Do Educational Mismatches Influence Job Satisfaction and On-The-Job Search in Algeria?

Aysit Tansel and Moundir Lassassi

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Aysit Tansel[1] and Moundir Lassassi[2]

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Send correspondence to:
Aysit Tansel
Middle East Technical University, Ankara, Turkey
atansel@metu.edu.tr

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[1] Department of Economics Middle East Technical University, Ankara, Turkey, Institute of Labor Economics (IZA) Bonn, Germany, Economic Research Forum (ERF) Cairo, Egypt, Global Labor Organization (GLO) - E-mail: atansel@metu.edu.tr.
[2] Center for Research in Applied Economics for Development, Algiers, Algeria & Economic Research Forum (ERF) Cairo, Egypt - E-mail: lassassim@gmail.com.

Abstract

This paper considers the effects of educational mismatches on two outcomes. They are job satisfaction and on the-job search in Algeria. We use Algerian Labor Force Surveys for the years 2003, 2005, 2007, 2010 and 2016. We also estimate all our model on the pooled data (2003-2016) to check the robustness of the results and to test for the effect of educational mismatch on job satisfaction and on the job search over time, we analyze men and women separately. We examine the effect of educational mismatch on job satisfaction and on the job, search using probit model. In all models, we introduce as control variables the following blocks of variables: 1) socio-demographic characteristics, 2) human capital and 3) labor market characteristics. For the models on job satisfaction and on the job search we add the variable educational mismatch. The salient findings are that the job satisfaction and, on the job search are strongly influenced by educational mismatch and some job characteristics for both men and women. We find that over education reduces likelihood of job satisfaction while undereducation increases likelihood of job satisfaction. Further, over-education increases the likelihood of frequent job changes for both men and women while under-education does not affect the likelihood of job changes for men but it reduces the likelihood of job changes for women.

Keywords: Educational mismatch, Labor Market, Job Satisfaction, On the Job Search, Algeria.
JEL Classifications: I21, J24, J28

ملخص

تتناول هذه الورقة آثار عدم التطابق التعليمي على نتيجتين:. أولا: الرضـــا عن العمل وثانيا: البحث عن عمل في الجزائر. نســـتخدم اســـتقصـــاءات القوى العاملة الجزائرية للأعوام 2003 و 2005 و 2007 و 2010 و 2016. نقدر أيضًا نموذجنا على البيانات المجمعة (2003-2016) للتحقق من متانة النتائج واختبار تأثير عدم التوافق التعليمي على الرضـــا الوظيفي وعلى البحث عن وظيفة بمرور الوقت، ونقوم بالتحليل عن كل من الرجال والنساء بشكل منفصل. نقوم بفحص تأثير عدم التوافق التعليمي على الرضا الوظيفي وعلى الوظيفة، والبحث باســـتخدام نموذج الاحتمال. في جميع النماذج، نقدم كمتغيرات تحكم الكتل التالية من المتغيرات: 1) الخصـــائص الاجتماعية الديموغرافية، 2) رأس المال البشري و 3) خصـائص ســوق العمل. بالنســبة للنماذج المتعلقة بالرضا الوظيفي والبحث عن وظيفة، نضـيف عدم التطابق التعليمي المتغير. وتتمثل النتائج البارزة في أن الرضـا الوظيفي، وفي البحث عن عمل، أنهما يتأثران بشـدة بعدم التوافق التعليمي وبعض الخصـائص الوظيفية لكل من الرجال والنساء. نجد أن زيادة التعليم تقلل من احتمالية الرضـا الوظيفي بينما يزيد نقص التعليم من احتمالية الرضـا الوظيفي. علاوة على ذلك، يزيد الإفراط في التعليم من احتمالية حدوث تغييرات متكررة في الوظائف لكل من الرجال والنساء بينما لا يؤثر التعليم الناقص على احتمال حدوث تغييرات في الوظائف بالنسبة للرجال ولكنه يقلل من احتمالية حدوث تغييرات في الوظائف بالنسبة للنساء.

1. Introduction

Educational mismatches are indicated by comparing the acquired level and field of education of an individual with the level and field of education considered most appropriate for the job. In the literature, there is also the concept of skill mismatches. In the assignment theory the two concepts of educational and skill mismatches are assumed to be closely related: educational mismatches imply skill mismatches which in turn have an effect on productivity and wages (Allen & van der Velden, 2001). Research has mainly focused on the wage effects of educational mismatches, whilst skill mismatches have received less attention. Indeed, a number of papers treat both kinds of mismatches as equivalent in spite of evidence showing that they are only weakly related (Allen & van der Velden, 2001; Di Pietro & Urwin, 2006; Green & McIntosh, 2007).

Studies on educational mismatches focus on the relationship between over education and wages. The empirical evidence for developing countries is sparse. There is only a recent study of the effect of over-education on wages in the MENA region (Elamin, 2023) The exploration of the over education-job satisfaction relationship remains largely uninvestigated in the MENA countries due to the data limitations.

The analysis of the effect of educational mismatch on job satisfaction is particularly important. Empirical studies have suggested that job dissatisfaction due to mismatch tends to influence both the productivity of the worker and the worker's likelihood of job change (Allen & van der Velden, 2001; Amador, Nicolás, & Vila, 2012; Battu, Belfield, & Sloane, 1999; Battu, Sloane, & Belfield, 2000).

Underutilizations of skills also exert a negative effect on wages distinct from the effects of over education, but the effects are very small. However, skill mismatches do have a strong effect on job satisfaction and on the-job search, after controlling for job quality, whereas educational mismatches lack any effect on these outcomes (Allen & van der Velden, 2001). Amador et al., 2012 examined the effects of job-worker mismatches on job satisfaction using the eight waves (1994-2001) of Spanish data in the European Community Household Panel (ECHP). They estimated the impacts of both educational and skill mismatches. Job satisfaction appears to be influenced by workers' previous job perceptions, suggesting a dynamic structure for job satisfaction. Research on job satisfaction effects of job–worker mismatches is typically based on the estimation of ordered discrete choice models for a cross section of data (Allen & van der Velden, 2001; Battu et al., 1999, 2000)

Recent projections show that the number of youth (15-24 years old) in Algeria are expected to increase from 6164 thousand in 2019 to 9604 thousand in 2040 (ONS-Algeria). Recently, the average educational attainment of Algerian population has increased considerably. On average, more than 350,000 university graduates enter the labor market each year. Algeria can benefit from this demographic dividend of the increasing share of better educated people in order to build a solid economy and bridge its productivity gap. Algeria has allocated considerable amount of resources to improve the education quality. In spite of this, the educated people are the most affected by unemployment. The unemployment rate among the university graduates was 18% (11% for men and 23.9% for women) (National Statistical Office (ONS) 2019).

Skill and educational mismatches represent one of the most important costly factors for MENA labor markets because of their adverse effects on productivity and therefore on the economic growth. Skill mismatches have potentially adverse effects at both the micro and macro levels. In this article we focus on the effects at the individual level. At this level, evidence from high income countries indicate that high skill mismatches are likely to affect wages and salaries, reduce job satisfaction and increase the likelihood of frequent job changes (Mincer, 1974; Verdugo and Verdugo, 1989; Daly et al., 2000; Dolton and Vignoles, 2000; Allen and van der Velden, 2001; Chevalier and Lindley, 2009). The objective of this paper is to fill this empirical gap by analyzing the effect of educational mismatches on job satisfaction and job change in Algeria a developing country.

Empirical work that has analyzed the effect of mismatch in job satisfaction usually finds a significant correlation between educational mismatches and job satisfaction. Battu et al., 1999 found a negative effect of over education on wages and job satisfaction, similar to the results of (Fabra Florit & Vila Lladosa, 2007; Johnson & Johnson, 2000) on the effect of skill mismatches on job satisfaction. This paper analyzes the effect of educational mismatches on job satisfaction and on job search in the case of Algeria. We do not analyze the effect of educational mismatches on wages due to a lack of data. We use Algerian Labor Force Surveys for the years 2003, 2005, 2007, 2010 and 2016. We also estimate all our model on the pooled data (2003-2016) to check the robustness of the results and to test for the effect of educational mismatch on job satisfaction and on the job search over time, we analyze men and women separately. We find that over educationreduces likelihood of job satisfaction while undereducation increases likelihood of job satisfaction. Further, over-education increases the likelihood of frequent job changes for both men and women while under-education does not affect the likelihood of job changes for men but it reduces the likelihood of job changes for women.

The outline of the paper is as follows. After the introduction, Section 2 will present the improvement in the educational attainment and the characteristics of the Algerian labor market. Section 3 will discuss the methods followed in estimation and the data used in the paper. Section 4 will present the results of the analysis, and Section 5 will conclude.

2. Background on Algerian labor markets

The labor force activity rate in Algeria remained very low, hovering at around 40 per cent (as compared to about 60 per cent in middle-income countries). It increased by a mere 1.2 percentage points between 2001 and 2019, going from 41 per cent in 2001 to 42.2 per cent in 2019. This was not enough to keep up with the population growth. Given high demographic growth, the active population increased by 48 per cent over the period, going from 8.5 million people in 2001 to 12.7 million people in 2019.

When broken down by sex, it is notable that for men, the labor force participation rate fell by 2.5 points during this period (from 69.3 per cent in 2001 to 66.8 per cent in 2019). On the other hand, for women, labor force participation rate increased by 4.9 points (rising from 12.4 per cent in 2001 to 17.3 per cent in 2019). Despite this increase, the activity rate of women in Algeria remains very low.

Overall, labor force participation rates increase with the level of educational attainment. In Algeria as it is in many other countries. This relationship is more visible for women than for men. Women with higher education have higher labor force participation rates compared to women with secondary education and below. Conversely, for men it is those with secondary and middle education who participate the most in the workforce.

Empirical research on the determinants of labor force participation find a positive relationship between women's education and labor force participation (Chamlou, Muzi and Ahmed 2011). It was thus expected that an increase in educational attainment would translate into an increase in female participation. However, this was not only the case for Algeria, as the same result appears to occur for all of the MENA countries. The participation rate of women remains low and stagnant in spite of the improvements in their education levels. This phenomenon is now referred to as the "MENA paradox" (Assaad, Hendy, Lassassi, & Yassin, 2020; Lassassi & Tansel, 2022).

Three possible explanations can be ventured for the MENA Paradox: First, there have been recent reductions in employment opportunities in the public sector, which has direct consequences on the participation of women particularly of those who are, educating in the labor market. Women in the Arab countries prefer to work in the public sector for cultural and social considerations (Assaad et al., 2020). A second explanation is that the formal private sector has certainly created jobs in recent years but it did not compensate for the jobs lost in the public sector. A third explanation could relate to the increase in the weight of the informal sector, which offers jobs that are not favorable to the employment of women,

particularly of the married women. Also, in recent years, employment growth has been seen primarily in sectors that are not favorable to women's employment (the construction sector, for example, is traditionally a sector which predominantly employs men).

Figure 1. Labor force participation rate, by education, Algeria, 2001-2019

Figure 1.a. Total

Figure 1.b. Men

Figure 1.c. Women
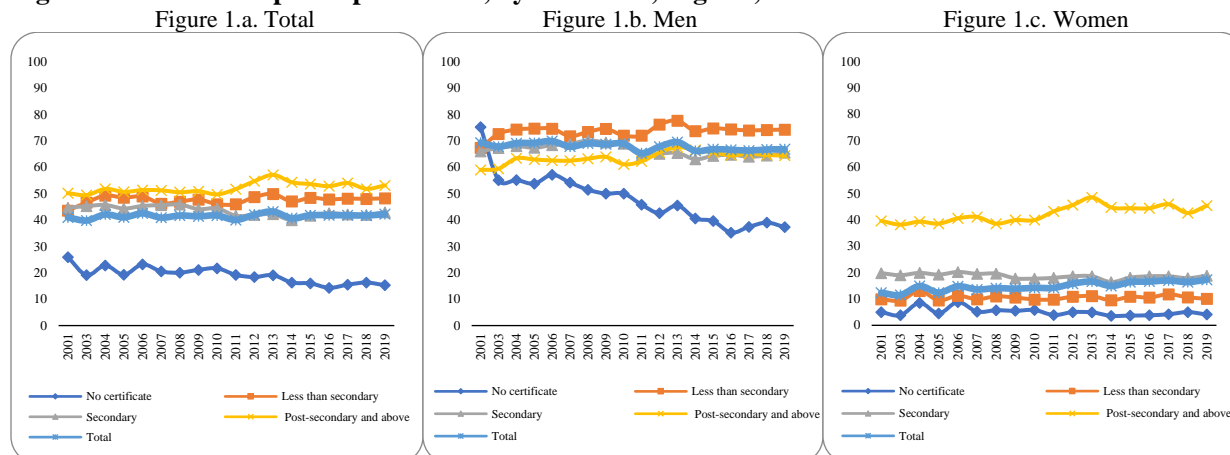
Source: Based on authors'' computations using Algerian Labor Force Survey 2001-2019 - ONS.
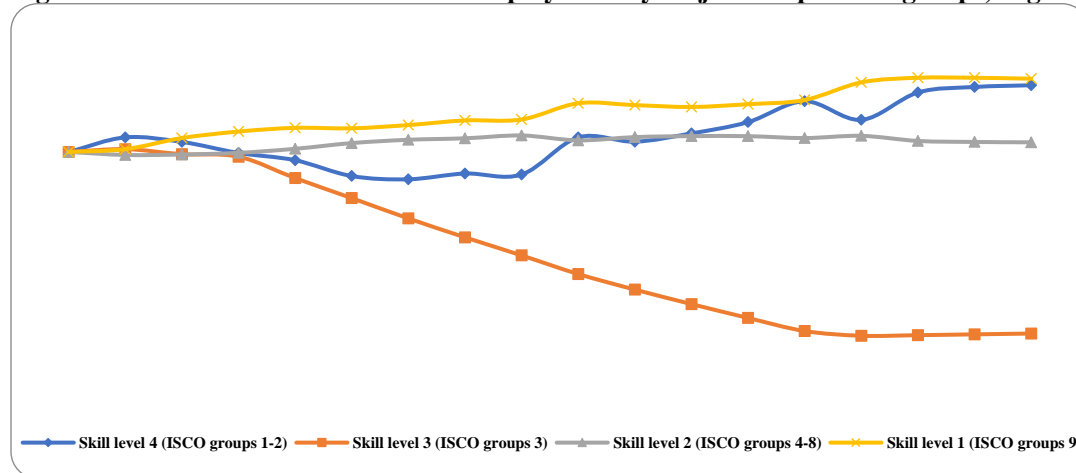
The unemployment rate in Algeria has fallen considerably in recent years. In fact, it fell by around 16 percentage points between 2001 and 2019, going from 27.3 per cent in 2001 to 11.4 per cent in 2019. In absolute terms, 629,000 people ceased to be unemployed between 2001 and 2019. For men, the unemployment rate went down from 26.6 to 9.1 per cent and for women; it fell from 31.4 to 20.4 per cent over the same period (2001-2019).

The unemployment rate has fallen for both young people and adults over the past 15 years. Nevertheless, young people aged 15–24 are three times more likely to be unemployed than adults aged 25 and over. The gap in the unemployment rate between youth and adults stabilized at around three points between 2001 and 2019. A comparison of the evolution of the unemployment rate between young people and adults by sex also reveals that unemployment affects women more, whether youth or adults.

The university graduates experience high rates of unemployment. The unemployment rate for university graduates is 18 per cent, with a gap between women (24 per cent) and men (11 per cent) (ONS-2019). For women, this means that one in four graduates is unemployed after leaving university, while for men, one in ten graduates is unemployed after leaving university. The unemployment rate of people with higher levels of education fell by 8 percentage points between 2001 and 2019. On the other hand, for women, the unemployment rate fell by 7.8 percentage points between 2001 and 2014 before experiencing an increase of 8 percentage points between 2015 and 2019. For graduates of vocational training centers, the unemployment rate was 13.5 per cent (20.7 per cent for women vs. 11.5 per cent for men).

The structure of employment by occupational group tells us about the quality of employment created by the economy. Taking the year 2000 as a basis for comparison, it emerges that the Algerian economy created mostly unskilled jobs. The "Skill Level 1" jobs created was slightly higher than the jobs created in the "Skill level 4" category. It is important to point out that from 2008 onwards, the Algerian economy created more and more qualified jobs (Skill level 4). The other striking result is the very significant decrease in employment in the intermediate occupations (Skill level 3).

Figure 2. Evolution of the structure of employment by major occupational groups, Algeria, 2000-2017

Legend: Skill level 4 (ISCO groups 1-2) — Skill level 3 (ISCO groups 3) — Skill level 2 (ISCO groups 4-8) — Skill level 1 (ISCO groups 9)

Source: Constructed by the authors using ILO data - estimates - 2000-2017.
Note: Skill level 4 = Directors, executives and managers, intellectual and scientific professions; Skill level 3 = Intermediate professions; Skill level 2 = Staff providing direct services to individuals, traders and salespeople, Farmers, skilled workers in agriculture, forestry and fishing, Skilled trades in industry and crafts, Plant and machine operators and workers in assembly; Skill level 1 = Elementary professions.

According to data from the Ministry of Higher Education, the number of students enrolled in universities is growing steadily, from less than 400,000 in the early 1970s to more than one million in 2018. According to the same source, an average of 350 thousand students graduates each year from the Algerian universities.

Figure 3. Evolution of the number of university graduates, Algeria, 1997 - 2019
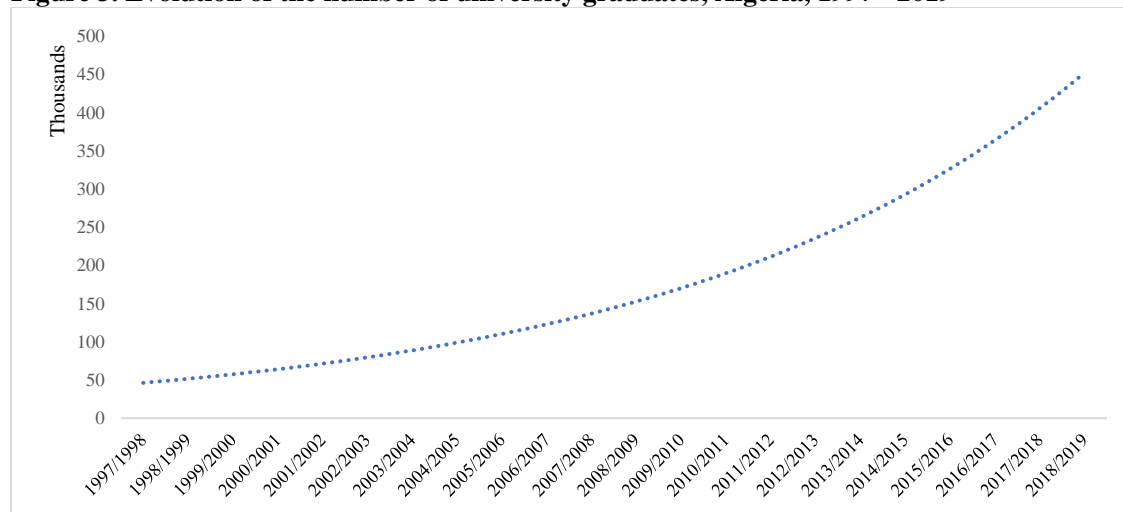
Source: Ministry of Higher Education and Scientific Research - In Publications: Statistical Yearbook- MESRS.

The number of graduates has thus grown since the first reform of the higher education system in 1971. In fact, the number of annual graduates rose from 1,700 for the academic year (1971/1972) to 107,500 in (2004/2005), 199,700 in (2009/2010), 292,683 in (2015/2016) and finally reached the bar of 350 thousand graduates in (2018/2019).

This enormous increase in the enrollment in higher education was not based on a strategy of economic needs. The distribution of students by field of training clearly shows the increase in the share of students in the field of social sciences and humanities (more than 8 percentage points increase between 1997/1998 and 2019/2020) and in the field of letters and languages (more than 6 points over the same period). On the other

hand, the share of registered students decreased by 13 percentage points in the fields of exact sciences and technologies and by 3.6 points in biomedical sciences.

The distribution of graduates by fields of study shows that graduates in social sciences and humanities represent the largest share (43.4%). This field is followed by those of natural sciences / technology (25.4%) and letters / languages (18.1%). Graduates of natural and biomedical sciences represent the smallest share (13.1%). The number of graduates in natural sciences and technologies fell by 16.8 percentage points recently. For the academic year 1996/1997, the share of graduates in natural sciences and technologies represented 42.2% of all graduates, but this share has declined sharply in recent years, and it now represents only 24% of all graduates.

Figure 4. Evolution of graduates enrolled by major areas of training, Algeria, 1997- 2020
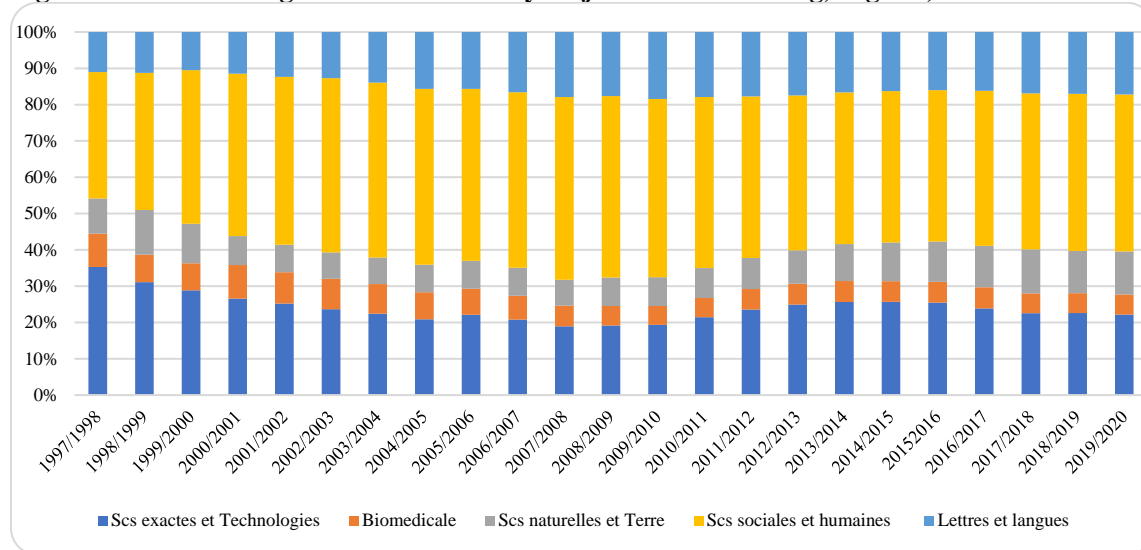
Source: Constructed by the authors using data from the Ministry of Higher Education and Scientific Research - Statistical Yearbook.

3. Methodology and Analysis

Educational mismatch is defined by comparing the actual and the required levels of education using the International Standard Classification of Occupations (ISCO) (ILO). Each occupation group is assigned a required level of education in accordance with the International Standard Classification of Education (ISCED) (UNESCO). A worker is then classified as well-matched if his or her highest level of acquired education is equal to the required level of education of his or her ISCO group. He/she is classified as over (under) educated if his or her actual education level is greater (lower) than the required education level. We will use Labor Force Survey (LFS) of Algeria (2003, 2005, 2007, 2010 and 2016). We will be able to examine the developments over time. We will analyze men and women separately.

We will first examine the effects of worker-job mismatch on job satisfaction by using a probit model. Next, we will examine the effects of the worker-job mismatch on-the-job search using a probit model. In our surveys, currently, employed individuals were asked the following question: "Did you apply for any other jobs to replace your current job? With a Yes or No answer".

4. Descriptive analysis of qualification mismatch in Algeria

Mismatch is defined with reference to the demands of a job, that is, on the demand side. *1) Qualification mismatch* refers to a situation in which an employed person, during the reference period, held a job whose qualification requirements did not correspond to the level and / or type of qualification he/she possessed. Qualification mismatch includes: a) Mismatch by level of education: occurs when the level of education of

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the person employed does not correspond to the level of education required to perform their function. Over-education occurs when the level of education and training of the employed person is higher than that required to perform their job. Under-education occurs when the level of education and training of the employed person is lower than that required to perform their job. b) Mismatch by field of study: occurs when the field of study of the employed person does not correspond to the field of study required to carry out their work. *2) Skills mismatch* refers to a situation in which an employed person, during the reference period, held a job where the required skills did not match the skills they possessed.

Qualifications mismatch

A qualification mismatch indicator was calculated by level of education for men and women separately and by age group (15-24 years, 25-34 years, 35-59 years, 60-64 years). For each occupation, we calculate the mode of education level. We think of mode as the level of education required for the job. If the job seeker's level of training is higher than the level required for the job, then the person is in an "over-educated" situation. On the other hand, if the job seeker's level of training is lower than the level required by the job, then the person is in an "undereducated" situation.

Analysis of the results shows that women hold more jobs commensurate with their level of education (54.4%) compared to men (48.4%). More than 22% of men are in a situation of over-education (23.5% for women) and 29.3% in a situation of under-education (22.1% for women). By age, it appears that young people (15-24 years) hold more (61.5%) jobs in line with their level of education compared to older people. The adequacy decreases with age 56% for those between 25 and 35 years old, 44.1% for those between 35 and 59 and 21.3% for those between 60 and 64 years old. Older people are more in a situation of undereducated (72.1% for those aged between 60 and 64). On the other hand, those aged between 15-24 and 25-34 have the most jobs in a situation of over-education.

Figure 5. Educational Mismatch by gender, Algeria - 2001 - 2016
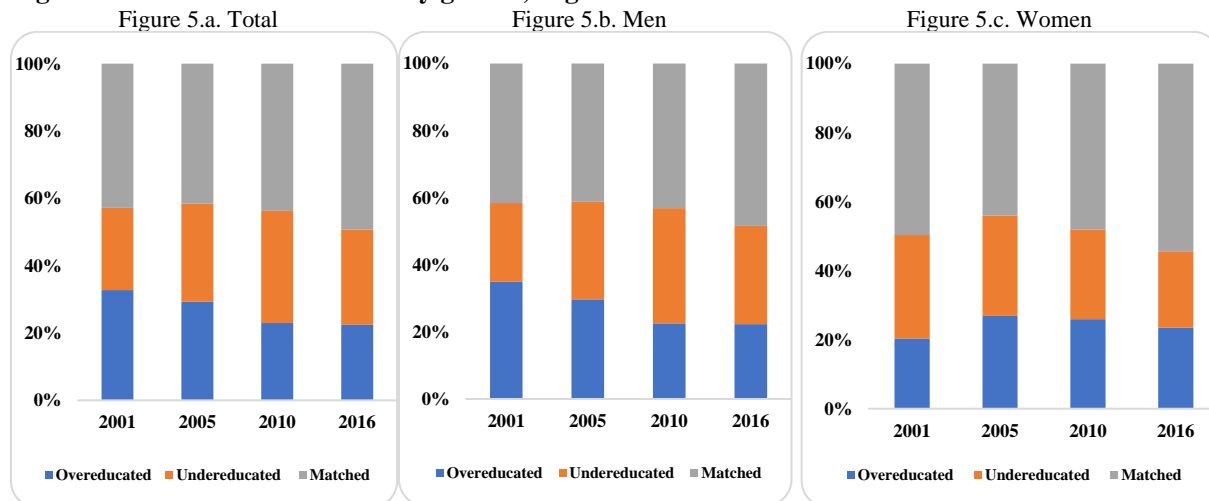
Source: Constructed by the authors based on Labor Force Survey 2001-2016 - ONS.

The analysis shows that: Overall, the share of those in a situation of adequacy increased by 6.5 points between 2001 and 2016. Similarly, the share of workers in a situation of under-education increased by 3.8 points. On the other hand, the share of workers in a situation of over-education fell by 10.2 points. The share of workers holding jobs commensurate with their level of education has increased for both men (more than 6 points) and women (4 points). For men, the share of those in a situation of over-education has decreased by 12.7 points. On the other hand, the proportion of women in this situation increased by 3.1 points. For women, the share of those in a situation of undereducated has decreased by 8 points. On the other hand, the proportion of men in this situation increased by 5.8 points.

Three explanations: 1) pressure on the labor market, more and more young people entering the labor market (demographic aspect) and who are increasingly university graduates (350,000 graduates in 2019/2020). 2) The Algerian economy is creating less and less qualified jobs to absorb the cohorts of graduates entering the labor market. 3) Lack of statistics on the needs of the Algerian labor market, which explains this gap between supply and demand.

Figure 6 reveals that it is mostly those under the age of 34 who are overeducated (22.4 per cent for those aged 15–24, and 29.1 per cent for those aged 25–34). When it comes to being undereducated, it is people aged over 35 who are most likely to be in this situation (37.5 per cent for those aged 35–59 and 78 per cent for those aged 60–64). Meanwhile, young people are more likely to be adequately matched (education-employment adequacy), with 60.6 per cent for those aged 15–24 and 53.1 per cent for those aged between 25–34 years.

Overall, in 2014, 23.1 per cent of all employees were overeducated. This proportion decreased by nearly 10 percentage points between 2001 and 2014. More than 29 per cent of all employees were undereducated and this proportion increased by 4.7 points over the same period (2001–2014). In contrast, 47.4 per cent of employees are adequately employed (or "matched") according to their level of education. This proportion increased by nearly 5 percentage points between 2001 and 2014.

Figure 6. Education/occupation mismatches, by age, Algeria, 2008-2014

Figure 6. a. Overeducated   Figure 6. b. Undereducated   Figure 6.c. Matched
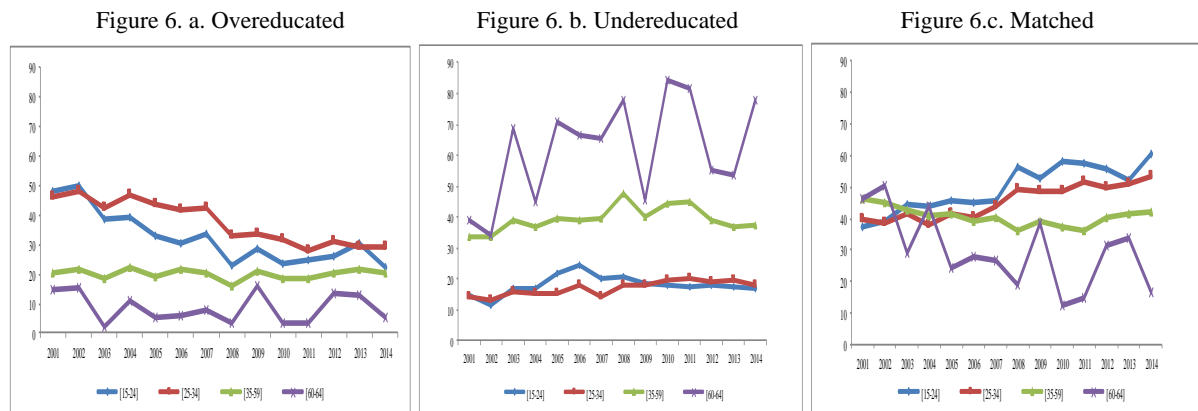
Source: Constructed by the authors based on Labor Force Survey 2008-2014 - ONS.

4. Effects of mismatch on job satisfaction

We use a probit model to estimate the effects of mismatch on job satisfaction. The dependent variable Y takes two modalities: Y= 1 if individual "i" is satisfied with job and Y= 0 otherwise. Our control variables include also the education attainment (five categories) and the dummy variable of skill-mismatch (overeducated, undereducated, and matched) as control variables. We used data from 2010 labor force survey (the only survey where the question on job satisfaction was asked).

The Probit model can be represented using the following formula:
$$\Pr(Y = 1|X) = \ \Phi(Z) = Z = \Phi(b_0 + b_1X_1 + b_2X_2 + \cdots + b_nX_n)$$
Where, Y is the dependent variable and represents the probability that the event will occur (hence, Y=1) given the variables X. Φ is the cumulative standard normal distribution function. Z is the linear combination of independent variable (X) with coefficients $(b_0, b_1, b_2, \dots, b_n)$. The relationship between a specific factor and the outcome of the probability is interpreted by the means of the marginal effect which accounts for the partial change in the probability. The marginal effects provide insights into how the explanatory variables change the predicted probability of project success.

4.1. Socio-demographic characteristics

The results of the estimates show a convex effect of the variable age. This means that the probability of job satisfaction decreases with age up to a certain age and then increases with age. The sex variable is not significant. On the other hand, marital status is significant with a negative effect for single women compared to ever-married women to be satisfied with their job.

We have introduced as control variables the level of education as well as the variable followed by vocational training. The variable education is not significant; however, the vocational training is significant only for men with positive effect, that means that people who have followed training are more satisfied than those who have not taken any training.

4.2. Labor market characteristics

The workplace variable is significant only for men with a positive effect of being satisfied for people who work in an establishment (working in an establishment reflects organized, formal work) compared to those who work in other places (ambulant, sidewalk, market, agricultural exploitation, home).

We introduce the dummy job search (social networks vs. formal channels) as control variable. The results show that the variable is significant only for men with a negative effect on job satisfaction for people who found a job via informal methods (social networks). Lassassi, Sami (2022) finds that informal search methods (social networks) are popular for finding a job in Algeria, but they do not guarantee a decent, secure and stable job.

We have introduced the firm size as control variable. The results show that satisfaction is positively correlated with the size of firms. People who work in large companies are more satisfied compared to those who work in small companies.

Table 3. Effects of mismatch on job satisfaction - probit model (marginal effects), Algeria, 2010

	Total	Men	Women
Socio-demographic characteristics			
Age	-0.0183**	-0.0125	-0.0384**
	(0.00734)	(0.00852)	(0.0189)
Age squared	0.000263***	0.000188*	0.000533**
	(9.75e-05)	(0.000111)	(0.000263)
Gender (ref: women)			
Men	0.0315	----	----
	(0.0224)		
Marital status (ref: Currently Married)			
Never Married	-0.0919***	-0.0500	-0.106***
	(0.0251)	(0.0361)	(0.0357)
Household Relationship (ref : other)			
Head of household	-0.0315	0.00389	-0.0261
	(0.0310)	(0.0375)	(0.117)
Stratum (ref: rural)			
Urban	0.0520**	0.0681**	0.0160
	(0.0223)	(0.0266)	(0.0399)
Educational Attainment (ref: No certificate)			
Primary	-0.335	-0.320	-0.830
	(0.240)	(0.242)	(1.310)
Less than secondary	-0.192	-0.207	-0.897
	(0.219)	(0.223)	(9.317)
Secondary	-0.0922	-0.0757	-0.908
	(0.212)	(0.222)	(19.51)
University	0.0434	0.0734	-0.636
	(0.199)	(0.209)	(29.68)
Professional training (ref: No)			
Yes	0.0857	0.133*	0.0176
	(0.0560)	(0.0787)	(0.0726)

Job characteristic

Education-job match (ref: Matched situation)

Over-educated	-0.180***	-0.201***	-0.166***
	(0.0235)	(0.0320)	(0.0438)
Under-educated	0.106***	0.0973**	0.0892*
	(0.0309)	(0.0448)	(0.0461)
Age at the first job	0.00324	0.00397	0.00350
	(0.00212)	(0.00248)	(0.00501)
Experience	0.0138***	0.0125***	0.0181***
	(0.00182)	(0.00205)	(0.00572)
Workplace (ref: other)			
Establishment	0.229***	0.258***	-0.0382
	(0.0385)	(0.0413)	(0.0882)
Job search (ref: formal channels)			
Social networks	-0.0594***	-0.0835***	-0.00610
	(0.0196)	(0.0236)	(0.0330)
Sectors (ref: services)			
Agriculture	-0.0518	0.00850	-0.240
	(0.0663)	(0.0673)	(0.226)
Industry	-0.0237	0.0200	-0.160**
	(0.0259)	(0.0291)	(0.0669)
Construction	-0.148***	-0.102***	-0.285**
	(0.0361)	(0.0387)	(0.120)
Trade	-0.141***	-0.123***	-0.106
	(0.0343)	(0.0397)	(0.0679)
Firm size			
5 - 9	-0.0318	-0.0211	-0.0754
	(0.0330)	(0.0379)	(0.0715)
10 - 49	0.0822***	0.0861***	0.0426
	(0.0243)	(0.0299)	(0.0448)
50 - 249	0.109***	0.145***	0.0257
	(0.0243)	(0.0288)	(0.0463)
>=250	0.131***	0.153***	0.0541
	(0.0248)	(0.0295)	(0.0518)
Observations	**3396**	**2423**	**973**

Standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

For the sector of activity, it emerges that the construction and commerce sectors are significant with negative effects on job satisfaction compared to people working in the service sector. We find the same results for men. For women, only the construction sector is significant with a negative effect on job satisfaction compared to women working in the service sector. Men residing in urban areas are more satisfied with their jobs compared to men living in rural areas. This implies that the types and qualities of jobs in urban areas are better than those in rural areas.

4. 3. Education-mismatch

We find that over-educated men and women are both less satisfied with their jobs compared to under-educated. The effect is greater for men. Further under-educated men and women both are more satisfied with their jobs.

Allen, J and van der Velden (2001) find that overeducation has a negative but insignificant effect on job satisfaction, while undereducation has no significant effect on job satisfaction.

5. Effects of educational mismatch on job search

In this section, we examine the effects of mismatches on the likelihood that respondents are looking for an alternative job. We try to answer the following question: "Are workers who experience a poor match between their own skills and those required by their current job motivated by this to quit their job in favor of another work? We estimated probit models using five labor force surveys (2003, 2005, 2007, 2010, and 2016) in order to see the changes over time. We also estimated a probit model on the pooled data. We use as control variables the same variable used in the job satisfaction model.

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5.1. Socio-demographic characteristics

We observe a concave relationship between the age and job search. The estimates are significant only for men. This means that at the beginning of their working life men are more likely to be looking for new jobs. Then, after a certain age they prefer stability and therefore, they are less likely to be looking for a new job. This result holds for all the years we consider as well as for the pooled data for the years (2003-2016).

The dummy variable sex is significant only for the year 2007 and on the pooled data (2003-2016) with a negative effect for men looking for another job compared to women. This means that women are more likely to want to change their jobs. This result may be due to the types of jobs women hold (less in line with their qualifications, low wages....).

Single people are more likely to look for another job compared to ever-married people. For estimates based on LFS 2016 data, the variable is significant only for men. For the other years (2003, 2005, 2007, 2010) marital status is significant for both men and women with a positive effect on seeking other jobs for single people.

Heads of household are less likely to want to change jobs compared to other members of the household. They do not want to take the risk of changing jobs given their family responsibilities. For the year 2016, the marital status dummy is only valid for men. On the other hand, for the estimates on the pooled data (2003-2016), the variable is significant for both men and women, but with different effects. Indeed, for men the heads of household are less likely to look for another job, but for women it is the opposite, women heads of household are more likely to look for another job.

The results from the LFS data show that the stratum variable is significant only for women with a negative effect of looking for another job compared to men. Estimates of the pooled data show opposite effects for men and women. Indeed, for men the effect is positive and negative for women. In other words, men living in urban areas are more likely to seek other jobs compared to those living in rural areas. For women, the results show that women in urban areas are less likely to look for another job compared to those living in rural areas.

5.2. Human capital

Overall, the results show a negative effect on the level of education for the decision to change jobs. This means that the most educated people are less likely to change jobs compared to people with a low level of education. The higher the level of education, the lower the probability of seeking another job. This means that educated people have more attractive jobs, they may have motivated to look for other jobs.
Estimates based on 2016 LFS data show that variable professional training is not significant. On the other hand, for the years 2015, 2007, 2010 and on the pooled data, the variable is significant with a positive effect for looking for another job for people who have followed vocational training.

5.3. Labor market characteristics

We introduced age at first job and work experience as control variables. The results show that the older a person begins his working life, the less likely he is to seek another job, whether for men or women. Also, for the experienced person, the more experience a person has, the less they tend to look for another job, whether for men or women.

People working in an establishment are less likely to want to change their job compared to people working on the street with less job protection. This result is true for both men and women. We find the same results for all years (2003, 2005, 2007, 2010 pooled date (2003-2016)).

We introduced the variable job search methods (dummy social networks vs. formal channels) as control variables. It appears in the year LFS 2016, that the variable is significant for only women with a negative effect to seek another job for people who have found their job via informal methods (social networks). For the other years as well as for the model of the pooled data, the variable is significant for both men and women with a positive effect for men and a negative effect for women, this means that men who have found a job via social networks are more likely to seek another job compared to women who have found employment via the same informal methods who are more likely to seek another job.

For the variable sector of activity, the results (LFS 2016) show that men working in the farming, construction and trade sectors are more likely to want to change jobs compared to those working in the agricultural sector. On the other hand, those who work in the industrial sector are less likely to look for another job compared to those who work in the service sector. For women, it appears that those who work in the agricultural sectors are more likely to want to change jobs, unlike those who work in the construction and trade sectors who are less likely to want to change jobs. Pooled data estimates show for men that only those working in the service sector are more likely to change jobs compared to other sectors. On the other hand, for women the results show that those who work in the agriculture and industry sectors are less likely to change jobs and that those who work in the construction and trade sectors are more likely to want to change jobs compared to those who work in the service sector.

We have introduced the variable firm size. The results show that people working in small companies are more likely to look for another job compared to those working in large companies.

5.4. Education-mismatch

For the education-mismatch variable, the results show that people in an uneducated situation are more likely to plan to change jobs for both men and women compared to those in a matched situation. We find the same results with the pooled data.

Table 4. Effects of mismatch on job search - Probit (marginal effects) -2016 - polled data (2003-2016)

	2016			2003-2016		
	Total	Men	Women	Total	Men	Women
Socio-demographic characteristics						
Age	0.0131***	0.0173***	0.00240	0.0115***	0.0148***	-0.00539*
	(0.00327)	(0.00366)	(0.00814)	(0.00141)	(0.00157)	(0.00312)
Age squared	-0.000234***	-0.000280***	-0.000113	-0.000210***	-0.000251***	2.56e-05
	(4.17e-05)	(4.62e-05)	(0.000112)	(1.81e-05)	(2.00e-05)	(4.22e-05)
Gender (ref: women)						
Men	-0.0185	----	----	-0.0190***	----	----
	(0.0158)			(0.00689)		
Marital status (ref: Currently Married)						
Never Married	0.0282**	0.0258	0.0133	0.0515***	0.0356***	0.0506***
	(0.0143)	(0.0187)	(0.0160)	(0.00646)	(0.00793)	(0.00846)
Household Relationship (ref : other)						
Head of household	-0.0133	-0.0363**	0.0751	0.0179***	-0.00893	0.0450**
	(0.0153)	(0.0182)	(0.0574)	(0.00674)	(0.00779)	(0.0188)
Stratum (ref: rural)						
Urban	-0.00384	0.0136	-0.0712***	0.00738*	0.0114**	-0.0150*
	(0.00983)	(0.0113)	(0.0189)	(0.00409)	(0.00457)	(0.00843)
Educational Attainment (ref: No certificate)						
Primary	0.0175	0.0109	-0.0112	-0.0437***	-0.0412***	-0.0245
	(0.0224)	(0.0245)	(0.0543)	(0.00743)	(0.00825)	(0.0180)
Less than secondary	-0.0271	-0.0215	-0.0180	-0.0823***	-0.0661***	-0.0674***
	(0.0291)	(0.0361)	(0.0494)	(0.00921)	(0.0108)	(0.0149)
Secondary	-0.124***	-0.138***	-0.0505	-0.146***	-0.131***	-0.102***
	(0.0274)	(0.0352)	(0.0481)	(0.00900)	(0.0109)	(0.0176)
University	-0.0990***	-0.115***	-0.0757	-0.152***	-0.142***	-0.139***
	(0.0305)	(0.0374)	(0.0576)	(0.00902)	(0.0111)	(0.0203)
Professional training (ref: No)						
Yes	-0.000563	0.00137	-0.00402	0.0308***	0.0302***	0.0231**
	(0.0121)	(0.0140)	(0.0200)	(0.00548)	(0.00626)	(0.00944)
Job characteristic						

Skill-mismatch (ref: Matched situation)						
Over-educated	0.0863***	0.0908***	0.0800***	0.0516***	0.0405***	0.0719***
	(0.0160)	(0.0224)	(0.0199)	(0.00584)	(0.00692)	(0.0100)
Under-education	-0.0242	-0.00878	-0.0361	-0.00500	0.00831	-0.0330***
	(0.0203)	(0.0276)	(0.0224)	(0.00670)	(0.00781)	(0.0108)
Age at the first job	-0.00560***	-0.00612***	-0.00114	-0.00385***	-0.00532***	0.000417
	(0.000968)	(0.00115)	(0.00201)	(0.000439)	(0.000523)	(0.000882)
Experience	-0.0101***	-0.00981***	-0.0130***	-0.0104***	-0.0101***	-0.0117***
	(0.000840)	(0.000926)	(0.00239)	(0.000343)	(0.000374)	(0.000961)
Workplace (ref: other)						
Establishment	-0.0823***	-0.0811***	-0.145**	-0.236***	-0.243***	-0.179***
	(0.0150)	(0.0159)	(0.0719)	(0.00708)	(0.00730)	(0.0302)
Job search (ref: formal channels)						
Social networks	-0.0442***	-0.0389***	-0.0507***	0.0178***	0.0239***	-0.0152*
	(0.00971)	(0.0109)	(0.0178)	(0.00415)	(0.00461)	(0.00782)
Sectors (ref: services)						
Agriculture	0.129***	0.153***	-0.119***	0.113***	0.130***	-0.0514**
	(0.0226)	(0.0241)	(0.0174)	(0.0100)	(0.0107)	(0.0213)
Industry	0.00507	0.0172	-0.00206	0.0127*	0.0231***	-0.0307***
	(0.0175)	(0.0201)	(0.0316)	(0.00688)	(0.00781)	(0.0108)
Construction	0.170***	0.180***	0.187**	0.162***	0.170***	0.122***
	(0.0163)	(0.0173)	(0.0736)	(0.00775)	(0.00816)	(0.0320)
Trade	0.0584***	0.0679***	0.0284	0.199***	0.215***	0.0758***
	(0.0180)	(0.0201)	(0.0351)	(0.00847)	(0.00897)	(0.0213)
Firm size						
5 - 9	-0.0757***	-0.0764***	-0.0559**	----	----	----
	(0.0125)	(0.0142)	(0.0241)			
10 - 49	-0.186***	-0.200***	-0.0775***	----	----	----
	(0.0107)	(0.0121)	(0.0235)			
50 - 249	-0.249***	-0.281***	-0.0990***	----	----	----
	(0.0105)	(0.0119)	(0.0231)			
>=250	-0.243***	-0.271***	-0.103***	----	----	----
	(0.0106)	(0.0130)	(0.0183)			
Years (ref:2003)						
2005	----	----	----	0.0130*	0.0156*	-0.00195
				(0.00736)	(0.00835)	(0.0129)
2007	----	----	----	0.0646***	0.0624***	0.0662***
				(0.00750)	(0.00850)	(0.0138)
2010	----	----	----	0.145***	0.154***	0.0714***
				(0.00835)	(0.00929)	(0.0160)
2016	----	----	----	0.0705***	0.0712***	0.0426***
				(0.00795)	(0.00904)	(0.0137)
Observations	**11907**	**9547**	**2360**	**59410**	**49694**	**9716**

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

6. Conclusions

We analyze the effect of educational mismatch on two outcome variables, first on job satisfaction and second on-the-job search for both men and women in Algeria. We use several labor forces surveys 2003, 2005, 2007, 2010 and 2016 as well as the pooled data (2003-2016) to observe the effect of educational mismatch over time on job satisfaction and on the probability of looking for another job. Probit models are used with the following set of control variables: 1) socio-demographic characteristics, 2) human capital and 3) labor market characteristics. For job satisfaction models and on the job search we include also educational mismatch dummy variables for overeducated, undereducated and just matched as reference category.

The results are consistent and robust over the years considered. The salient findings are job satisfaction and, on the job search, are strongly influenced by educational mismatch and some job characteristics for both men and women. We find that over-education reduces the likelihood of job satisfaction while under-education increases the likelihood of job satisfaction for both men and women. Further, over-education increase the likelihood of frequent job changes for both men and women while under-education does not affect the likelihood of job changes for men but it reduces the likelihood of job changes for women.

The results on the relationship between educational mismatch, job satisfaction and on-the-job search provide insights on the adjustments that take place in the labor market. The findings have important policy implications on how to address the persistent educational mismatches among man, women and developing policies to improve work and life satisfaction in Algeria.

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Annex 1
Figure 1. Education/occupation mismatch, by sex

Total

Men

Women
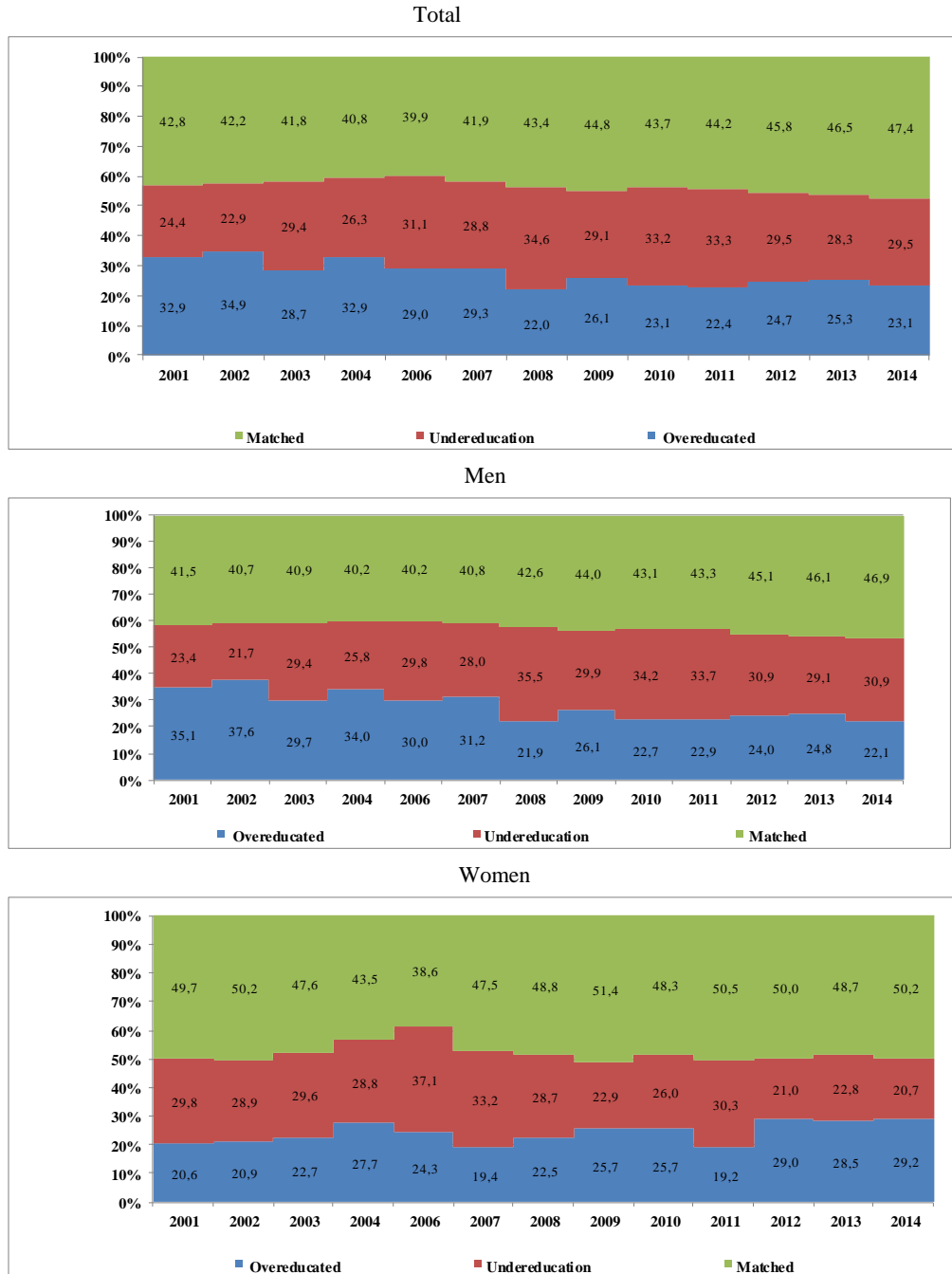
Source: Authors' computations using Labour Force Survey 2001-2014 - ONS.

Annex 2

Table 1. Determinants of skill Mismatch - mprobit (marginal effects) model estimation, Algeria 2003 - 2005 - 2007 - 2010

	2003		2005		2007		2010	
	Total		Total		Total		Total	
	Over educated	Under education	Over educated	Under education	Over educated	Under education	Over educated	Under education
Socio-demographic characteristics								
Age	0.0624***	0.0198*	0.114***	0.0241**	0.0890***	-0.0211*	0.102***	-0.0109
	(0.0108)	(0.0103)	(0.0106)	(0.0101)	(0.0127)	(0.0119)	(0.0151)	(0.0137)
Age squared	-0.00110***	0.000246**	-0.00176***	0.000189	-0.00144***	0.000620***	-0.00140***	0.000875***
	(0.000140)	(0.000124)	(0.000134)	(0.000121)	(0.000167)	(0.000147)	(0.000200)	(0.000171)
Gender (ref: women)								
Men	0.472***	-0.332***	0.342***	-0.276***	0.687***	-0.306***	0.0759	-0.126*
	(0.0489)	(0.0503)	(0.0458)	(0.0480)	(0.0532)	(0.0544)	(0.0656)	(0.0713)
Marital status (ref: Currently Married)								
Never Married	0.0457	-0.111**	0.0150	0.0699	-0.0533	-0.150***	-0.0812	-0.0428
	(0.0476)	(0.0520)	(0.0453)	(0.0497)	(0.0531)	(0.0568)	(0.0668)	(0.0711)
Professional training (ref: No)								
Yes	-0.0957**	-0.384***	-0.281***	-0.470***	-0.146***	-0.385***	-0.334***	-0.489***
	(0.0381)	(0.0415)	(0.0404)	(0.0437)	(0.0447)	(0.0493)	(0.0491)	(0.0509)
Household Relationship (ref: other)								
Head of household	-0.162***	0.174***	-0.0486	0.294***	-0.0611	0.249***	-0.0594	0.375***
	(0.0495)	(0.0500)	(0.0459)	(0.0475)	(0.0553)	(0.0557)	(0.0713)	(0.0713)
Age at the first job	0.0323***	-0.0293***	0.0339***	-0.0433***	0.0217***	-0.0373***	0.0185***	-0.0236***
	(0.00350)	(0.00333)	(0.00354)	(0.00335)	(0.00404)	(0.00381)	(0.00427)	(0.00384)
Experience	-0.0166***	-0.00774***	-0.0185***	-0.0143***	-0.0292***	0.00527**	-0.0209***	-0.0120***
	(0.00260)	(0.00217)	(0.00258)	(0.00222)	(0.00313)	(0.00260)	(0.00387)	(0.00316)
Workplace (ref: other)								
Establishment	-0.234***	-0.336***	-0.279***	-0.417***	0.207***	-0.271***	0.270***	-0.160**
	(0.0445)	(0.0447)	(0.0412)	(0.0407)	(0.0615)	(0.0604)	(0.0706)	(0.0667)
Job search (ref: formal channels)								
Social networks	-0.120***	0.179***	-0.147***	0.264***	-0.0195	0.208***	0.0283	0.150***
	(0.0335)	(0.0340)	(0.0321)	(0.0319)	(0.0365)	(0.0366)	(0.0429)	(0.0415)
Sectors (ref: services)								
Agriculture	0.316***	-0.0667	0.760***	-0.791***	0.792***	-0.0428	0.768***	0.206**
	(0.0579)	(0.0588)	(0.0566)	(0.0610)	(0.0889)	(0.0916)	(0.0967)	(0.0954)
Industry	-0.144***	0.349***	-0.0282	0.323***	-0.00424	0.0304	-0.0177	-0.0603
	(0.0511)	(0.0493)	(0.0459)	(0.0444)	(0.0545)	(0.0559)	(0.0672)	(0.0684)
Construction	-0.0666	0.179***	-0.480***	0.409***	0.113*	0.273***	-0.0445	0.417***
	(0.0595)	(0.0588)	(0.0582)	(0.0534)	(0.0644)	(0.0637)	(0.0754)	(0.0706)
Trade	0.0489	0.373***	-0.00582	0.210***	0.0208	0.0500	0.153**	0.128*
	(0.0498)	(0.0517)	(0.0457)	(0.0469)	(0.0651)	(0.0706)	(0.0717)	(0.0759)
Stratum (ref: rural)								
Urban	-0.142***	0.255***	0.147***	-0.234***	0.107***	-0.113***	0.0330	-0.303***
	(0.0350)	(0.0348)	(0.0321)	(0.0318)	(0.0372)	(0.0370)	(0.0477)	(0.0451)
Constant	-1.598***	-0.786***	-2.642***	-0.0975	-2.674***	0.518**	-2.781***	-0.483*
	(0.215)	(0.220)	(0.209)	(0.211)	(0.251)	(0.252)	(0.297)	(0.289)
Observations	**17032**	**17032**	**19783**	**19783**	**13944**	**13944**	**10185**	**10185**

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Annex 3

Table 3. Do you use the knowledge acquired during the training - multinomial logit - odds ratio- 2010

	Total			Men			Women		
	All the time	Frequently	Rarely occasionally	All the time	Frequently	Rarely occasionally	All the time	Frequently	Rarely occasionally
Socio-demographic characteristics									
Age	0.796***	0.901**	0.900**	0.786***	0.870***	0.889**	0.842*	1.018	0.954
	(0.0278)	(0.0414)	(0.0409)	(0.0303)	(0.0455)	(0.0443)	(0.0842)	(0.121)	(0.126)
Age squared	1.002***	1.001**	1.001**	1.002***	1.002**	1.001**	1.002	1.000	1.001
	(0.000460)	(0.000595)	(0.000595)	(0.000499)	(0.000662)	(0.000643)	(0.00139)	(0.00164)	(0.00183)
Gender (ref: women)									
Men	0.605***	0.518***	0.706**	---	---	---	---	---	---
	(0.0661)	(0.0721)	(0.0993)						
Marital status (ref: Currently Married)									
Never Married	0.741**	1.366*	1.170	0.888	1.218	1.095	0.715	1.631*	1.297
	(0.0921)	(0.226)	(0.192)	(0.139)	(0.273)	(0.228)	(0.161)	(0.447)	(0.370)
Educational Attainment (ref: No certificate)									
Primary	0.353	0.109**	519,078	0.448	0.0970**	274,716	2.66e-06	0.736	0.191
	(0.303)	(0.102)	(3.829e+08)	(0.391)	(0.0919)	(1.371e+08)	(0.00192)	(717.6)	(197.1)
Less than secondary	0.369	0.177*	389,026	0.406	0.166**	182,678	6.42e-06	1.019	0.537
	(0.311)	(0.158)	(2.870e+08)	(0.348)	(0.149)	(9.116e+07)	(0.00464)	(994.3)	(555.4)
Secondary	0.575	0.193*	540,941	0.639	0.175*	241,959	1.06e-05	1.225	1.108
	(0.485)	(0.172)	(3.991e+08)	(0.548)	(0.157)	(1.207e+08)	(0.00765)	(1,194)	(1,145)
University	1.837	0.642	1.219e+06	1.960	0.518	362,160	4.06e-05	5.745	5.059
	(1.625)	(0.607)	(8.990e+08)	(1.783)	(0.501)	(1.807e+08)	(0.0294)	(5,603)	(5,230)
Professional training (ref: No)									
Yes	2.431***	1.719	1.373	2.288**	1.480	0.894	3.358*	2.625	3.093
	(0.696)	(0.577)	(0.482)	(0.746)	(0.593)	(0.392)	(2.191)	(1.837)	(2.190)
Household Relationship (ref: other)									
Head of household	1.274	1.423*	1.554**	1.733***	1.481	1.558*	0.295**	0.353	0.826
	(0.193)	(0.285)	(0.312)	(0.315)	(0.376)	(0.376)	(0.153)	(0.234)	(0.556)
Age at the first job	1.041***	1.040***	1.026*	1.056***	1.052***	1.026*	0.972	0.963	1.006
	(0.0105)	(0.0139)	(0.0133)	(0.0117)	(0.0160)	(0.0147)	(0.0302)	(0.0343)	(0.0403)
Experience	1.115***	1.061***	1.035***	1.112***	1.065***	1.039***	1.090***	1.022	1.007
	(0.00958)	(0.0118)	(0.0114)	(0.0103)	(0.0130)	(0.0122)	(0.0326)	(0.0346)	(0.0394)
Workplace (ref: other)									
Establishment	4.950***	2.723***	2.040***	5.131***	2.315***	2.052***	2.973*	5.902**	1.794
	(0.830)	(0.624)	(0.421)	(0.915)	(0.564)	(0.449)	(1.705)	(5.235)	(1.389)
Job search (ref: formal channels)									
Social networks	0.633***	0.608***	0.665***	0.563***	0.566***	0.706***	0.932	0.752	0.543**
	(0.0569)	(0.0752)	(0.0798)	(0.0574)	(0.0820)	(0.0951)	(0.195)	(0.196)	(0.156)
Sectors (ref: services)									
Agriculture	0.748	1.192	0.558	0.687	1.187	0.529	2.814	3.407	2.128
	(0.219)	(0.438)	(0.232)	(0.221)	(0.476)	(0.234)	(3.396)	(4.631)	(3.230)
Industry	1.441***	1.704***	1.138	1.673***	2.039***	1.276	0.823	0.840	0.625
	(0.172)	(0.261)	(0.184)	(0.222)	(0.353)	(0.227)	(0.230)	(0.285)	(0.245)
Construction	1.291	1.361	1.494*	1.476**	1.344	1.565**	1.013	2.153	0.836
	(0.213)	(0.306)	(0.308)	(0.259)	(0.332)	(0.343)	(0.600)	(1.425)	(0.671)
Trade	0.673***	0.843	0.864	0.910	1.170	0.863	0.171***	0.232***	0.726
	(0.0971)	(0.172)	(0.167)	(0.145)	(0.266)	(0.192)	(0.0616)	(0.114)	(0.288)
Stratum (ref: rural)									
Urban	1.175	1.117	1.003	1.238*	1.279	1.029	0.988	0.721	0.817
	(0.117)	(0.150)	(0.128)	(0.135)	(0.200)	(0.145)	(0.256)	(0.216)	(0.255)
Constant	13.70**	1.436	1.56e-06	5.783	1.618	4.48e-06	1.638e+06	0.0487	0.269
	(15.11)	(1.852)	(0.00115)	(6.791)	(2.291)	(0.00223)	(1.184e+09)	(47.46)	(278.0)
Observations	**5041**	**5041**	**5041**	**3591**	**3591**	**3591**	**1450**	**1450**	**1450**

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Annex 4

Table 4. Effects of mismatch on job search - Probit model (marginal effects) 2003 - 2005 - 2007 - 2010

Probit mfx	2003 Total	2003 Men	2003 Women	2005 Total	2005 Men	2005 Women	2007 Total	2007 Men	2007 Women	2010 Total	2010 Men	2010 Women
Socio-demographic characteristics												
Age	0.00293	0.00553	-0.00966	0.0108***	0.0147***	-0.000919	0.0110***	0.0136***	-0.00418	0.0182***	0.0203***	-0.00953
	(0.00302)	(0.00338)	(0.00610)	(0.00287)	(0.00325)	(0.00472)	(0.00292)	(0.00325)	(0.00677)	(0.00383)	(0.00414)	(0.00948)
Age squared	-6.87e-05*	-9.90e-05**	8.74e-05	-0.000187***	-0.000240***	-7.91e-07	-0.000193***	-0.000224***	1.52e-05	-0.000334***	-0.000365***	0.000144
	(3.85e-05)	(4.28e-05)	(8.16e-05)	(3.65e-05)	(4.11e-05)	(6.22e-05)	(3.80e-05)	(4.21e-05)	(9.24e-05)	(4.97e-05)	(5.34e-05)	(0.000129)
Gender (ref: women)												
Men	-0.0169	----	----	-0.0155	----	----	-0.0385***	----	----	0.0194	----	----
	(0.0156)			(0.0138)			(0.0140)			(0.0189)		
Marital status (ref: Currently Married)												
Never Married	0.0540***	0.0445***	0.0377*	0.0667***	0.0523***	0.0380***	0.0399***	0.0154	0.0718***	0.0511***	0.0170	0.108***
	(0.0142)	(0.0169)	(0.0200)	(0.0131)	(0.0159)	(0.0146)	(0.0132)	(0.0161)	(0.0204)	(0.0187)	(0.0221)	(0.0285)
Household Relationship (ref: other)												
Head of household	0.0224	-0.00160	0.000591	0.0190	-0.0112	0.0464	0.00344	-0.0314*	0.0271	0.0104	-0.0239	-0.0166
	(0.0158)	(0.0183)	(0.0322)	(0.0135)	(0.0161)	(0.0290)	(0.0142)	(0.0166)	(0.0373)	(0.0215)	(0.0249)	(0.0512)
Educational Attainment (ref: No certificate)												
Primary	-0.0331**	-0.0353**	0.0201	-0.0227*	-0.0221	0.0426	-0.0459***	-0.0370**	-0.0629*	-0.0762***	-0.0734***	-0.0838*
	(0.0157)	(0.0173)	(0.0497)	(0.0129)	(0.0146)	(0.0395)	(0.0158)	(0.0179)	(0.0326)	(0.0211)	(0.0227)	(0.0472)
Less than secondary	-0.0483**	-0.0365	-0.0274	-0.0710***	-0.0631***	-0.00304	-0.0828***	-0.0623***	-0.0873***	-0.135***	-0.121***	-0.155***
	(0.0195)	(0.0223)	(0.0382)	(0.0147)	(0.0174)	(0.0277)	(0.0190)	(0.0225)	(0.0319)	(0.0295)	(0.0342)	(0.0396)
Secondary	-0.0961***	-0.0838***	-0.0831*	-0.0971***	-0.0757***	-0.0333	-0.144***	-0.129***	-0.109***	-0.240***	-0.242***	-0.170***
	(0.0201)	(0.0234)	(0.0436)	(0.0157)	(0.0193)	(0.0297)	(0.0184)	(0.0226)	(0.0379)	(0.0284)	(0.0340)	(0.0543)
University	-0.105***	-0.0909***	-0.104***	-0.104***	-0.0707***	-0.0668**	-0.126***	-0.107***	-0.140***	-0.275***	-0.288***	-0.216***
	(0.0201)	(0.0250)	(0.0403)	(0.0161)	(0.0224)	(0.0278)	(0.0200)	(0.0249)	(0.0451)	(0.0261)	(0.0299)	(0.0641)
Professional training (ref: No)												
Yes	0.0204*	0.0198	0.0204	0.0584***	0.0636***	0.0162	0.0482***	0.0423***	0.0444**	0.0359**	0.0281*	0.0758**
	(0.0115)	(0.0132)	(0.0180)	(0.0119)	(0.0139)	(0.0150)	(0.0119)	(0.0138)	(0.0214)	(0.0147)	(0.0161)	(0.0330)
Job characteristic												
Skill-mismatch (ref: Matched situation)												
Over-educated	0.0391***	0.0340**	0.0487**	0.00886	-0.00109	0.0284*	0.0459***	0.0343***	0.0786***	0.142***	0.139***	0.154***
	(0.0121)	(0.0137)	(0.0236)	(0.0105)	(0.0122)	(0.0162)	(0.0113)	(0.0131)	(0.0185)	(0.0224)	(0.0224)	(0.0322)
Under-education	0.0289**	0.0457***	-0.0514**	-6.35e-05	0.00511	-0.00315	-0.00592	0.00353	-0.0201	-0.0452*	-0.0374	-0.0312
	(0.0138)	(0.0156)	(0.0202)	(0.0118)	(0.0136)	(0.0187)	(0.0132)	(0.0154)	(0.0240)	(0.0232)	(0.0276)	(0.0380)
Age at the first job	-0.00407***	-0.00609***	0.00307*	-0.00459***	-0.00869***	0.000175	-0.00336***	-0.00527***	0.00148	-0.000471	-0.000433	-0.00287
	(0.000975)	(0.00115)	(0.00181)	(0.000978)	(0.00124)	(0.000962)	(0.00120)	(0.00185)	(0.00108)	(0.00120)		(0.00311)
Experience	-0.00907***	-0.00909***	-0.00601***	-0.00863***	-0.00809***	-0.0109***	-0.0122***	-0.0119***	-0.0121***	-0.0116***	-0.0111***	-0.0164***
	(0.000688)	(0.000752)	(0.00187)	(0.000669)	(0.000743)	(0.00139)	(0.000715)	(0.000783)	(0.00203)	(0.000940)	(0.000993)	(0.00334)
Workplace (ref: other)												
Establishment	-0.206***	-0.221***	-0.0558	-0.254***	-0.263***	-0.223***	-0.269***	-0.268***	-0.290***	-0.256***	-0.264***	-0.117
	(0.0168)	(0.0175)	(0.0496)	(0.0168)	(0.0173)	(0.0810)	(0.0152)	(0.0158)	(0.0627)	(0.0172)	(0.0177)	(0.0713)
Job search (ref: formal channels)												
Social networks	0.0132	0.0134	0.0106	0.0263***	0.0392***	-0.0343***	0.0277***	0.0361***	-0.0133	0.0168	0.0152	0.0376
	(0.00876)	(0.00981)	(0.0160)	(0.00801)	(0.00905)	(0.0101)	(0.00864)	(0.00963)	(0.0173)	(0.0113)	(0.0122)	(0.0258)
Sectors (ref: services)												
Agriculture	0.180***	0.193***	0.151*	0.0302	0.0380*	-0.0345	0.136***	0.152***	-0.0179	0.0709***	0.0860***	-0.135***
	(0.0224)	(0.0237)	(0.0847)	(0.0186)	(0.0205)	(0.0334)	(0.0233)	(0.0246)	(0.0769)	(0.0261)	(0.0274)	(0.0420)
Industry	0.0514***	0.0742***	-0.0366**	0.0303*	0.0460***	-0.0329***	0.0327***	0.0421***	-0.0147	-0.0512***	-0.0508***	-0.0223
	(0.0152)	(0.0175)	(0.0182)	(0.0131)	(0.0151)	(0.0122)	(0.0143)	(0.0162)	(0.0259)	(0.0186)	(0.0206)	(0.0374)
Construction	0.134***	0.142***	0.128	0.145***	0.158***	0.0953	0.157***	0.165***	0.0790	0.179***	0.182***	0.168**
	(0.0185)	(0.0196)	(0.0956)	(0.0179)	(0.0191)	(0.0709)	(0.0160)	(0.0169)	(0.0622)	(0.0188)	(0.0196)	(0.0790)
Trade	0.178***	0.197***	0.0290	0.140***	0.158***	0.0159	0.188***	0.191***	0.201***	0.240***	0.255***	0.0442
	(0.0205)	(0.0217)	(0.0524)	(0.0189)	(0.0204)	(0.0333)	(0.0176)	(0.0186)	(0.0614)	(0.0189)	(0.0195)	(0.0492)
Stratum (ref: rural)		9050										
Urban	-0.0472***	-0.0531***	0.000982	-0.0387***	-0.0370***	-0.0358**	0.0751***	0.0812***	0.0408**	0.0262**	0.0295**	-0.00574
	(0.000976)	(0.0107)	(0.0212)	(0.00830)	(0.00926)	(0.0159)	(0.00855)	(0.00961)	(0.0179)	(0.0123)	(0.0132)	(0.0308)
Observations	10586	10586	1536	12841	10853	1988	13891	11474	2417	10185	8770	1415

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1