector universities. Overall, more than 2/3 of the respondents were quite satisfied. They find that the training they acquired helped them in developing the skills they need and enabling them to access to jobs and to be successful when changing from one job to another.

Table 14 underscores the lack of evaluation by the students themselves of the faculty and of the quality of the training although some progress in this area has been achieved in private institutions. Indeed, faculty evaluation mechanisms by students exist in private schools, since about 43 percent of private sector graduates reveal that they have participated in the evaluation of teachers' performance against only 4.4 percent in public institutions. It seems that private institutions pay more importance to the monitoring of their graduates than their public counterparts. Alumni associations are also more developed in private schools where important efforts are being made to provide information on job opportunities (Table 15). We know that within public universities observatories are established but they are not yet operational and effective.

Upon completion of university studies (Table 16), over 60 percent assert that they are satisfied with the training they have acquired at the university. Graduates of private institutions seem to be more confident (64.8 percent against 60.2 percent) perhaps because they and their parents have invested money for this training and could chose their establishment and field of training. Fortunately, we record a quite low proportion of graduates (3.1 percent in public institutions and 5.6 percent in private ones) disappointed because of a wrong choice or forced orientation. However, still, about 35 percent express reservations about the choice of the university, or the area of studies or both.

[11] Tunis Business School (TBS) established in 2010 as a pilot project. It belongs to the University of Tunis.

4.4 Comparative analysis of the labor market outcomes

This sub-section of the study examines the professional experience of graduates focusing on the characteristics of their first job and their current job and on unemployment duration before finding the first job and the mobility in the labor market.

The data confirms that unemployment is not only very high for graduates but also very persistent. Table 17 shows that, based on the available sample, half (49.4 percent) wait for more than one year to find their first job. In other words, unemployment duration before the first job is less than one year for the other half. Among these only 22.8 percent wait very little and 26.6 percent wait for up to one year. About 40 percent wait for two to four years. Remarkably, the situation is significantly better for private higher education institutions: 38.4 percent of their graduates are hired rapidly and 61.5 percent in less than one year, compared to 49.4 percent for the public sector[12].

For a first job (Table 18), nearly 60 percent start as wage earners with a slight lead for graduates of private institutions (65.8 percent against 58.9 percent). Few people want to be employers or self-employed. Those who declared themselves as job seekers but enrolled in graduate courses are either undecided or would take a job if they find one. Finally, graduates from public institutions are more likely to be unemployed than graduates from private institutions (23 percent against 15 percent). These figures are smaller than the overall official unemployment rate for young university graduates, more than 30 percent according to INS 2014 labor survey.

As indicated in Table 19, we can see that the first job is often relatively stable and the situation is better for graduates of private higher education institutions, since 52.1 percent of them declare themselves with a permanent status against near 35 percent for graduates from public institutions. Still, a substantial proportion in the two groups has a temporary status much more pronounced among graduates of public institutions (59 percent against 43.7 percent). 70 percent of respondents have a contract but no information on the nature of these contracts is provided. We do not know if such contracts are at fixed or indefinite period. The lack of social protection affects many more graduates from public higher education institutions (54.2 percent against 34 percent). We see, therefore, that securing a contract does not mean an automatic access to social benefits.

Relating to characteristics of current job in Table 20, in addition of the public-private higher education institutions differentiation the age of graduates could reveal a significant distinction in the main characteristics. Relatively, more private schools' graduates are employed in the private sector, both for age group 25-30 years and the 31-40 years group. We also note that the private higher education graduates are moving much more towards the private sector even if it is informal. Employment stability is not guaranteed. About 60 percent of graduates in the age group 25-30 years and half of the next bracket say they have a temporary status,

Nevertheless, more than half are satisfied with their job, but the level of satisfaction on the pay tends towards dissatisfaction.

5. Case Studies: Private Vs. Public Universities

5.1 University of Tunis El Manar (UTM)

UTM is a multi-disciplinary university comprising 15 establishments and 38,000 students (in 2014-2015); of whom 62 percent are women. 7,000 graduate yearly. It employs 3,169 teachers, including 1,382 belonging to the medical profession. Its programs are in law, humanities, health, medical studies, engineering, economics and business, mathematics, physics, chemistry, computer sciences, biology…The oldest medical, law and engineering schools belong to UTM,

[12] As noted in the introduction, the situation is worse for areas other than those covered by this study.

and most of its departments are the oldest of the country in their area. Its laboratories and libraries are relatively well equipped and among the best in the country. Substantial research output comes out of the 132 research units (teams) formed in all areas. This includes about 300 doctoral thesis completed. Faculty does publish often internationally but there is not a good record kept of the volume and quality of their research publication. This is mainly because researchers have little incentive to register their work at their department/school or university; it would have little impact on their pay or status. However, when they need to participate in a competition for promotion to higher professional level they do show their work to the committee in charge of the assessment and ranking of the candidates. This committee is a national committee independent of the university. Not enough is done to obtain the maximum out of the research potential of the existing faculty and students enrolled in UTM.

UTM is still managed according to the old centralized and bureaucratic mode and closely controlled by the MHE.

It remains rather disconnected from the labor market in spite of the reform adopted through the 2008 law. Consequently, in many areas, such as chemistry, biology, law and business its graduates are facing a lot of hardship in finding jobs. The situation is better for some other fields, mainly medical doctors and engineers.

Its faculty of economics and business (FSEGT),[13] which is again the oldest of its kind in the country, has around one hundred and eighty full time teachers, more than half of them with Ph.Ds. and about 50 at the professor level. Tens of doctoral dissertations are completed yearly (between 40 and 60) and some of the faculty members do publish quite regularly, but their publications are hardly visible as explained for the rest of UTM and all other universities in Tunisia.

Because of the fast increase in the demand for enrollment the number of FSEGT students reached more than 10 thousand around 2000-2001, way beyond its capacity but this number was gradually reduced back for around five thousand students (4,849 in 2014) distributed between finance, marketing, management, quantitative analysis and economics. The students' distribution is determined mainly by the availability of teachers and less by the students' demands or the market needs. FSEGT's programs have evolved and were diversified over the last three decades. The initiative to introduce new curricula in some cases came from within FSEGT itself as a result of a willingness of its faculty to modernize its studies, for instance when it introduced quantitative analysis in the early eighties, mathematical economics and econometrics, marketing in the mid-nineties. In other cases, it responded to the MHE change of policy or pressure. Several master degrees established in the 2000s and applied under graduate programs were designed because all establishments were asked to do so.

The establishment of a new program or degree requires the preparation of a proposal and then its approval by FSEGT's board and then by UTM board and the agreement of the accreditation commission for economics and business studies. This procedure should theoretically ensure that the program fits in UTM and the MHE policies and responds to the needs of the labor market. In practice, little or no concertation with the demand side is conducted and the decision is based mainly on the ability of the establishment to supply the service. However, action is being taken to make the accreditation process more effective, but it is not clear yet how long it will take to make it fully effective.

Altogether, most of the innovations were not designed to respond to the market needs. The overgrowth of its student body in the late nineties and early 2000s had a very negative impact

[13] Faculté de Sciences Economiques et de Gestion de Tunis.

on the perception of the labor market and the students on the quality of the training of this institution and caused a lot of damage to its historical heritage.

For the last decade or so, the outcome was that more than 40% of FSEGT's graduates, although not among the least fortunate, put more than one years after graduation to find a job (based on the 2011 HED survey).

5.2 Private universities (ESPRIT and Arab University of Sciences UAS)

Private higher education in Tunisia is governed by the law No. 2000-73, of July 25th, 2000. Indeed, 82 percent of the private universities provide tertiary educational services in the areas of computer sciences, economics, finance, accounting, and management, which are the areas covered by the THEGS survey. These universities are geographically concentrated in the Greater Tunis (31 institutions), Sousse (5 institutions) and Sfax (4 institutions). Most of the private universities and institutions are small in terms of students numbers and more so in terms of faculty and research capacities. They try to attract Tunisian students who are not satisfied with the place they obtained within the public sector, and also foreign students who can afford to pay. No financial aid or credits are available for education in private universities, which are all profit driven. However, some of these institutions are taking advantage of their wider autonomy and their flexible management to innovate and to try to offer services not available in public institutions. For instance, their students may benefit from internships in private businesses and from modernized teaching methods. *ESPRIT* and the Arab University for Sciences belong to this innovating category and will be briefly presented in what follows.

5.2.1 ESPRIT

Professor Tahar Bellakhdhar, the founder of *ESPRIT* in 2003, declared that his university's focus is on free initiatives and achievement and its aim is to free higher education form the routine and bureaucracy that often hamper the work of public scientific institutions at the Tunisian universities.

The University's challenge

He also claims that his university operates in accordance with international quality standards (CDIO, EUR) - (ACE, CGE), which remains a main challenge for engineering studies in Tunisia.

The number of freshmen is in the range of 500 students and today's new challenge is to increase the institution's ability to absorb larger numbers, around 5000 students in total from various regions of the country. ESPRIT students originate mostly from rich and mid-social backgrounds due to costly fees. Students are selected according to two essential criteria. They should have good communicative ability in English and French because of the openness of *ESPRIT* to foreign universities and fulfill scientific requirements allowing her/him to participate in the scientific exchange programs overseas. International experts evaluate students and *ESPRIT*.

Curricula and staff training

ESPRIT relies widely on the internet and on case studies before moving to theory. In this context, *ESPRIT* took part in the 12th round of the competition "Award for Imagination" rewards creative scientific projects. It is funded with the help of Microsoft and Tunisia Telecom. This project was about a game designed by Windows Phone 8.[14] These innovations witness the contribution of the teachers in *ESPRIT*, as most of them receive training sessions and share experiences with foreign universities. The institution also organizes training sessions that focus

[14] The creativity in this application is in the quality of the game and the accuracy of its drawings. The competition was run by ISET, ESPRIT, ENSET, ENIT, ESTEI.

mostly on teaching pedagogy and scientific research. It also rewards efforts made by its faculty: supervision of students' scientific research, extra teaching hours and empowerment of scientific competences... This explains the high share of teachers' salaries in the total budget. More than 250 mostly part time teachers belong to its staff. 80 percent of the institution's budget goes to teachers' salaries. The key objective of the institution is to deepen students' knowledge of modern facilities, especially in the case of engineering and technological students, and to understand the challenges of the internal and external job market and build strategies that enable the student to strengthen their competencies according to the labor market needs. For instance, Samsung Tunisia continues its support for the young engineers in Tunisia through consolidating its cooperation with *ESPRIT*.

5.2.2 Arab University for Sciences and Technology (UAS)

The Arab University for Sciences and Technology belongs to the group of Education and Services firms established in 1994 and includes a Faculty of Law and Journalism and humanities as well as a College of Engineering and Technology, in addition to universities in Gabon and Mali, and training and vocational centers in Saudi Arabia. The group is highly interested in promoting knowledge and education, especially at the primary and college levels. It built three colleges and five primary schools. Students come from various social and regional backgrounds despite the 5,000 Dinars yearly tuition. They can major in law, management, humanities or engineering with its various branches (civil, electrical and media industries, engineering and mechatronics). UAS promoter is not fully satisfied with his students' performance and effort because only 15 percent pass to the higher class. This low performance is also attributed to the small proportion of full-time students and to their inadequate cognitive skills.

Administrative organization of the institution and the teaching staff

The teachers at this institution are subject to the same professional hierarchy as their counterparts in the public higher education institutions, they may be promoted only on the basis of their scientific research and publications. AUS faculty comprises 80 contract-based teachers (usually full time elsewhere in a public institution).

Scientific cooperation and work partnerships

The university is keen on creating partnerships with public and private institutions and on facilitating the involvement of the students in the labor market. It also helps students interested in starting their own business and those applying for internships and values the importance of building scientific and employment partnerships with foreign institutions where some students are accepted for graduate studies.

6. Conclusion and Recommendations

In spite of the reforms attempted to improve the quality of the education system this system remains very disconnected from the demand side of the labor market. The gap is wider regarding higher education. There is a wide consensus that the current institutional and regulatory system governing higher education does not generate the right incentives for quality assurance, the production of the right skills and the enhancement of the employability of the graduates. Management and academic staff have little incentive to adapt their training and research programs to the market needs. This is to a large extent because they enjoy little autonomy and are hardly accountable neither to their students or their parents who support them nor to the government who provides most of their funding. This is not to say that governance and the incentive system are the only explanatory factors of the unemployment and the deterioration of educational quality. The rapid expansion of the number of students and the low level of labor demand, especially of skilled labor, are two additional key factors. The rapid increase of the number of students between 1990 and 2009 put an enormous pressure on the

ability of the public universities to provide an adequate training. Employers too do very little to convey their needs in terms of skills or their recruitment plans to universities. The wide mismatch between the skills needed and those produced by the universities is a logical outcome of the lack of communication between supply and demand. The communication channels and the market mechanisms are not really functioning.

Within this framework, private universities behave differently, and try to innovate and to be closer to the potential employers' demands. However, they remain small as they do attract less than ten percent of the total student body, given that tuition fees for public universities are negligible compared to theirs. Moreover, private universities are all profit driven and have to minimize cost. Consequently, they prefer not to have a permanent academic staff, to rely mostly on temporary not so motivated teachers and to stay away from costly specialties.

Higher education remains key to increasing productivity and mastering new technologies. The challenge is in terms of a more rational use of resources allocated to education, to teach the relevant skills and to put in place the right scientific capacities. There is a strong and wide support for the urgent need for reforms to reach these objectives. This will involve necessarily a new design of the reward and of the recruitment and promotion methods for the staff and the selection of students. Universities and their establishments have to be more autonomous and more accountable and to follow more appropriate management methods, as long as they can access the financial resources they need for their mission. The communication channels between employers and universities have also to be strengthened. For instance, the observatories already created have yet to obtain the resources and the authority to produce and analyze the data required by the decision makers both on the supply and the demand sides of the skilled labor market.

The reform process has started but not yet at the right pace. The incentive system is to be deeply transformed.

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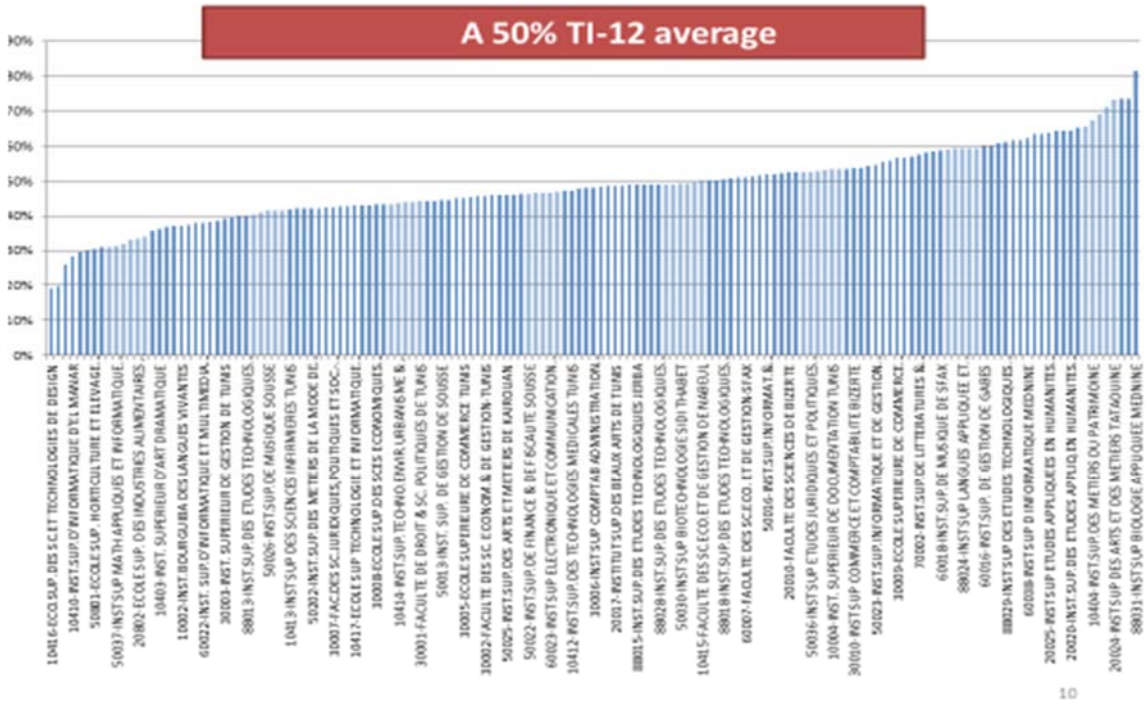
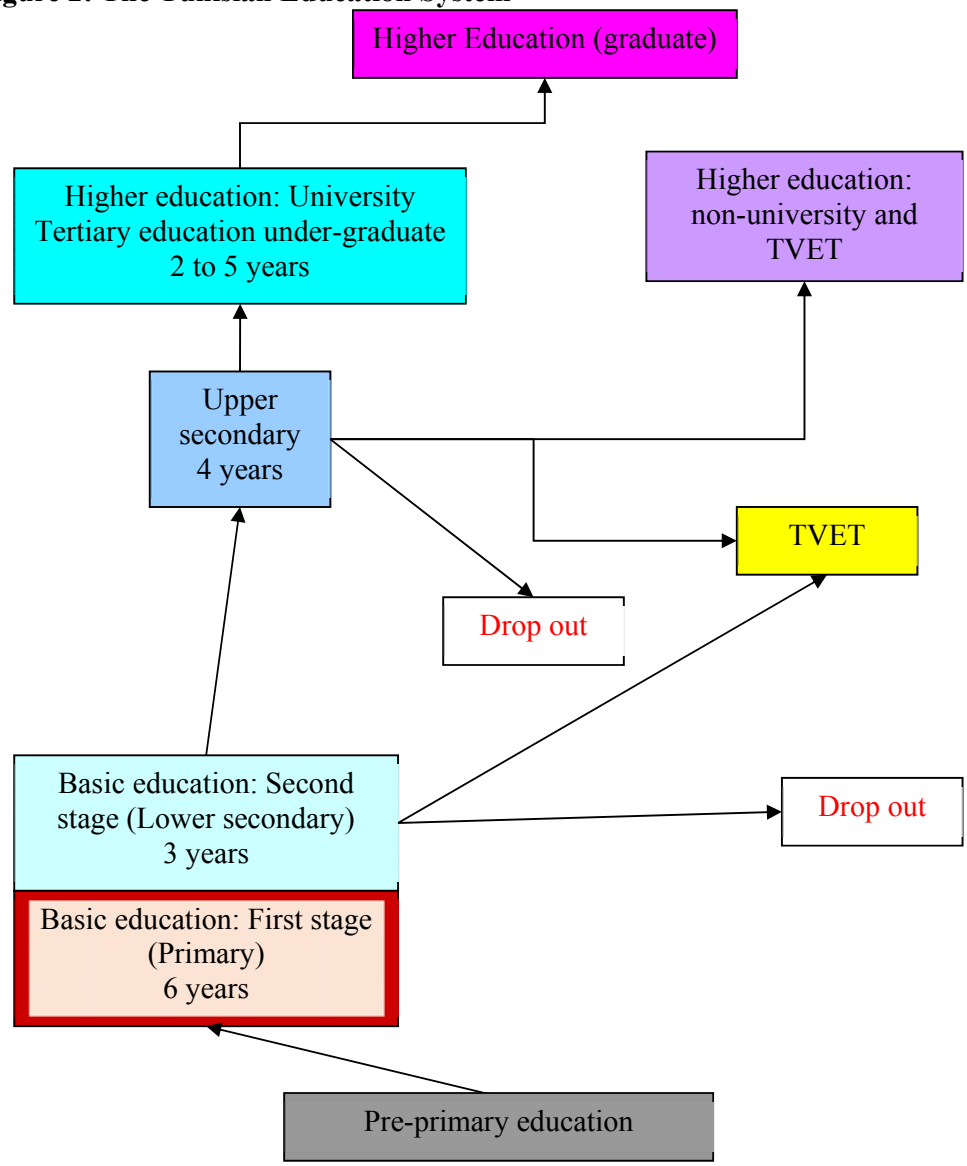
Figure 1: Graduates Finding a Job 12 Months After Graduating by Establishment



Source: MHE, 2012, « A la recherche d'indicateurs de pilotage de l'Université pour une meilleure employabilité de ses diplômés », unpublished report.

Figure 2: The Tunisian Education System



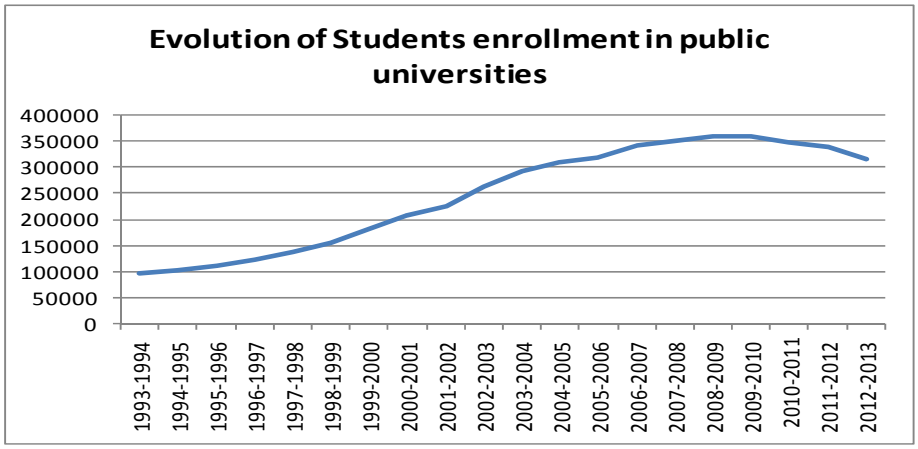
Source: Designed by authors.

Figure 3: The Tunisian Higher Education System

<table>
<tr><td>Years</td><td rowspan="11">Third cycle</td><td rowspan="11">Third cycle (graduate studies)</td><td rowspan="11"></td><td rowspan="11"></td><td rowspan="8"></td><td rowspan="8">Doctorate</td><td rowspan="11"></td><td>Credits</td></tr>
<tr><td>11</td><td></td></tr>
<tr><td>10</td><td></td></tr>
<tr><td>9</td><td></td></tr>
<tr><td>8</td><td rowspan="2">480</td></tr>
<tr><td>7</td></tr>
<tr><td>6</td><td rowspan="4">Second cycle</td><td rowspan="4">Second cycle</td><td rowspan="5">Architecture</td><td rowspan="3">Engineering school</td><td rowspan="2">Professional Master's</td><td rowspan="2">Research Master's</td><td>300</td></tr>
<tr><td>5</td><td>240</td></tr>
<tr><td>4</td><td rowspan="2">Applied License</td><td rowspan="2">Fundamental License</td><td>180</td></tr>
<tr><td>3</td><td rowspan="2">120</td></tr>
<tr><td>2</td><td>First cycle</td><td>First cycle</td><td>Pre-ingeneering</td></tr>
<tr><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>60</td></tr>
<tr><td>Area</td><td>Medical studies</td><td>Dentistry Pharmacology Veterinary and medical schools</td><td colspan="2">Engineering</td><td colspan="2">LMD</td><td>ISET</td><td></td></tr>
<tr><td colspan="9">Passing the BACCALAUREAT is the main prerequisite for admission to higher education
All students who pass the baccalaureate are oriented through a centralized procedure; based on her/his score, each student is oriented to a specific public institution and a specific field.</td></tr>
</table>

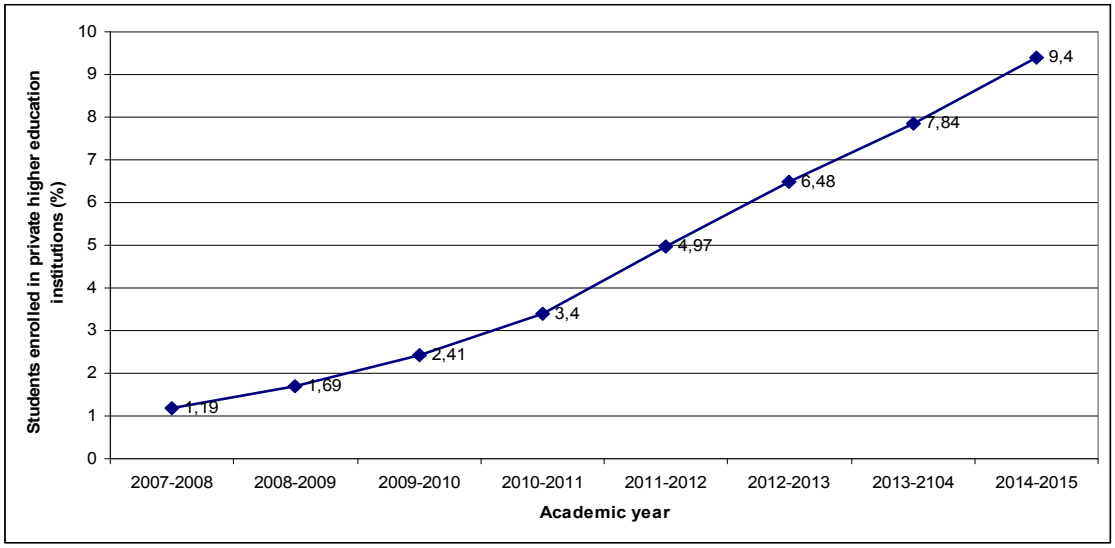
Note: Students go from pre-engineering training to engineering schools upon a competition, and they are oriented to schools and specialized fields through a centralized procedure.
Source: Based on MHE data.

Figure 4: Evolution of the Number of Students in Public Universities



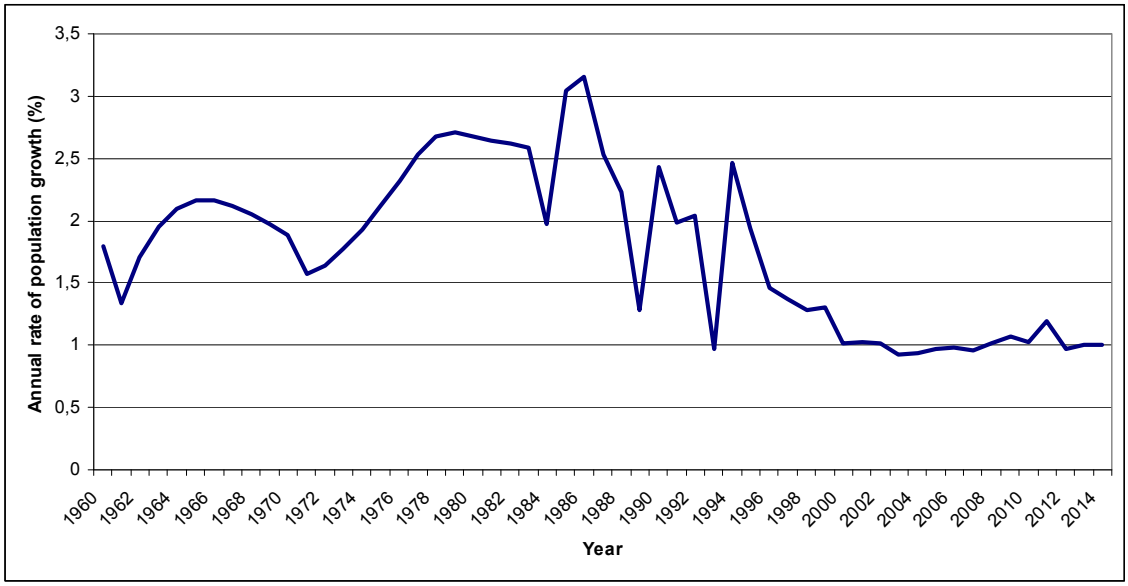
Source: MHE, "Higher education and scientific research statistics 2012-2013", and non-published MHE data.

Figure 5: Proportion of Students Enrolled in Private Higher Education Institutions (in Percentage)



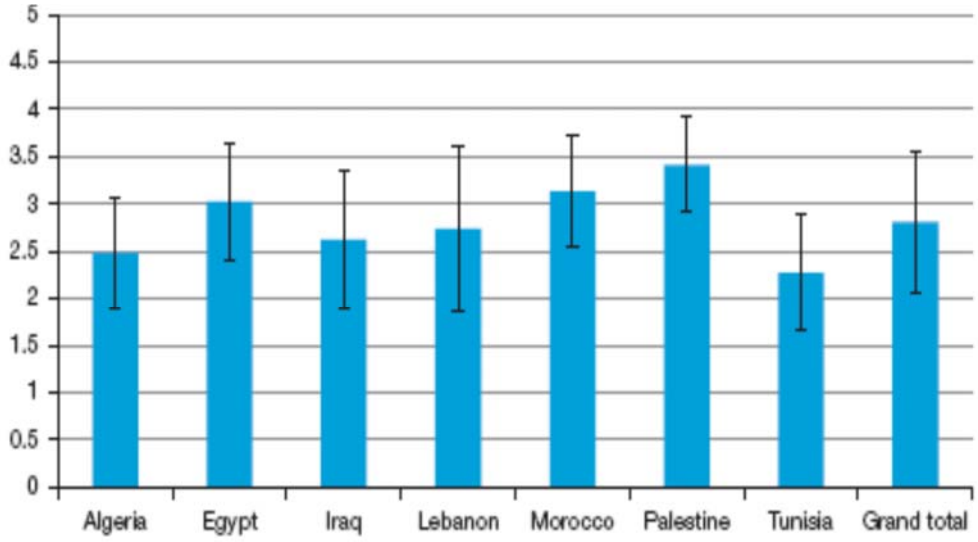
Source: MHE, "Higher education and scientific research statistics 2012-2013".

Figure 6: Tunisian Population Growth (in Percentage)



Source: WDI, World Bank database.

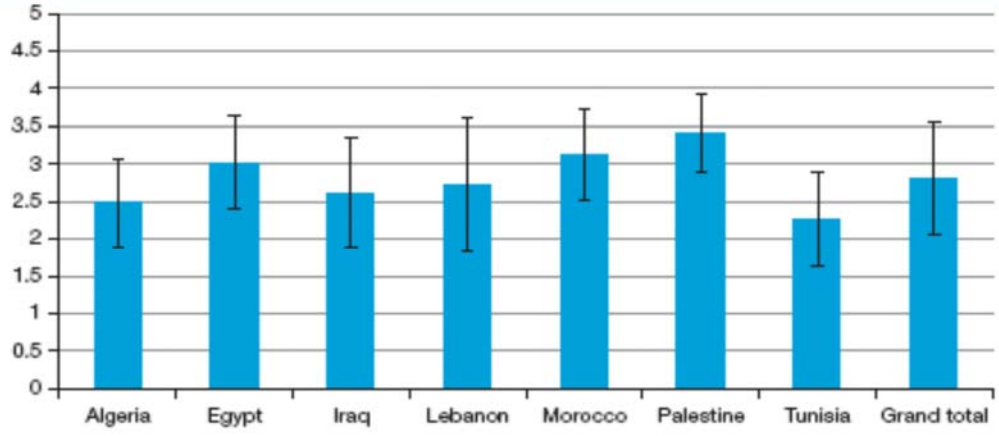
Figure 7: Average Scores on the Autonomy Axis by Country



Note: Error bars represent the standard deviation in each country sample.

Source: World Bank (2013).

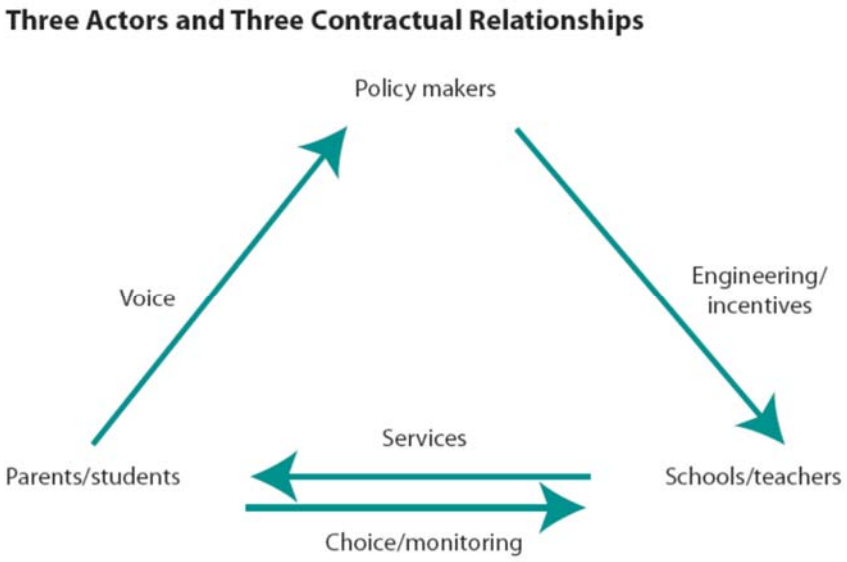
Figure 8: Average Scores on the Accountability Axis by Country



Note: Error bars represent the standard deviation in each country sample.

Source: World Bank (2013).

Figure 9: The Conceptual Framework



Source: World Bank (2013).

Table 1: Labor Force by Educational Attainment (in Percentage)

	1966	1975	1984	1994	2001	2006	2011	2014*
Higher	1.2	1.4	3.3	7	10	15	17	23
Secondary	7.1	12.8	20	29	30	31	38	39
Low (primary or none)	91.7	85.7	76.8	64	60	54	45	38
Total	100	100	100	100	100	100	100	100

Source: INS;[15] 2014*: 2014 Census.

Table 2: Evolution of the Number of Teachers in Public Universities

Grade	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Professor and Associate Professor	1731	1753	1898	2092	2257	2314
Assistant Professor and Assistant Lecturer	7914	8157	8918	9620	9939	9879
Contractual Assistant	3547	3493	3399	2858	2124	1520
Hospital-University Teachers	1812	2165	2211	2497	2631	2831
ISETs Teachers	1999	2068	2022	2059	2176	2172
Other grades	3919	3651	3699	3548	3422	3595
Foreign teachers	288	265	264	205	282	251
Total	21210	21552	22410	22879	22830	22562

Note: Other grades include experts, artisans, engineers, specialized teachers from secondary schools.

Table 3: Evolution of the Student to Teacher's Ratio

	2006	2007	2008	2009	2010	2011	2012	2013	2014
University of Tunis	22.1	20.5	20.4	18.5	18.1	17.7	16.5	13.5	13.9
University Zitouna	22.1	27.7	25.5	26.3	27.0	20.4	25.9	24.0	.254
University of Tunis El Manar	17.2	17.1	16.8	15.4	14.5	14.5	13.1	11.8	11.7
University of Carthage	19.6	18.5	18.1	17.6	18.2	16.9	15.9	15.2	13.0
University of Manouba	24.1	20.0	22.8	19.3	16.4	18.0	17.1	16.0	14.6
University of Jendouba	26.6	24.0	22.8	21.4	19.3	19.7	18.2	15.5	16.3
University of Sousse	21.8	19.9	20.5	18.1	16.3	15.7	15.3	14.3	14.5
University of Kairouan	23.6	23.8	21.3	21.6	17.1	15.63	16.7	13.5	13.05
Universiy of Monastir	15.9	16.1	16.7	16.8	15.5	15.27	14.6	12.1	11.92
University of Sfax	18.4	17.5	17.3	16.8	16.2	14.68	13.4	13.2	12.81
University of Gabès	10.6	19.2	18.9	18.5	17.7	16.82	15.8	13.3	12.92
University of Gafsa	33.3	23.2	23.3	24.7	21.3	17.01	14.1	11.4	11.14
ISETs	13.1	12.3	11.3	13	12.3	11.34	11.5	10.9	10.86
Average	**19.0**	**18**	**18**	**17.4**	**16.3**	**15.59**	**14.7**	**13.3**	**12.8**

Table 4: Distribution of Youth by Educational Attainment and Region in 2013 (in Percentage)

Region	Illiterate	Primary	Secondary	Higher	Unknown	Total
Greater Tunis	1.4	10.9	53.6	33.1	1.0	100
North East	2.9	21.2	57.8	17.9	0.3	100
North West	6.4	23.5	52.9	16.9	0.3	100
Mid East	2.3	21.1	52.3	24.0	0.4	100
Mid West	8.9	31.0	47.0	12.9	0.2	100
South East	2.0	18.2	59.4	20.0	0.4	100
South West	3.0	15.2	60.6	21.3	0.0	100
Total	3.4	19.6	53.9	22.6	0.5	100

Note: INS, Labor Survey 2013.

[15] Institut National de la Statistique (INS). It is the National Institute of Statistics and the governmental central statistical bureau.

Table 5: Evolution of the Number of Students Enrolled in Public Tertiary Education Institutions by Type of Studies (ISCED Classification) from 2006 to 2013

Domain of studies	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
Training of trainers and education science	1936	1301	1327	1618	1667	1191	994
Arts	13964	17339	18017	19903		18148	14499
Literature	57950	57747	60572	58022	52832	51343	46196
Business and administration	50726	61495	60199	54773	49816	47102	43654
Law	21846	21633	19741	19518	19866	20545	19906
Journalism and Communication Sciences	3246	2570	2208	1763	1728	1562	1457
Social and behavioral Sciences	32363	21150	18821	17857	16470	17261	17101
Mathematics and statistics	9642	9713	7744	6952	6115	5645	5328
Computer science and multimedia	40106	43612	49903	51371	50246	49423	45404
Life Sciences	12860	13205	11029	10087	8982	8604	8668
Physics	16919	18273	17941	17785	16640	16434	15684
Processing and transformation industries	4049	4057	5028	5259	5330	5146	4553
Architecture and construction	5830	5784	6743	6922	7311	7558	7310
Engineering and similar techniques	34206	36190	41592	44989	47450	48279	46376
Veterinary Sciences	462	407	454	450	468	459	439
Forestry and fisheries	6128	5903	5902	6044	6173	6307	5771
Health	17464	18509	20225	20904	22429	22451	21123
Social Services	625	657	1118	1089	1159	1181	1084
Environment Protection	726	755	1440	1641	2212	2141	2180
Transportation Services	1649	1693	1735	1565	1679	1698	1554
Services for individuals	7695	8835	8433	8960	8058	7141	6232
Total	**340392**	**350828**	**360172**	**357472**	**346876**	**339619**	**315513**

Source: MHE, BEPP, "Higher Education and Scientific Research Statistics", 2012-2013.

Table 6: Evolution of Graduates in Public Institutions by Type of Diploma

Diploma	2006	2007	2008	2009	2010	2011	2012	2013
License				8191	34715	52522	50874	44644
Short cycle (Old regime)	21525	23066	24069	18516	11782	56	3	
Mastery	25995	25566	2389	26660	26076	6509	467	4
Engineering and Architecture	3015	3420	3711	4086	4157	4252	4611	5199
Doctorate in Medical Studies, Dentistry, or Pharmaceutical Studies	1222	1295	1383	1136	1137	1454	1502	1510
Fundamental Master's				3665	3991	3899	4433	4257
Professional Master's				1751	2492	3367	5135	4758
Other diplomas	605	697	818	971	893	1115	931	383
Total	56559	58598	60613	65630	86035	74133	68880	61376

Note: Other diplomas are whose in auditing, additional studies, national planning and development diploma, National Arts degree, specialty Diploma, National Diploma of veterinary Doctor.
Source: MHE, BEPP, "Higher Education and Scientific Research Statistics", 2012-2013.

Table 7: Sample Distribution by Region

Region	Number	Proportion
Greater Tunis	424	34.6
North East	152	12.4
North West	101	8.3
Mid East	276	22.5
Mid West	56	4.6
South East	119	9.7
South West	97	7.9
Total	1225	100

Table 8: Parents' Employment Status at Age 15 (in Percentage)

	Public Institutions	Private Institutions	Total
	Father's Employment Status at Age 15		
Wage Worker in Public Sector	38.7	32.9	38.3
Wage Worker in Private Formal Sector	14.4	28.8	15.3
Wage Worker in Private Informal Sector	13.4	4	12.9
Employer	10.9	32.9	12.2
Self-employed	15.4	1.4	14.6
Unpaid Family Worker	0.2	0	0.2
Unemployed	2.3	0	2.1
Deceased	1.7	0	1.6
Others	3	0	2.8
Total	100	100	100
Number of observations	1146	73	1299
	Mother's Employment Status at Age 15		
Wage Worker in Public Sector	9.2	16.4	9.6
Wage Worker in Private Formal Sector	2.5	15.1	3.3
Wage Worker in Private Informal Sector	0.5	0	0.5
Employer	0.6	0	0.6
Self-employed	0.8	0	0.7
Unpaid Family Worker	1	1.4	1
Unemployed	12.4	34.2	13.7
Deceased	0.2	0	0.2
Others	72.8	32.9	70.4
Total	100	100	100
Number of observations	1148	73	1221

Note: The class "Others" for women includes undoubtedly housewives.

Table 9: Type of Primary and Secondary Schools Attended by Graduates (in Percentage)

	Public Institutions	Private Institutions	Total
		Primary Schools	
Public Institutions	98.5	85.1	97.7
Private Institutions	1.5	14.9	2.3
Total	100	100	100
Number of observations	1151	74	1225
		Intermediate Secondary Schools	
Public Institutions	97.9	90.5	97.5
Public Pilot Institutions	1.7	8.1	2
Private Institutions	0.4	1.4	0.5
Total	100	100	100
Number of observations	1151	74	1225
		Secondary Schools	
Public Institutions	97.1	87.8	96.6
Public Pilot Institutions	1.8	10.8	2.4
Private Institutions	1.1	1.4	1
Total	100	100	100
Number of observations	1151	74	1225

Table 10: Order of Choice for The Institution and Specialty (in Percentage)

	Public Institutions	Private Institutions	Total
		Choice of specialty	
First	64.7	75.7	65.4
Second – Third	28.8	16.2	28
Fourth – Fifth	4.1	2.7	4
Other	2.4	5.4	2.6
Total	100	100	100
Number of observations	1151	74	1225
		Choice of Institution	
First	65	70.3	65.3
Second – Third	28.5	23	28.2
Fourth – Fifth	4.2	1.3	4
Other	2.3	5.4	2.5
Total	100	100	100
Number of observations	1151	74	1225

Table 11: Language of Instruction (in Percentage)

Language	Public Institutions	Private Institutions	Total
Arabic	0.4	0	0.4
French	91.9	94.6	92
Arabic and French	7.7	4	7.5
English	0	1.4	0.1
Total	100	100	100
Number of observations	1151	74	1225

Table 12: Teaching Methods (in Percentage)

	Public Institutions						Private Institutions					
	A	B	C	D	E	Obs.	A	B	C	D	E	Obs.
Lectures	11.2	12.3	24.2	40.4	11.9	1130	30.9	5.5	40	23.6	0	55
Group Projects	6.2	13.6	37.1	34	9.1	1126	1.8	12.7	36.4	47.3	1.8	55
Research Projects	9.3	14.2	34.6	33.3	8.6	1125	3.8	9.4	26.4	56.6	3.8	53
Applied Knowledge	6.7	13.8	25.6	44.1	9.8	1120	0	11.4	38.6	45.5	4.5	44
Theories	4.1	12.4	25.6	45.8	12.1	1114	5.6	13.2	41.5	34	5.7	53
Instructor as Main Source of Information	3.2	11.6	25.8	41	18.4	1106	1.9	13.2	47.2	35.8	1.9	53
Problem Solving	15.3	22.2	25.1	28.4	9	1101	18.9	11.3	39.6	20.8	9.4	53
Analytical Duties	12.5	20.9	27	29.7	9.9	1106	6.3	14.6	39.6	27.1	12.5	48
Oral Presentation	18.6	16.8	25.6	29.2	9.8	1102	9.5	7.5	22.6	51	9.4	53
Multiple Choice Questions	12.5	20.5	28.7	27.8	10.5	1101	5.8	26.9	36.5	23.1	7.7	52
Writing Assignments	13.7	22.2	25.8	26.3	12	1098	7.8	21.6	41.2	21.6	7.8	51
Use of Information Technology	7.3	12.8	21.4	35.7	22.8	1101	1.9	3.8	17	41.5	35.8	53

Notes: A: Never; B: Rarely; C: Sometimes; D: Usually; E: Always.

Table 13: Graduates' Evaluation of Their Higher Education Adequacy (in Percentage)

	Public Institutions						Private Institutions					
	A	B	C	D	E	Obs.	A	B	C	D	E	Obs.
To Get First Job	8.1	21.9	33.8	33.3	2.9	992	17.9	12.8	23.1	46.2	0	39
Life-Long Learning	8.3	15.5	36	36.7	3.5	929	7.8	21.6	29.4	27.3	3.9	51
Doing Current Job	7.9	16.3	32.3	38.8	4.7	956	6.3	10.4	20.8	52.1	10.4	48
Future Jobs	5.8	15.2	29.4	44.1	5.5	971	7.7	5.8	15.4	57.7	13.4	52
Self-Development	6.5	13	26.7	45.6	8.2	1020	7.6	7.5	20.8	54.7	9.4	53
Creative Skills	8.4	14.9	24.6	44.5	7.6	1004	11.3	9.4	24.5	47.2	7.6	53

Notes: A: Not Suitable at All; B: Not Suitable; C: Relatively Suitable; D: Suitable; E: Very Suitable.

Table 14: Students' Assessment of Their Higher Education Learning Experience (in Percentage)

	Public Institutions	Private Institutions	Total
		Assessment of Professors	
Yes	4.4	42.5	6.8
No	95.6	57.5	93.2
Total	100	100	100
Number of observations	1125	73	1198
		Participation in Student Satisfaction Surveys	
Yes	3.6	37	5.6
No	96.4	63	94.4
Total	100	100	100
Number of observations	1125	73	1198
		Participation in Student Exit Surveys	
Yes	2.7	31.9	4.5
No	97.3	68.1	95.5
Total	100	100	100
Number of observations	1119	72	1191

Table 15: Maintaining Connection with Alumni and Job Placement (in Percentage)

	Public Institutions	Private Institutions	Total
		Join an Alumni Group	
Yes	1.8	4.2	1.9
No	98.2	95.8	98.1
Total	100	100	100
Number of observations	1121	72	1193
		Job Placement Service	
Yes	3.2	27.1	4.6
No	96.8	72.9	95.4
Total	100	100	100
Number of observations	1122	72	1194
		Follow Situation After Graduation	
Yes	1.3	19.4	2.4
No	98.7	80.6	97.6
Total	100	100	100
Number of observations	1124	70	1194

Table 16: Perception of the Choice of Higher Education Institution and Specialty (in Percentage)

Perception of the Choice	Public Institutions	Private Institutions	Total
Same University/Specialty	60.2	64.8	60.4
Same University/Not Same Specialty	10.2	8.4	10.1
Same Specialty/Not Same University	9.9	11.3	10.1
Other University/Other Specialty	15.8	9.9	15.5
Interruption of Instruction	3.1	5.6	3.2
Other	0.8	0	0.7
Total	100	100	100
Number of observations	1132	71	1203

Table 17: Unemployment Duration Before First Job

Group	Public Institutions	Private Institutions	Total
Immediate	22.8	38.4	24
One year	26.6	23.1	26.4
Two years	18.6	13.5	18.2
Three years	12.4	7.7	12
Four years	8.4	5.8	8.2
Five years	4.3	3.8	4.3
Six years	3.4	0	3.1
Seven years+	3.5	7.7	3.8
Total	100	100	100
Number of observations	679	52	731

Table 18: Graduates' First Employment Status Upon Graduation

First employment Status	Public Institutions	Private Institutions	Total
Wage Worker	58.9	65.8	59.3
Employer	1	1.4	1
Self-Employed	2	1.4	2
Contributing Family Worker	0.5	2.7	0.7
Work for Others Without Pay	0.4	0	0.3
Unemployed	18.8	12.3	18.4
House Wife	3.7	1.4	3.6
Post Graduate	7.3	2.7	7
Others	7.4	12.3	7.7
Total	100	100	100
Number of observations	1100	73	1173

Table 19: Characteristics of First Job (in Percentage)

	Public Institutions	Private Institutions	Total
		Work Stability	
Permanent	34.9	52.1	36
Temporary	59	43.7	58
Seasonal	1.7	2.1	1.8
Intermittent	4.4	2.1	4.2
Total	100	100	100
Number of observations	688	48	736
		Access to Work Contract	
Yes	71.6	68.6	71.4
No	28.4	31.4	28.6
Total	100	100	100
Number of observations	680	51	731
		Access to Social Insurance	
Yes	45.8	66	47.2
No	54.2	34	52.8
Total	100	100	100
Number of observations	672	50	722

Table 20: Characteristics of the Current Job by Age and Type of Higher Education Institution (in Percentage)

	Graduates Aged 25-30			Graduates Aged 31-40		
	Public Institutions	Private Institutions	Total	Public Institutions	Private Institutions	Total
Sector						
Public Sector	13.2	6.5	12.6	29.9	22.7	29.5
Private Sector	83	90.3	83.5	63.5	72.8	64.1
Informal Private Sector	2.4	3.2	2.5	4.9	4.5	4.9
International Institutions	0.7	0	0.7	0.7	0	0.6
Others	0.7	0	0.7	1	0	0.9
Total	100	100	100	100	100	100
Nb. Obs.	408	31	439	302	22	324
Work Stability						
Permanent	33.8	65.5	35.9	48.2	55	48.6
Temporary	61.3	34.5	59.5	46.9	40.5	46.4
Seasonal	1.5	0	1.4	1.6	5	1.9
Intermittent	3.4	0	3.2	3.3	0	3.1
Total	100	100	100	100	100	100
Nb. Obs.	407	29	436	303	20	323
Access to Work Contract						
Yes	71.3	70	71.2	72.1	72.1	72.1
No	28.7	30	28.8	27.9	27.3	27.9
Total	100	100	100	100	100	100
Nb. Obs.	404	30	434	297	22	319
Access to Social Insurance						
Yes	46.3	73.3	48.2	54.4	68.2	55.3
No	53.7	26.7	51.8	45.6	31.8	44.7
Total	100	100	100	100	100	100
Nb. Obs.	402	30	432	296	22	318

Table 21: Reported Level of Job Satisfaction by Age and Type of Higher Education Institution (in Percentage)

	Graduates Aged 25-30			Graduates Aged 31-40		
	Public Institutions	Private Institutions	Total	Public Institutions	Private Institutions	Total
Satisfaction About Job Security						
Not Satisfied At All	6.5	0	6.2	10.3	5.6	10
Not Satisfied	12.9	4.1	12.4	12.4	22.2	13
Relatively Satisfied	18.2	16.7	18.1	17.4	11.1	17
Satisfied	56.6	75	57.6	55.3	61.1	55.7
Very Satisfied	5.8	4.2	5.7	4.6	0	4.3
Total	100	100	100	100	100	100
Nb. Obs.	397	23	420	282	18	300
Satisfaction About Pay						
Not Satisfied At All	16.7	16.7	16.7	18.1	11.1	17.7
Not Satisfied	31.4	20.8	30.8	24.6	22.2	24.4
Relatively Satisfied	24.7	8.3	23.7	24.6	11.1	23.7
Satisfied	23.6	50	25.2	28.8	55.6	30.5
Very Satisfied	3.6	4.2	3.6	3.9	0	3.7
Total	100	100	100	100	100	100
Nb. Obs.	390	23	413	281	18	299
Satisfaction About Type of Work						
Not Satisfied At All	10.9	8.3	10.8	11.8	5.6	11.4
Not Satisfied	19.1	4.2	18.2	19.6	16.6	19.5
Relatively Satisfied	27.5	20.9	27.1	23.6	16.6	23.1
Satisfied	36.6	58.3	37.9	40.4	55.6	41.3
Very Satisfied	5.9	8.3	6	4.6	5.6	4.7
Total	100	100	100	100	100	100
Nb. Obs.	394	23	417	280	18	298
Satisfaction About Work Hours						
Not Satisfied At All	10.9	4.2	10.5	10.7	5.6	10.3
Not Satisfied	17.2	12.5	17	14.9	11.1	14.7
Relatively Satisfied	21.1	4.2	20.1	22	22.2	22
Satisfied	45.7	79.1	47.6	49.6	61.1	50.3
Very Satisfied	5.1	0	4.8	2.8	0	2.7
Total	100	100	100	100	100	100
Nb. Obs.	395	23	418	282	18	300
Satisfaction About Work Time						
Not Satisfied At All	8.4	8.7	8.4	9.6	0	9.1
Not Satisfied	19.4	4.3	18.6	16.8	12.4	16.6
Relatively Satisfied	21.7	4.4	20.7	24.6	18.8	24.3
Satisfied	46.4	82.6	48.4	46.1	68.8	47.3
Very Satisfied	4.1	0	3.9	2.9	0	2.7
Total	100	100	100	100	100	100
Nb. Obs.	393	22	415	280	16	296
Satisfaction About Commute Time						
Not Satisfied At All	7.9	4.2	7.7	8.2	5.5	8
Not Satisfied	19.3	4.2	18.5	16	11.1	15.7
Relatively Satisfied	23.7	12.5	23	22.4	27.8	22.8
Satisfied	44	70.8	45.5	50.2	55.6	50.5
Very Satisfied	5.1	8.3	5.3	3.2	0	3
Total	100	100	100	100	100	100
Nb. Obs.	394	23	417	281	18	299
Satisfaction About Suitability of Job to Skills						
Not Satisfied At All	14.3	8.4	13.9	15.3	5.6	14.7
Not Satisfied	23.9	4.2	22.8	17.4	11.1	17.1
Relatively Satisfied	20.6	8.3	19.9	19.6	11.1	19.1
Satisfied	35.1	70.8	37.2	43.4	66.7	44.8
Very Satisfied	6.1	8.3	6.2	4.3	5.6	4.3
Total	100	100	100	100	100	100
Nb. Obs.	394	23	417	281	18	299

Appendix

Abbreviations and Acronyms

- ANETI: Agence Nationale de l'Emploi et du Travail Indépendant
- ASSF: Applied Social Science Forum
- ASU: Arab Sciences University
- BEPP: Bureau d'Etudes et de Planification et de la Programmation
- ERF: Economic Research Forum
- ICT: Information and Communication Technologies
- INS: Institut National de la Statistique
- ISET: Institut Supérieur d'Etudes Technologiques
- LMD: Licence-Mastère-Doctorat
- MENA: Middle East and North Africa
- MHE: Ministry of Higher Education
- UTM: University of Tunis El Manar
- UVT: Université Virtuelle de Tunis
- THEGS: Tunisia Higher Education Graduate Survey
- TLMPS: Tunisia Labor Market Panel Survey
- TVET: Technical and Vocational Education Training

Table A1 : Number of Institutions, Enrolled Students, Faculty and Assistants in Tunisian Higher Education System, 2013-2014

	Overall		Economics & Management		ICT	
	Number	%	Number	%	Number	%
Number of Institutions/Faculties						
Public Universities	173	70.6	24	58.5	26	63.4
Private Universities	47	19.2	17	41.5	15	36.6
ISETs	25	10.2				
Total	245	100	41	100	41	100
Number of Students Enrolled						
Public Universities	287637	84.1	60890	89.8	58000	90.4
Private Universities	26019	7.6	6945	10.2	6143	9.6
ISETs	28298	8.3				
Total	341954	100	67835	100	64143	100
Number of Faculty and Assistant Faculty						
Public Universities	22830	n.a.	n.a.	n.a.	n.a.	n.a.
Private Universities	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ISETs	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total						
Average Number of Students per Institution/Faculty						
Public Universities	1663		2537		2417	
Private Universities	554		409		361	
ISETs	1132					
Total	1396		1655		1564	
Student-Faculty Ratio						
Public Universities	13		n.a.		n.a.	
Private Universities	n.a.		n.a.		n.a.	
ISETs	n.a.		n.a.		n.a.	
Total						

Source: Ministry of Higher Education and Scientific Research, BEPP, "Higher Education and Scientific Research Statistics", 2014-2015.