ISSN: 2834-7706

Research Article

Journal of Mathematical Techniques and Computational Mathematics

The PhD Situation in Tunisia

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Submitted: 01 Nov 2022; **Accepted:** 08 Nov 2022; **Published:** 15 Nov 2022

Citation: Sakhri M, S, A . (2022). The PhD Situation in Tunisia. *J Math Techniques Comput Math*, 1(2), 116-123.

Abstract

Among the fields that make of the Tunisian country proud, is the education sector and particularly that of the higher education. Tunisia has a considerable number of graduates annually, but its employment strategy for these graduates remains very limited, especially for PhD's. Tunisia also has a large number of PhD's in various fields of activity with potential. In this report, we provide an overview of the current post-doctoral situation of Tunisian PhD's. We will start by describing our current system of including PhD's in the research and teaching ecosystem. Then, we will analysis the data of the unemployed PhD's collected to show the debauchery of the adopted system. Finally, we will give recommendations that could reduce the unemployment rate of this category of graduates.

Keywords: Doctoral Degrees, Employment Potential, Graduate PhDs, Higher Education.

Introduction

The PhD is the highest university degree [1]. Most students stop their studies after obtaining a master's degree, while a minority prefers to continue their studies and go into research or teaching. To go deeper into a master's subject, it is the fact of wanting to go further in the quest for knowledge and research, this step requires the investment of the student, after a three-year licence, followed by a two-year research master. This path is not as easy as it seems because it requires from the Tunisian student, as in most countries, hours of work in research laboratories and at home, which requires a lot of time spent reading articles and research work of other researchers [2]. Moreover, the work is mostly autonomous and may or may not lead to satisfactory results [1].

In Tunisia, a doctoral thesis requires, in addition to the physical investment, a huge budgetary investment to attend conferences, publish articles, travel, and subsidise the needs of the doctoral student and his/her research. An annual scholarship of 3,000 dinars (equivalent to approximately $920) is awarded to a doctoral student and financial support from the research laboratory to which the student is assigned may also be provided. Unfortunately, this financial aid is not always available [3]. Given these constraints, most Tunisian doctoral students do not finish their thesis in 3 years and some of them abandon their doctoral course along the way. Other difficulties also appear such as the abandonment of a doctoral student by his supervisor because of what he considers a bad progress or his departure to other foreign countries to have better living conditions without notice, which is detrimental to the future of the doctoral student.

Once the PhD is obtained, the doctor becomes unemployed without social security or unemployment benefits. There are alternatives such as teaching contracts that can help them to support themselves for a limited period. This strategy, which does not preserve the dignity of most PhDs, has led the Tunisian Ministry of Higher Education and Scientific Research to rethink their strategy for the inclusion of PhDs in professional life by thinking about the implementation of post-doctoral contracts, which have been too limited up to now, as well as retraining, particularly in the digital sector. However, these actions run counter to the desire of PhDs to become teachers and researchers, for which they have spent a large part of their lives preparing.

Over the past decade, Tunisia has experienced an average annual growth rate of about 5% [4]. However, the economy has not been so fortunate due to the political, economic, and geopolitical turmoil that has shaken the country since 2009. This situation has had an impact on graduates, particularly regarding doctoral studies [5]. Indeed, as the assistant professor competition is the only way for PhDs to teach at the university, the selection process has been slowed down several times and its openings have been made with not only limited positions but also foreshadowing a short-term crisis. In 2020, the situation deteriorated, with protests held outside the Ministry for months. In 2021, its protests turned into hunger strikes and confrontations with law enforcement.

As a solution, in 2021, the Prime Minister and the Minister of

Higher Education and Research proposed to open a recruitment competition for assistant professors that should have taken place in 2019, in 2022, with a limited number of positions and a commitment to take in about 13% of unemployed PhDs, a three-year strategy to develop the employability of PhDs. This encouraged us to launch this study to better understand the situation of Tunisian PhD. In this study, we want to know what is really happening with PhDs in Tunisia and give an overview of the different types of researchers and research fields existing in Tunisia to promote the areas in which the government could invest with our own research resources as well as other countries that have needs for such profiles. What follows is an analysis based on a real survey that collected data on Tunisian PhDs who are not currently teaching regularly in higher education. Finally, recommendations are made for the formulation of a national regulation to protect the interests of unemployed PhDs.

Analytical Study of Tunisian Unemployed Doctors' Data

Development of the Database

In our study, we consider that the number of PhDs in Tunisia is between 8,000 and 8,500 (population size), not often in teaching and research jobs (regular positions). In our work, we will take a significant sample, i.e., a sample that represents all categories of PhD and in a random way. For the sampling, we put online a survey accessible to PhDs on social network pages dedicated to PhDs and researchers. We have chosen a margin of error equal to 5% and a confidence level of 95%. With these parameters, the sample must be greater than 368, i.e., the number of responses from doctors after cleaning our database must be greater than or equal to 368 responses. In our case, we have five hundred responses, and after cleaning, the number of remaining responses that do not represent exceptions and errors is 452, which is about a 4.50% error rate. These answers will be the subject of our research.

Analysis of the Obtained Results

From our analytical research, we have identified a first observation concerning the number of PhD students in Tunisia. The analysis of our data showed that the number of PhDs is about 3% of the unemployed active population in higher education in 2020, [6]. This rate is extremely low because considering that only one doctor can teach a university student with this rate a PhD is assigned to 1,500 students which is a remarkably high number. In our study, we will analyse the results obtained from the constitution of our database in terms of the social characteristics of PhDs that have a direct impact on their performance in scientific production and an indirect impact on the national scientific and economic progress. Figure 1 is a representation of the rate of PhDs by gender.

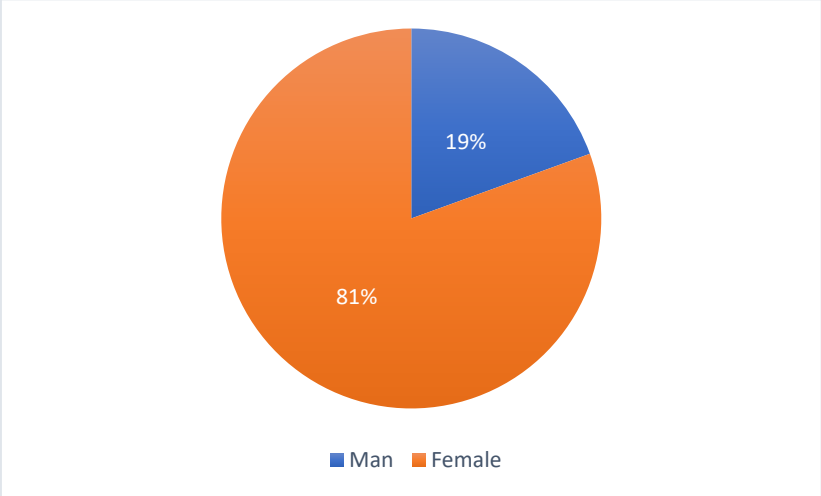

Figure 1: Distribution of unemployed PhDs by gender

The distribution of this number by gender is such that 19% of these PhDs are men and 81% are women. These figures are very realistic considering the long way a student must go to reach the degree of PhD and then the status of research teacher. The conditions in Tunisia favour the pursuit of research for a woman more than for a man. More details will be given in the following. The next diagram of Figure 2 represents the distribution of Tunisian PhDs by specialty.

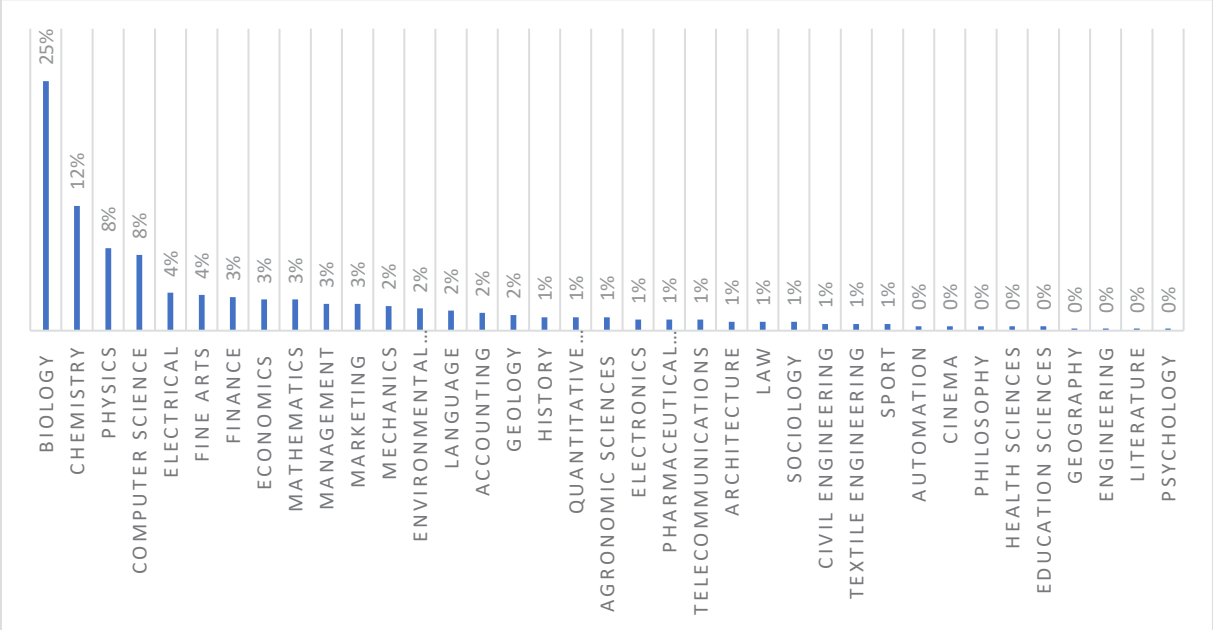

Figure 2: Distribution of PhDs by specialty

From this diagram, we can observe the disciplines that generate the most PhDs. Indeed, the branch of biology produces a quarter of the PhDs in Tunisia and the three branches that follow it and contribute to 28% of the PhDs are chemistry, physics, and computer science. Despite the importance of these branches not only on a national scale but also on an international scale, these specialties account for a greater number of unemployed PhDs. These observations show that the Ministry of Higher Education is visionary in relation to the debauches of PhD students but a rupture between the ministries in Tunisia exists which disfavours the exploitation of such a human potential and expertise. In Figure 3, we will study the distribution of PhDs by sector of activity.

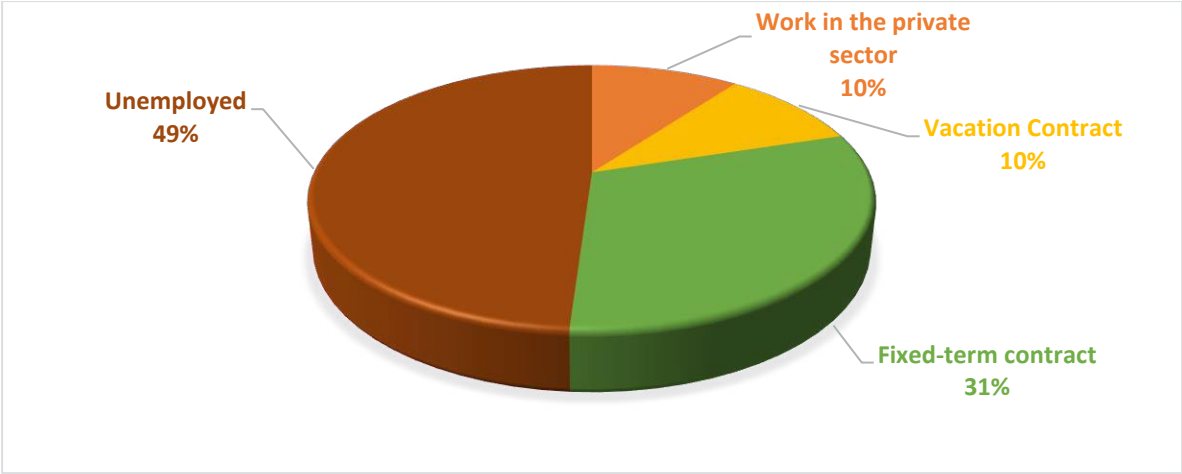

Figure 3: Distribution of PhDs by current function

This sectoral graph shows us the distribution of PhDs who are not teaching permanently by activity. We will study the distinct levels of the sectors to understand this distribution.

Among the existing solutions to the unemployment of PhDs, the Tunisian Ministry of Higher Education and Scientific Research has put in place two-year teaching contracts, which in some cases can last up to four years (specialties more in demand than others and in the case of institutions in the internal regions of the country where living and teaching conditions are less good). These contracts have different objectives, such as giving the PhD students a chance to practice and gain experience, and above all, a source of income while waiting for their promotion to the position of assistant professor following the success in the competition. However, Figure 4 shows that the number of contracts offered is limited, with only 53% of PhD students able to benefit from these contracts during the academic year 2021-2022.

Figure 4: Rate of PhDs who have benefited from a fixed-term teaching contract

As an alternative, some PhDs choose to teach at private institutions, where the contracts offer higher salaries (up to twice as much) but are more demanding, especially in terms of teaching hours and administrative work. Others have turned to teaching on a part-time basis (or an hourly basis), a practice that is often poorly compensated. According to Figure 5, the rate of PhDs who have taught on a part-time basis since graduation until 2022 is 66% of all unemployed PhDs.

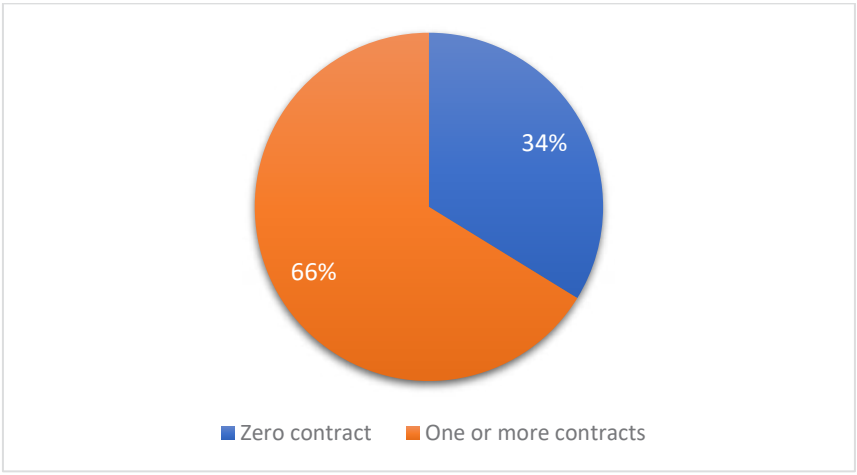

Figure 5: Rate of PhDs who have benefited from a vacation teaching contract

As with our investigation into the rates of PhDs who had a fixed-term contract or a vacation (part-time) contract, we will expose the rate of PhDs who had professional experiences other than in teaching in the next Figure 6.

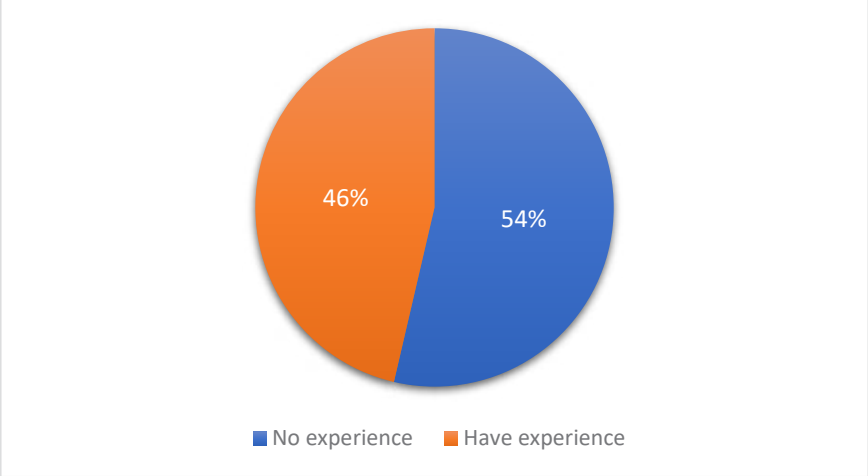

Figure 6: Rate of PhDs with professional experience (other than in teaching)

Figure 6 shows that 46% of the unemployed PhDs had professional experience in their career other than teaching. This rate represents an asset for these PhDs in case they wish to resume a professional career. However, the problem in Tunisia is that the remaining 54% of PhDs who have not had a professional career will have difficulties to integrate a professional life once they think of doing so. This is mainly due to the age factor and the lack of experience because neither teaching nor a doctoral career is valued by the Tunisian system as experience. In the diagram in Figure 7, we will look at the age factor of PhDs because of its importance in the employability of PhDs. This factor indicates the amount of time a PhD spends in university and the investment of the state in the education of this category of students.

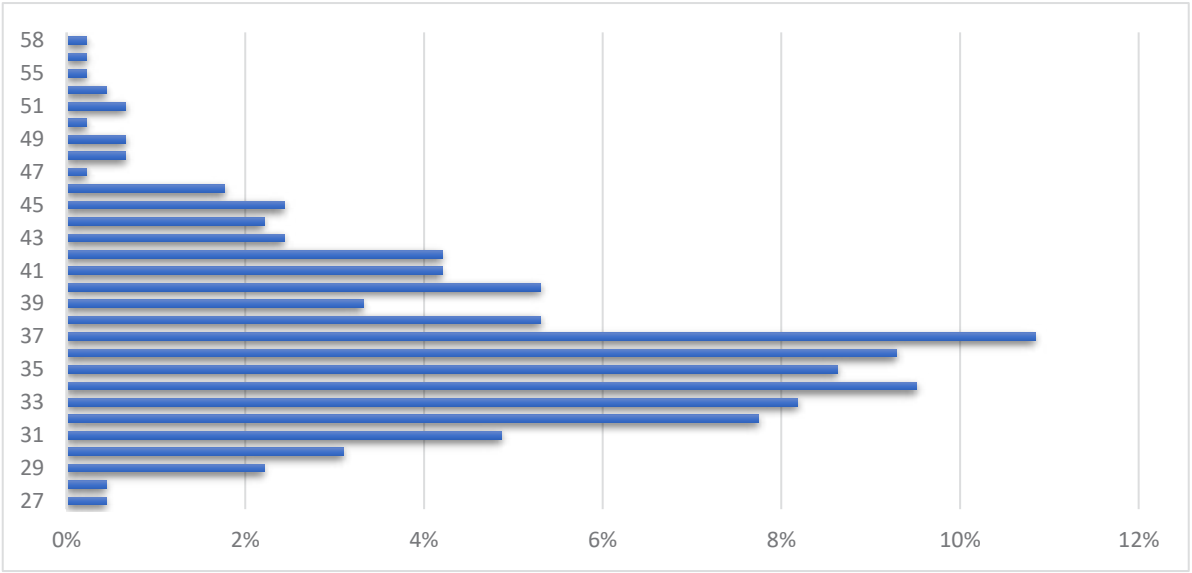

Figure 7: Distribution of PhDs by age of graduation

The distribution of the age of obtaining the PhD degree is distributed on the age interval between [29; 45] while the highest number is in the interval [32; 37] with 55% of the total number of PhDs. An age that does not favour the commitment to a new line of work, especially for a PhD with the highest educational status. For this reason, the rate of PhDs who have chosen to reconvert to another profession is extremely low, around 10%, and that the unemployment rate will reach 44% in 2022. This distribution of statuses can be seen in the visual in Figure 3. We will now outline the rate of PhDs who are still involved in the research aspect of their careers from Figure 8.

Figure 8: Rate of PhDs who are still active in scientific research

The pie chart in Figure 8 shows that we have two types of PhDs: those who are still involved in research without being formally attached to research structures and the others who have abandoned research. Indeed, almost three quarters of the PhDs continue to produce scientific articles. This can be explained by organisational factors such as competitions that require high level publications for a PhD to obtain an assistant professor position, also fuelled by the motivation of newly graduated PhDs who still have the desire to improve their scientific CVs and whose supervisors are still present and encourage them to progress.

According to Figure 8, 26% of the PhDs have continued to be involved in research. Among this category 50% did not have the chance to have teaching contracts, 25% of them passed the age of 40 without being recruited in teaching and 40% of them chose to return to the public or private sector to earn their living. Another way to improve the profile of the doctorate that we also explored in our study, which promotes further research work, and also presents a source of income for unemployed PhDs is to obtain a postdoctoral contract. This will be analysed in Figure 9.

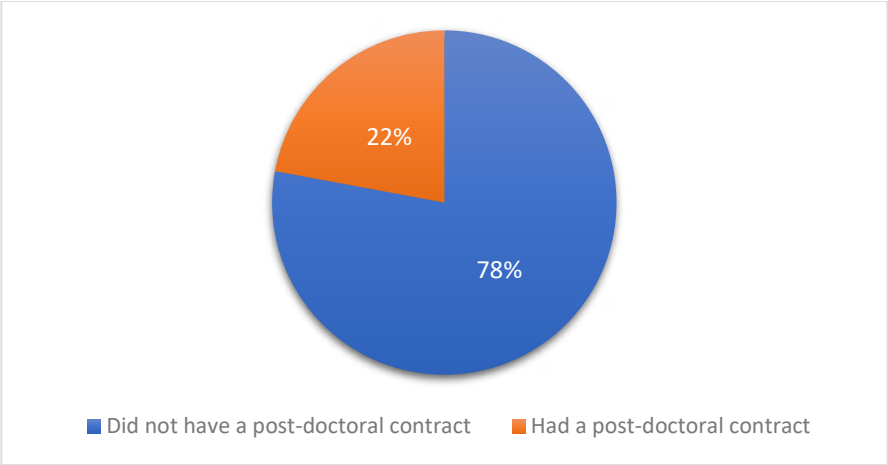

Figure 9: Percentage of PhDs with a postdoctoral contract

According to Figure 9, the investment in such an approach (having a postdoctoral contract) is extremely limited and only 22% of the PhDs were able to benefit from such a contract. Moreover, most of the PhDs who had post-doctoral contracts had opportunities elsewhere than in Tunisia since this practice is not always current in this country. The investment of PhDs in such unstable careers and an unclear future is due to the desire to end up with a stable position as a permanent teacher-researcher. In the following Figure 10, we will study the rate of PhDs who plan to participate in the recruitment competition for assistant professor in 2022 following a recruitment stoppage since 2018.

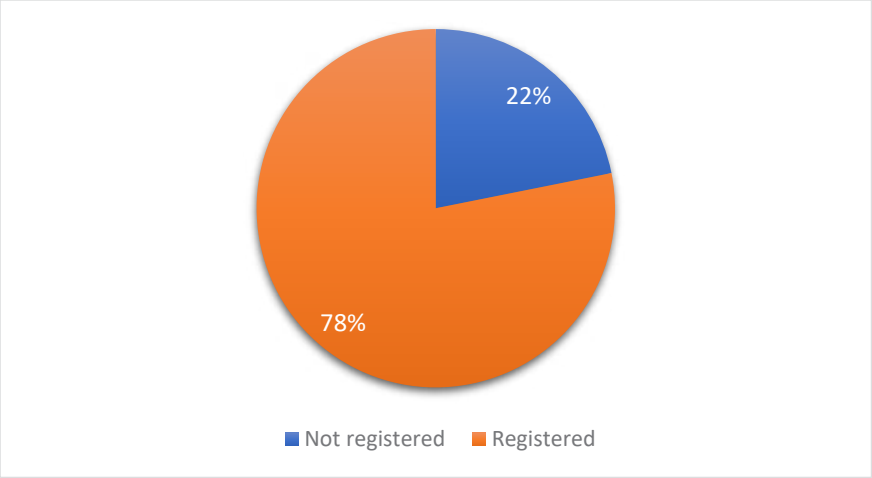

Figure 10: Percentage of PhDs enrolled in the 2019 competition (open in 2022)

We note in Figure 10 that despite the desire of doctors to enter higher education in the long term, 22% of them have given up taking the competitive examination for access to the rank of assistant professor in the competitive examination scheduled for 2022. This is due to several factors: the departure of several doctors abroad, a concurrence that leaves some PhDs indisposed, the constitution of a costly file for some unemployed PhDs who have no income and especially because of an emotional factor such as the failure or the non-partiality of the juries of the recruitment exam during previous competitions.

Recommendations

Several strategies can be put in place to improve the situation of Tunisian PhDs and make their presence more beneficial:

• Provide unemployment benefits and social security to unemployed PhDs to ensure that their basic needs are met and to continue investing in research.

• Include PhDs in key positions in public institutions other than higher education and promote their professional status.

• Permanent status for PhDs who have completed their teaching contracts while waiting to take/pass the competitive examination for assistant professors.

• Insist on research contracts and the creation of new work statuses for researchers to benefit from their knowledge and promote research in Tunisia, this will improve the ranking of Tunisian universities internationally.

• Investing in an active process of reconversion of researchers in the field of entrepreneurship to enlist them to transform their research into consumable and saleable products on the market while promoting a Tunisian economic progress.

This study focuses on the current situation of PhDs in Tunisia, some see that such a situation is disastrous but with a strategy of reconstitution the future of higher education and research can improve and even contribute to the improvement of the country's situation if the will exists. Most countries have already experienced such a situation, as in the case of European countries but they were able to get out of it thanks to the will to change [7, 8]. However, the Maghreb countries are still facing these problems and need to learn from the developed countries in order to put in place an employability strategy for their PhDs.

Conclusion

This document draws up the state of the Tunisian PhDs and the loss of a huge knowledge due to the absence of a strategy that must be put in place quickly to take advantage of a valuable product in which the Tunisian government has invested for over twenty years capable of advancing the economy and the state of the nation. In this document, an analysis of the situation of PhDs and their profiles have been drawn up to allow an overview of all the Tunisian PhDs' skills in education, research, development, and innovation that can propel this country.

Author Declarations

-Funding: Not applicable

-Conflicts of interest: All the authors have no conflicts of interest to disclose.

Data Availability Statement (DAS)

In our study, we used data collected through surveys of Tunisian PhDs. Link to our database: https://vu.fr/hDUz

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