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Human capital and its impact on employment quality: Sector and wage

By Latifa EL BARDIY [a†] & Abdeljalil LOUHMADI [b]

Abstract. This study analyzes the relationship between human capital, employment sector and wages in Morocco. We first analyzed the role of human capital in the explanation of employment sector; then, we estimated the impact of human capital on the probability of receiving a high salary; while controlling a range of socio-economic factors. As measures of human capital, we have included the level of diploma, the field of study and the language of study. In order to achieve the aim of the research, a coherent methodology has been adopted. We exploited primary survey data. It covers 98 graduates from the Faculty of Law, Economics and Social Sciences of Tangier – Morocco, that were contacted in 2015, after three years of graduation. The main conclusion of The multinomial logistic regression models is that the Master's level graduates (five years of higher education) are more likely to be in a protected sector and to have a high salary than licensee's level graduates (three years of higher education).

Keywords. Human capital, Protected sector, Quality of the job, Salary, Young graduates.

JEL. A23, I26, J45, J46, C35.

1. Introduction

Moroccan society is preoccupied by the higher levels of unemployment of young graduates (22% are unemployed, compared with 14.1% of those with middle-level education and 3.7% of those without a diploma - HCP, 2016) as it is clearly shown in the public opinion surveys and reports.

This paper attempts to look into the connection between human capital and quality of the job held - viewed in terms of employment sector and salary. While much of the argument in the literature in terms of factors contributing to professional integration, this paper looks at one of the factors i.e. human capital. Therefore, the following research question is used to guide our investigation: To what extent does human capital create impact on employment sector and salary controlling for a series of individual and family characteristics? In order to achieve the aim of the research, a coherent methodology has been adopted. Thus, the cross-sectional data used for this paper comes from primary data. It covers 98 graduates of FLEST that are contacted in 2015, after three years of graduation. Concerning the processing of data, the multinomial logistic regression models were performed using R Statistical Software, and SPSS.

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2. Literature review

In Becker's model, it is assumed that human capital has a positive impact both on the employment sector and on the wage. Becker's model is favored for explaining the distribution of occupations on the labor market as well as wage differences between individuals. Thus, defenders of the human capital theory established a positive and growing relationship between educational level and probability of having better jobs with higher salaries (Mincer, 1958; Becker, 1964). Alternative theories consider that, in addition to education, the distribution of occupations and wages depend on the characteristics of the jobseeker (Spence, 1973) and the structure of the labor market (Doeringer, & Piore, 1972).

Thus, some researchers agree that a higher-education diploma plays a decisive role in access to stable employment (permanent, full-time, qualified, protected job, and with a permanent contract), See in particular the literature reviews of Finnie (2000), and Fournier *et al.,* (2002; 2003) in Canada; Simonnet & Ulrich (2000), Dupray & Hanchane (2001), Nauze-Fichet & Tomasini (2002), Margolis & Simonnet (2004), Moncel (2012), Rhun & Monso (2015), and Palos *et al.,* (2015) in Europe; Wapoh (2013) in Ivory Coast; Lassassi & Hammouda (2012; 2014), Hammouda & Saouag (2012) in Algeria; and Bougroum *et al.,* (2002) in Morocco; These studies suggest that university graduates have stabilized situations in the labor market after graduation, and are safe from job insecurity. Then, diploma is needed to give graduates a better chance of finding a good job.

This positive causal link does not always appear in other studies. For example, Kamanzi *et al.,* (2010) in Canada; Couppie & Mansuy (2004), and Karamessini (2010) in Europe; Doumbouya *et al.,* (2011) in Guinea, has noted that the educational level does not contribute positively to the employability of young graduates in good jobs. According to these works, increased educational level increases chances of having a good job.

Also, several studies have found that the diploma is a major factor of the individual remuneration. See in particular the literature reviews of Finnie (2001) in Canada; Baudelot & Glaude (1989), Docquier *et al.,* (1999), Plassard & Sassi (2002), and Beduwe *et al.,* (2009) in Europe; Camara (2011) in Ivory Coast; and Benhayoun & Bazen (1995), Nordman (1999), Matthieu & Magali (2004) in Morocco. Contrariwise, other studies find that the diploma does not constitute a guarantee against the risks of declining pay (For example, Doumbouya *et al.,* 2011 in Guinea).

In the same vein, the role of the branch of study differs according to the studies. Some studies confirm the fact that the applied disciplines, as well as the branches of commerce, management, administration, law, economy, and the technical fields, allows to have a permanent job and in adequacy with employment (For example, Finnie, 2000; Kamanzi *et al.,* 2010 in Canada; Margolis & Simonnet, 2004 in France; and Montmarquette *et al.,* 1996 in Morocco). Others find that law, technical and applied disciplines favor the remuneration of graduates (For example Finnie, 2001 in Canada; and Beduwe *et al.,* 2009 in France) while some do not find a significant relationship between the field of study and the remuneration (For example Margolis & Simonnet, 2004 in France). For their part, Matthieu & Magali (2004) find that studying economics at university, increases probability of obtaining a job with high salary.

At similar human capital level, the different studies take into account many individual variables, namely: gender, age, marital status, employment sector, size of company, as well as family and social environment. Thus, a large proportion of the studies consulted agree that, at equivalent level of education, men have a high chance of getting stable jobs; in relation to the training received, with a high salary and advantageous conditions (for example Kamanzi *et al.,* 2010 in Canada; Plassard *et al.,* 2015 in Europe; and Nordman, 1999 in Morocco). The reverse has been found in the recent works such as Wapoh (2013) in Ivory Coast, Hammouda & Saouag (2012) in Algeria, and Matthieu & Magali (2004) in Morocco.

As for the variable age, in the literature, its effect also varies according to contexts and authors. Then, some authors point out that younger graduates are more fortunate to have good jobs (Kamanzi *et al.,* 2010 in Canada; and Bougroum *et al.,* 2002 in Morocco) while others studies have found the reverse (Dupray & Hanchane, 2004 in France; Lassassi & Hammouda, 2014 in Algeria; and Wapoh, 2013 in Ivory Coast). Also, working in the public sector is negatively associated with wages in some contexts (Docquier *et al.,* 1999 in Belgium; Nauze-Fichet & Tomasini, 2002 in France), whereas is positively related to salary and security in other contexts (Ben Halima *et al.,* 2010 in Tunisia; Benhayoun & Bazen, 1995 in Morocco).

In addition, evidence show that the interpersonal relationships - apprehended by researchers under the concept of social capital- tend to have a great impact on the chances of getting jobs with good wages (Plassard & Sassi, 2002; and Beduwe *et al.,* 2009 in France)

This synthesis allowed us to identify a battery of individual variables favored by the authors. In light of this, we will test the contribution of human capital as well as some variables listed in this literature review for the case of graduates of FLEST.

3. Data and empirical methodology

3.1. Data

The study conducted in this work will be based on primary data from the original survey on the professional future of young graduates conducted by us in 2015 with 220 graduates from the Faculty of Law, Economics and Social Sciences of Tangier – Morocco (See El Bardiy & Louhmadi, 2017; for more details). In particular, we will study the characteristics of the employment held by these young people (young employed persons), i.e. 98 active employees.

3.2. Categorization of dependent variables

The Moroccan labor market is characterized by the existence of two sectors namely, the formal and the informal, based on this dual system, we have categorized our first dependent variable into four categories:

Table 1. *Categorization of the employment sector*

First segmentation		Second segmentation	
Formal Sector	Protected sector	Public Sector	Protected Sector I
		Formal private sector	Protected Sector II
Informal sector	Unprotected sector	Independent Sector	Unprotected sector I
		Informal private sector	Unprotected sector II

We took as a measure of this variable the net monthly wage (in Moroccan Dirham) at the time of the survey. The salary received by the respondents varies from 2400, 00 DHS to 12000, 00 DHS. Thus, according to our calculations, the average salary of our sample is 6259.18367 DHS with a standard deviation of 2467.99252 DHS. In order to be able to conduct a logistic regression, and from the mean and the standard deviation, we have transformed this variable into categories.

Table 2. *Transformation of Salary Values into Categories*

Rule	Interval and class	Salary category
$X \leq (\widetilde{X} - \sigma_X)$	$X \leq (6259 - 2468) =$ Less than or equal to 3791	Lower
$(\widetilde{X} - \sigma_X) < X \leq \widecheck{X}$	$(6259 - 2468) < X \leq 6259 = [3792\text{-}6259]$	Lower – Medium
$\widecheck{X} < X \leq (\widetilde{X} + \sigma_X)$	$6259 < X \leq (6259 + 2468) = [6260\text{-}8727]$	Higher –Medium
$(\widetilde{X} + \sigma_X) < X$	$(6259 + 2468) < X = 8728$ and over	Superior

3.2.1. Econometric modeling

Figure-1 represents the approach that has been followed in econometric modeling. We have analyzed first the role of human capital in the explanation of employment sector; then we have estimated the impact of human capital on the

probability of receiving a high salary; while controlling a range of socio-economic factors.
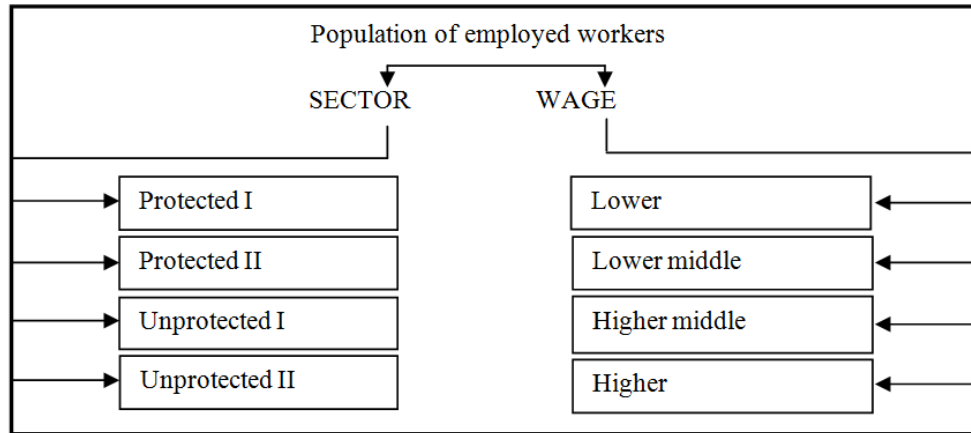

Figure 1. *Illustration of the approach taken during modeling*

In order to explain the employment sector (Protected I / Protected II / Unprotected I/ Unprotected II) and salary (Lower / Lower middle / Higher middle / Higher), a multinomial logistic regression was used.

3.2.1.1. Sector modeling

The probability of being in one of the four sectors is examined by a multinomial LOGIT model (multinomial ordered LOGIT) that includes the human capital and a number of variable controls presented in Eq.1. So we have supposed S, the employment sector. It has four modalities.

$$Prob \ (S_i = m); m = (1,2,3,4); \tag{1}$$

$i = 1, \dots n$ employed young people
S_i^* is a latent variable equal to:

$$S_i^* = \beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i + \varepsilon_i \tag{2}$$

The dependent latent variable S_i^* is associated with employment sector and not observed in the data. (KH_i) is the variable of interest that stands for the Human capital accumulated by the individual i (HC is reflected by the degree level; the study area, and the language of study). (SOC_ECO_i) is a vector that controls personal characteristics. β_1: Constant/ β_2; β_3: Model settings/. The error term ε_i is assumed to be distributed following a logistic distribution.

We observe ($S_i = m$) as soon as this propensity exceeds the threshold τ:

Thus, the modality of S depends directly on the position of S^* while respecting the two thresholds (τ_{m-1} and τ_m)

$$S_i = m \ if \ S_i^* \ \epsilon \ [\tau_{m-1}, \tau_m] \tag{3}$$

Thus, assuming F the distribution function of ε_i , we have:

$$PROB \ (S_i = m)$$
$$= PROB(\tau_{m-1} \le S_i^* \le \tau_m)$$
$$= PROB(\tau_{m-1} \le \beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i + \varepsilon_i \le \tau_m)$$
$$= PROB(\tau_{m-1} - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i) \le \varepsilon_i \le \tau_m - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i)$$

$$= F(\tau_m - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i) - F(\tau_{m-1} - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i)) \qquad (4)$$

Specifically, we have:

$$S_i =$$
$$1 \text{ si } S_i^* \leq \tau_m \Leftrightarrow S_i^* \leq \tau_1$$
$$2 \text{ si } \tau_{m-1} \leq S_i^* \leq \tau_m \Leftrightarrow \tau_1 \leq S_i^* \leq \tau_2 \qquad (5)$$
$$3 \text{ si } \tau_{m-1} \leq S_i^* \leq \tau_m \Leftrightarrow \tau_2 \leq S_i^* \leq \tau_3$$
$$4 \text{ si } S_i^* \geq \tau_{m-1} \Leftrightarrow S_i^* \geq \tau_3$$

This corresponds to:

$$\text{Prob}(S_i = m) =$$
$$\text{Si } m = 1 \Rightarrow P(S = 1) = p(S_i^* \leq \tau_1) = F(\tau_1 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i))$$
$$\text{Si } m = 2 \Rightarrow P(S = 2) = p(\tau_1 \leq S_i^* \leq \tau_2)$$
$$=$$
$$F(\tau_2 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i)) - F(\tau_1 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i))$$
$$\text{Si } m = 3 \Rightarrow P(S = 3) = p(\tau_2 \leq S_i^* \leq \tau_3)$$
$$=$$
$$F(\tau_3 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i)) - F(\tau_2 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i))$$
$$\text{Si } m = 4 \Rightarrow P(S = 4) = S_i^* \geq \tau_3 = 1 - F(\tau_3 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i))$$
$$(6)$$

Knowing that $m = 4$ and $F(x) = \dfrac{\exp(x)}{1+\exp(x)}$ the equation becomes:

$$PROB\ (S_i = m)$$
$$\dfrac{\exp\ (\tau_1 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i))}{1 + \exp\ (\tau_1 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i))}\ si\ m = 1$$
$$\dfrac{\exp\ (\tau_2 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i))}{1 + \exp\ (\tau_2 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i))} - \dfrac{\exp\ (\tau_1 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i))}{1 + \exp\ (\tau_1 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i))}\ si\ m = 2$$
$$\dfrac{\exp\ (\tau_3 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i))}{1 + \exp\ (\tau_3 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i))} - \dfrac{\exp\ (\tau_2 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i))}{1 + \exp\ (\tau_2 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i))}\ si\ m = 3$$
$$1 - \dfrac{exp\ (\tau_3 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i))}{1 + exp\ (\tau_3 - (\beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i))}\ si\ m = 4 \qquad (7)$$

In order to simplify the writing, we note $Z = \beta_1 + \beta_2 KH_i + \beta_3 SOCECO_i$; an equation becomes:

$$PROB\ (S_i = m)$$
$$\dfrac{1}{1 + exp\ (-(\tau1 - Z))}\ si\ m = 1$$
$$\dfrac{1}{1 + exp\ (-(\tau2 - Z))} - \dfrac{1}{1 + exp\ (-(\tau1 - Z))}\ si\ m = 2$$
$$\dfrac{1}{1 + exp\ (-(\tau3 - Z))} - \dfrac{1}{1 + exp\ (-(\tau2 - Z))}\ si\ m = 3$$
$$1 - \dfrac{1}{1 + exp\ (-(\tau3 - Z))}\ si\ m = 4 \qquad (8)$$

3.2.1.2. Wage modeling

In the same way, we have modeled the probability of being in one of the four salary brackets. So we have supposed W, the monthly salary of an employed young people. It has four ordered modalities:

$$\text{Prob}\ (W_i = C); m = (1,2,3,4); \qquad (9)$$

$i = 1, \dots n$ employed young people
We have:

$$W_i^* = \alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i + \varepsilon_i \tag{10}$$

With: W_i^* (Latent variable) /KH_i : Human capital accumulated by the individual i / the vector (SOC_ECO_i): is related to the graduate's characteristics /α_1: Constant/ α_2; and α_3: Model settings/ ε_i: Term of error.

Thus, the modality of W depends directly on the position of W^* while respecting to two thresholds (γ_{c-1} and γ_c)

$$W_i = c \text{ if } W_i^* \in [\gamma_{c-1}, \gamma_c] \tag{11}$$

Thus, assuming F the distribution function of ε_i , we have:

$$
\begin{aligned}
&PROB\ (W_i = c) \\
&= PROB(\gamma_{c-1} \le W_i^* \le \gamma_c) \\
&= PROB(\gamma_{c-1} \le \alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i + \varepsilon_i \le \gamma_c) \\
&= PROB(\gamma_{c-1} - (\alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i) \le \varepsilon_i \le \gamma_c - (\alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i)) \\
&= \\
&F(\gamma_c - (\alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i)) - F(\gamma_{c-1} - (\alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i))
\end{aligned}
\tag{12}
$$

Specifically, we have:

$$
W_i =
\begin{cases}
1 \text{ si } W_i^* \le \gamma_c \Leftrightarrow W_i^* \le \gamma_1 \\
2 \text{ si } \gamma_{c-1} \le W_i^* \le \gamma_c \Leftrightarrow \gamma_1 \le W_i^* \le \gamma_2 \\
3 \text{ si } \gamma_{c-1} \le W_i^* \le \gamma_c \Leftrightarrow \gamma_2 \le W_i^* \le \gamma_3 \\
4 \text{ si } W_i^* \ge \gamma_{c-1} \Leftrightarrow W_i^* \ge \gamma_3
\end{cases}
\tag{13}
$$

This corresponds to:

$$
\begin{aligned}
&Prob(W_i = c) = \\
&\text{Si } c = 1 \Rightarrow P(W = 1) = p(W_i^* \le \gamma_1) = F(\gamma_1 - (\alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i)) \\
&\text{Si } c = 2 \Rightarrow P(W = 2) = p(\gamma_1 \le W_i^* \le \gamma_2) \\
&= \\
&F(\gamma_2 - (\alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i)) - F(\gamma_1 - (\alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i)) \\
&\text{Si } c = 3 \Rightarrow P(W = 3) = p(\gamma_2 \le W_i^* \le \gamma_3) \\
&= F(\gamma_3 - (\alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i)) - F(\gamma_2 - (\alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i)) \\
&\text{Si } c = 4 \Rightarrow P(W = 4) = W_i^* \ge \gamma_3 = \\
&1 - F(\gamma_3 - (\alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i))
\end{aligned}
\tag{14}
$$

Knowing that $c = 4$ and $F(x) = \frac{\exp(x)}{1+\exp(x)}$ the equation becomes:

$$
\begin{aligned}
&PROB\ (W_i = c) \\
&\frac{\exp(\gamma_1 - (\alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i))}{1 + \exp(\gamma_1 - (\alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i))} \text{ si } c = 1 \\
&\frac{\exp(\gamma_2 - (\alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i))}{1 + \exp(\gamma_2 - (\alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i))} - \frac{\exp(\gamma_1 - (\alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i))}{1 + \exp(\gamma_1 - (\alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i))} \text{ si } c = 2
\end{aligned}
$$

$$\frac{exp\ (\gamma_3-(\alpha_1+\alpha_2 KH_i+\alpha_3 SOCECO_i))}{1+exp\ (\gamma_3-(\alpha_1+\alpha_2 KH_i+\alpha_3 SOCECO_i))} - \frac{exp\ (\gamma_2-(\alpha_1+\alpha_2 KH_i+\alpha_3 SOCECO_i))}{1+exp\ (\gamma_2-(\alpha_1+\alpha_2 KH_i+\alpha_3 SOCECO_i))}\ si\ c = 3$$
$$1 - \frac{exp\ (\gamma_3-(\alpha_1+\alpha_2 KH_i+\alpha_3 SOCECO_i))}{1+exp\ (\gamma_3-(\alpha_1+\alpha_2 KH_i+\alpha_3 SOCECO_i))}\ si\ c = 4 \tag{15}$$

In order to simplify the writing, we note $K = \alpha_1 + \alpha_2 KH_i + \alpha_3 SOCECO_i$; an equation becomes:

$$PROB\ (W_i = c)$$
$$\frac{1}{1+exp\ (-(\gamma 1 - K))}\ si\ c = 1$$
$$\frac{1}{1+exp\ (-(\gamma 2 - K))} - \frac{1}{1+exp\ (-(\gamma 1 - K))}\ si\ c = 2$$
$$\frac{1}{1+exp\ (-(\gamma 3 - K))} - \frac{1}{1+exp\ (-(\gamma 2 - K))}\ si\ c = 3$$
$$1 - \frac{1}{1+exp\ (-(\gamma 3 - K))}\ si\ c = 4 \tag{16}$$

4. Results

4.1. Impact on the sector

Results indicate that graduates with licensee degree decreased their odds (OR=0.134) of being in private/formal sector and increased theirs odds of being in independent sector (OR=2.647) rather than being in public sector (The reference category). Similarly, economists and graduates who studied in French were less likely to be employed in independent sector but more likely to be in the private/Formal sector rather than lawyers and graduates who studied in Arabic. Contrariwise, results indicate that, for the probability of being employed in the private/informal sectors – only the degree level remains statistically significant. Thus, graduates who had a licensee degree were always more likely to be employed in Private / informal sector compared to those who had a Master degree (OR=4.026).

The findings from the control variables uncover important results. Thus, as expected, female graduates had 7.250 times greater odds of being employed in private/Informal sector rather than being employed in public sector, compared to male graduates, in other words, male graduates were more likely to be employed in protected sectors than female graduates. Similarly, single graduates were more likely to be employed in independent sector (OR=1.393) and private/Informal sector (OR=1.575) rather than be employed in public sector than married graduates. In addition, graduates who did not have work experience (with no internship) were more likely to be in public sector compared with their counterparts with work experience, while graduates who had work experience (Several Internships) were more likely to be in private/Formal sector.

Thus, Graduates whose father had high educational level were positively related to employment in the private / Formal sector (OR=2.631) versus employment in public sector. Also, Graduates whose father worked for his own account had 1,448 times greater odds of being employed in private/Formal sector, and Graduates whose father worked in private sector had 1,634 greater odds of being employed in private/Informal sector (See Table 3 in Appendix).

4.2. Impact on the wage

Graduates who had a licensee degree are less likely to have a lower Medium (OR=0.509), a higher Medium (OR=0.014), and a higher salary (OR=0,028) compared to those who had a Master degree, ceterus paribus.

Regarding the findings of the control variables, results indicate that relation between Socio-economic characteristics and employment varied by Age, Gender and marital status; Thus, the probability to have a lower Medium salary, a higher Medium salary, and a higher salary decreases by 0.188, 0.071, and 0.174 respectively, when the graduate is younger; by 0.034, 0.008, and 0.006 respectively

when the graduate is a women; and by 0.057, 0.063, and 0.546 respectively when the graduate is a single, ceterus paribus.

Finally, the results show that when the graduate had completed at least one internship, and had a father who worked in the independent sector; the probability of having high salary increases (OR=2.391 and OR=5.981 respectively) with a barely detectable statistically significant difference (See Table 4 in Appendix).

5. Discussion

After controlling for a wide range of characteristics, we have found that graduates who had a licensee degree have a high probability of finding a job in unprotected sectors (Independent and Private/Informal Sector) and they were more likely to have a low salary than graduates who had a Master degree. These results can be interpreted by several explanations: Firstly, these young graduates, who have not had a chance to get a job in any protected structure, may be that they have decided to start their own business. Also, the graduates who had a licensee degree were more concerned with the informal job by working under poor conditions. In our view, this result can be explained by the fact that they are not so required in terms of the characteristics of the job held. In addition, for licensees, and to cope with the financial imperatives of life, holders of a licensee degree can accept jobs without opportunities, and in no connection with their initial training.

On the other hand, Master's graduates are more fortunate to be recruited into the protected sectors (public sector and Private/formal sector) and less fortunate to be in unprotected sector, they are also more likely to have a high salary. This is due to the fact that young people who have a high educational level are not willing to do precarious jobs. Indeed, for these young people, getting a public job seems to remain the priority. Master's graduates therefore do not accept to be "downgraded", they prefer to be in unemployment rather than to be in atypical jobs.

Then, our results are in good agreement with other studies that show that, the higher one's level of education, the better one's chances of being in stable positions (e.g. Finnie, 2000; 2001 in Canada; Karamessini, 2010 in Europe; Camara, 2011; and Wapoh, 2013 in Ivory Coast; Hammouda & Saouag, 2012 in Algeria; Bougroum *et al.,* 2002; and Matthieu & Magali, 2004 in morocco).

In the same report, the empirical data revealed that the "field of study: law sciences" and the "language of study: Arabic" has a negative relationship with access to employment in private/Formal sector and a positive link with access to employment in independent sector. This implies that graduates of economic fields and those who studied in French are more likely to be employed in private formal sector and less likely to have a job in independent sector than lawyers. These differences may be due to the fact that the economic field gives graduates a huge range of skills that are demanded in wide variety of jobs in private sector. In addition, the negative relationship between the "language of study: Arabic" and the probability of being in private sector may be due partly to the lack of language skills which is clearly a major obstacle to employment in these sectors.

However, interaction between "fields of study" & "language of study" and salary does not turn out to be statistically significant. These results seem to be in pair with those found by Margolis & Simonnet (2004) in France, who do not find a significant relationship between the field of study and the remuneration.

On looking at the estimated coefficients of the other explanatory variables, we note that the probability to have a lower salary increases when the graduate is younger. These results are perfectly consistent with Dupray & Hanchane (2004) in France, Lassassi & Hammouda (2014) in Algeria, and Wapoh (2013) in Ivory Coast.

As expected, male graduates were more likely to be employed in protected sectors than female graduates. Also, the probability of having a lower salary decreases when the graduate is a woman. These results are in pair with those found in the literature according to which men have a high chance of getting stable jobs; in relation to the training received, with a high salary and advantageous conditions

(e.g. Kamanzi *et al.,* 2010 in Canada; Plassard & Sassi, 2002; and Diem, 2015 in Europe; Nordman, 1999 in Morocco). Similarly, individuals who are married are more likely to have stable jobs. It seems that the greater the employee's household responsibility, the higher the probability that she/he will have a stable position. Those findings can be interpreted in two ways: The first is that married graduates have family responsibilities and are therefore obliged to find a stable job in order to support their family. The second explanation would be that graduates employed in protected sector and with a high salary can afford to build a family; in this case the family situation becomes itself dependent on access to good job.

In addition, it has also been explicitly mentioned that the internships clearly improves the employment in private sector. This suggests that internships offer graduates a wide range of skills which are highly valued by private sector employers. However, for people who do not achieve any internship, there is a danger of not being able to make many contacts.

Our research shows that graduates whose father had high educational level were positively related to employment in the private / Formal sector. This can be explained by the fact that fathers with a higher educational level support their sons to find a good job. Furthermore, Well-educated fathers, compared with poorly educated fathers, may have contacts to support their children's recruitment. Concerning the fathers' occupational status, the results highlight that having a father who works for his own account increases the chance of being employed in private/Formal sector and having high salary and Graduates whose father works in private sector had greater odds of being employed in private/Informal sector. Part of the explanation seems to be that fathers who work in independent sector may become involved directly in the recruitment process. They also may have resources that make contact easier. As formulated by Montmarquette *et al.,* (1996), Plassaed & Sassi (2002), and Matthieu & Magali (2004), the use of family solidarity and friends seems to be an effective method of getting a job. These findings seem to support our hypothesis suggesting that, in general, graduates from higher status backgrounds can receive valuable help.

In sum, results did not show human capital as the most essential factor; other factors were considered more critical elements of employment in stable jobs.

6. Conclusion

Main findings indicate that graduates who had a licensee degree have a lower probability of finding a stable job than graduates who had a Master degree. These results confirm that investing in human capital can be seen as an insurance against the risk of unstable jobs. Then, this result remains consistent with the theoretical assumption that a high level of education promotes access to skilled, stable, and well-paid employment. We can also conclude that investment in economic education is more profitable in terms of access to employment in private sector.

We can invite the graduates who had a licensee degree to pursue their studies, in order to have a high diploma, and in an attempt to better match the changes in the skills demanded. Note that the situation of graduates who had a licensee degree can be due to the difficulty of having a job (both in the public and private sectors) as it can be voluntary. So, it is necessary to ask another question about the motivations that encouraged the candidates to engage in the unprotected sector (independent and private/Informal sectors) in order to decide whether the job's character is undergone or chosen.

Appendix

Table 3. *Impact on the sector*

Sector [a]	Independant		Private / Formal		Private/ Informal	
	B	e^{β}	B	e^{β}	B	e^{β}
Constant	-,110		3,754		-1,735	
[Degree=License]	,973	2,647	-2,007	,134	1,393	4,026
[Degree=Master]	0[b]		0[b]		0[b]	
[Study _ area=Economics.]	-2,549	,078	1,137	3,117	NS	NS
[Study _ area=Legal Sciences.]	0[b]		0[b]		0[b]	
[Language _ study=Arab]	,199	1,221	-2,336	,097	NS	NS
[Language _ study=French]	0[b]		0[b]		0[b]	
[Age=22-25]	NS	NS	NS	NS	NS	NS
[Age=26-29]	0[b]		0[b]		0[b]	
[Gender=Woman]	-,963	,382	-2,379	,093	1,981	7,250
[Gender=Men]	0[b]		0[b]		0[b]	
[Marital _ Stat=Single]	,331	1,393	-3,476	,031	,454	1,575
[Marital _ Stat=Married]	0[b]		0[b]		0[b]	
[Internship =1 Internship]	1,012	2,750	-2,438	,087	,003	1,003
[Internship= Non Internship]	-1,897	,150	-2,753	,064	NS	NS
[Internship =Several Internships]	0[b]		0[b]			
[Education_ Father=Medium]	NS	NS	-,876	,416	-1,388	,249
[Education_ Father=High level]	NS	NS	,968	2,631	NS	NS
[Education_ Father=Low level]	0[b]		0[b]	0[b]		
[Employ _ Father =Private sct]	NS	NS	-,017	,983	,491	1,634
[Employ _ Father =public sct]	NS	NS	-5,444	,004	NS	NS
[Employ_ Father=Independent]	NS	NS	,370	1,448	-3,269	,038
[Employ _ Father = Liberal Pf]	NS	NS	-4,278	,014	-2,997	,050
[Employ_ Father=Retired]	0[b]		0[b]		0[b]	
X2 RV			141,356			
p-value			,000			
R2- Nagelkerke			81,8%			

Notes: SPSS software / NS= not significant at the 5%/ 0[b]: Reference modality / (a): The reference modality is: Public Sector

Table 4. *Impact on the wage*

Salary [a]	Lower- Medium		higher - Medium		Higher	
	B	e^{β}	B	e^{β}	β	e^{β}
Constant	6,142		9,500		4,768	
[Degree=License]	-,676	,509	-4,292	,014	-3,587	,028
[Degree=Master]	0[b]		0[b]		0[b]	
[Study _ area=Economics.]	NS	NS	NS	NS	NS	NS
[Study _ area=Legal Sciences.]	0[b]		0[b]		0[b]	
[Language _ study=Arab]	NS	NS	NS	NS	NS	NS
[Language _ study=French]	0[b]		0[b]		0[b]	
[Age=22-25]	-1,672	,188	-2,646	,071	-1,748	,174
[Age=26-29]	0[b]		0[b]		0[b]	
[Gender=Woman]	-3,383	,034	-4,791	,008	-5,060	,006
[Gender=Men]	0[b]		0[b]		0[b]	
[Marital _ Stat=Single]	-2,856	,057	-2,767	,063	-,606	,546
[Marital _ Stat=Married]	0[b]		0[b]		0[b]	
[Internship =1 Internship]	-,457	,633	-,602	,548	,872	2,391
[Internship= Non Internship]	NS	NS	NS	NS	NS	NS
[Internship =Several Internships]	0[b]		0[b]			
[Education_ Father=Medium level]	NS	NS	NS	NS	NS	NS
[Education_ Father=High level]	NS	NS	NS	NS	NS	NS
[Education_ Father=Low level]	0[b]		0[b]	0[b]	0[b]	0[b]
[Employ _ Father =Private sector]	-2,640	,071	-3,886	,021	-1,082	,339
[Employ _ Father =public sector]	-2,579	,076	-5,645	,004	1,216	3,373
[Employ_ Father=Independent]	-,275	,760	-,564	,569	1,789	5,981
[Employ _ Father = Liberal Prof]	NS	NS	NS	NS	NS	NS
[Employ_ Father=Retired]	0[b]		0[b]		0[b]	
X2 RV			121,556			
p-value			,000			
R2- Nagelkerke			76,1%			

Notes: SPSS software / NS= not significant at the 5%/ 0[b]: Reference modality / (a): The reference modality is: Lower.

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