

Effect of Unemployment Duration on Subjective Quality of Employment in Côte d'Ivoire

Antoine N'gratier

University Felix Houphouët Boigny of Abidjan, Abidjan, Côte d'Ivoire

Email: antoine.ngratier@univ-fhb.edu.ci, napositif2005@yahoo.fr

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Abstract

Quality of employment is a current concept in both developed and developing nations. Studies on this subject explore more its objective aspect in relation to their own dimensions. This article examines the subjective nature of this notion in relation to the opinion given by workers on it. The objective is to highlight the impact of unemployment duration on the subjective quality of employment in Côte d'Ivoire. In pursuing such an objective, the author seeks to perceive whether the duration spent in unemployment is likely to have a positive or negative impact on the perception that workers have of their jobs; this could shed light on the problem of information asymmetry, particularly adverse selection. To measure this impact, the author uses secondary data from the National Survey on the Employment Situation and the Informal Sector (NSESIS) 2016 of the Youth Employment Agency in Côte d'Ivoire and the National Institute of Statistics (NIS). To correct for a possible selection bias about the choice of workers in the private sector, the author uses "Heckman's two-step approach". This involves two modelling exercises. From the first model, the bivariate probit, an inverse of the Mills ratio is generated and introduced into the second model, the binary probit. In order to better perceive the effects of unemployment duration on subjective job quality, the author uses the variable "unemployment duration before obtaining employment" as a control variable. The results show that the duration spent in unemployment has a very significant effect on the perception of employment. Reconsidering the same individuals in the sample with the presence of the control variable, we find that workers tend to view the quality of their jobs positively. This could pose a problem of appreciation even if objectively their jobs are of lower quality.

Keywords

Job Quality, Unemployment Duration, Selection Bias, Control Variable, Côte d'Ivoire

1. Introduction

The notion of quality of employment has been addressed for more than a decade by both international institutions (European Anti-Poverty Network, 2017; ILO, 2014) and academia (N'Gratier, 2017; Geurgoat-Larivière & Marchand, 2012; Davoine, 2007; Davoine & Erhel, 2007). There has never been a consensus on this notion! Not all the dimensions that make it up are included in the composition of an index that could be constructed from them. In most cases, they are adapted to the context of the study. Aggregating the dimensions or constructing an index of job quality from them concerns the objective aspect of job quality. However, another aspect that this notion raises is linked to its subjective character. This is all the more important since some studies use this subjective character as a criterion for assessing job quality (Davoine, 2007; Davoine & Erhel, 2007, op cit.). Questions related to the subjective nature of job quality are addressed to workers in so far as it is their views that are collected in order to capture the notion. An individual who claims to be satisfied with his or her job sends a signal that the job is of quality; another individual who wishes to change a job to replace the previous one shows a priori that the job he or she holds no longer meets his or her aspirations and is certainly of lower quality. In the statistics on NSEIS 2016, 95.84% of employed persons state that they want to look for a new job in order to increase their income, while 77.35% want a new job to improve their working conditions, compared to 81.66% who want a new, more interesting job.

These rates are in more than one way a challenge to acquired employment, since more than 70% of people who want a new job want it to improve their current situation.

From this point on, the worker's assessment of job quality appears elusive, at least in terms of time, with reference to aspirations that are changing, sometimes evolving according to circumstances.

As for unemployment, it is a major concern for governments. Statistics on unemployment as well as those on inflation, trade deficits or Growth Domestic Product (GDP) indicate the health of an economy. Moreover, categorizing unemployment according to its duration makes it possible to better target the victims and provide recommendations for appropriate economic policies to improve the rate.

The issue of unemployment¹ is so important that the Bretton Woods institutions and the International Labor Organization (ILO) were quick to recommend that States that had benefited from a moratorium on foreign debt due to the Coronavirus (COVID-19) pandemic should do everything possible to ensure that the most fragile companies could benefit from tax relief and other economic measures such as relaxing or rescheduling credit repayment annuities to prevent them from putting their employees out of work.

¹Issue related of other economic variables are all equally important.

According to the OIT (2020), the current COVID-19 crisis is leading to a decline in working hours and employment. In the world, the decline in full-time working hours is 6.7%, which is equivalent to 230 million working hours for 40 hours/week and 195 million working hours for 48 hours/week; in Africa the decline is 4.9%, or 22 million working hours for 40 hours/week and 19 million working hours for 48 hours/week.

While all the measures taken by the public authorities through the employment services are to be welcomed, the fact remains that most of the time they are limited to preventing the number of unemployed from increasing. Finding jobs in quantity remains the leitmotiv. The most urgent need for the unemployed must be met by finding jobs for them en masse, when they are not being asked to become entrepreneurs. The same is true when the job search is the direct initiative of the unemployed. Finding a job is the main objective, sometimes to the detriment of the quality of the job. "In a difficult economic context with high unemployment, looking for, finding and keeping a stable job becomes a challenge. Employment is sometimes desired for its own sake in so far as it meets primary and civilizational needs....from employment comes financial but above all social stability" (N'Gratier, 2019).

Notwithstanding these efforts, it must be recognized that the quality of jobs obtained after a period of unemployment may remain a secondary concern, or not.

Thus, what could be the effect of the duration of unemployment on the quality of the job as perceived by a worker?

The objective of this paper is to assess the effects of a period of unemployment on workers' perceptions of their current jobs. Do they consider them good or bad? This is a study of the subjective nature of job quality. Our explained variable was dichotomized from the question of whether or not workers want to change jobs. With this question, we assume that individuals who do not wish to change jobs consider them to be of good quality. Conversely, workers who wish to change jobs consider their current jobs to be of poor quality. This consideration is obviously based on subjectivity and remains debatable. As Razafindrakoto and Roubaud (2005) note, such a consideration could lead to results that are not entirely comparable with what is usually seen. But it should also be noted that objective job quality and subjective job quality are entwined. A worker could consider his job to be of quality (subjective quality) because he benefits from the dimensions that make it up (objective quality).

The sample selected for the final estimate consists of both first-time workers and re-employed persons in the private sector with up to two years at most of experience in their firm.

We selected this category of workers for two reasons. The first is related to the fact that private sector companies, compared to those in the public sector, are not inclined to give a worker a job on a permanent contract (CDI)², for example,

²Long-term contracts are considered an essential dimension of job quality.

as soon as he or she is hired. A trial period is often required and social protection may be granted after a certain period. Thus, retaining both public and private sector workers could certainly have biased the estimates insofar as those in the public sector benefit a priori from certain dimensions of job quality as soon as they are hired. The second reason stems from the fact that, after a certain period spent in the company, capped at two years in our case, workers are supposed to benefit from certain advantages (long contract, social protection, other benefits, etc.)³.

Retaining workers with more than two completed years could lead to biases in so far as a large amount of experience in the company would naturally lead to the benefit of advantages linked to quality jobs, which would probably result in not perceiving the effect of a period spent in unemployment. In other words, even if a worker had experienced long-term unemployment, he or she could consider his or her current job to be of quality in view of the long work experience that has been acquired and which is at the origin of this quality. In short, the aim is to highlight the quality of jobs at the beginning of activity that workers enjoy when they have experienced a period of unemployment. We use secondary data from the National Survey on the Employment Situation and the Informal Sector (NSESIS) 2016 of the Youth Employment Agency in Côte d'Ivoire and the National Institute of Statistics (NIS).

This study on the quality of employment differs from the previous ones on two major aspects. Firstly, with regard to the link between quality of employment and time spent in unemployment, it should be noted that the quality of employment discussed here concerns the subjective aspect; it is no longer the objective dimensions of employment that are linked to the duration of unemployment but the opinion of workers. This allows us to highlight the problem of assessing the quality of jobs even if they are of poor quality.

Secondly, the study is located in an underdeveloped country where the issues of decent jobs are addressed while seeking to just profile the beneficiaries of these jobs. To establish a link between duration of unemployment and quality of employment would be to reconsider another harmful aspect of unemployment.

2. Unemployment Duration and Job Quality: Evidence from Literature

The link between the time spent in unemployment before getting a job and the quality of that job is not much discussed in the literature. The few works that do address it are more concerned with the link between time spent in unemployment and recovery (Wulfgramm & Fervers, 2015; Lizé & Prokovas, 2014; Quintini & Venn, 2013; Dieckhoff, 2011). They are more relevant for those who were in the labour force and subsequently found a job after a period of unemployment. However, there is some literature highlighting the consequences of a cer-

³Advantages depend in part on the worker's performance, but are never the less regulated by the labor code and collective agreements.

tain length of time spent in unemployment on the different trajectories of workers (Matus & Prokovas, 2014; Amossé et al., 2011; Lizé & Prokovas, 2007).

In any case, the time spent in unemployment seems to have a proven link with the employment obtained later. The results of Lizé and Prokovas (2014), op.cit., highlight the role of “poor quality” jobs in exiting unemployment, which concerns more than half of all job takeovers. Most of the time, these jobs are the lot of the most fragile populations on the labor market, such as young people, women and people with low qualifications or no professional experience. This is particularly the case in China where You and Wang (2018) show that migrants have a lower probability of finding quality employment compared to locals with an equal period of unemployment before obtaining a job. It is the same for women compared to men. One of the consequences of this situation is a turnover that undermines economic performance, since those who have left unemployment are most often looking for better jobs (Brunet, 2002; Gollac, Volkoff, 2007 as cited by Lizé and Prokovas, 2014). It is as if workers coming out of unemployment do not highlight certain information, such as their perception of employment. Hidden information is revealed over time in the employment relationship. Indeed, at the beginning of their employment, workers do not reveal that their jobs are of lower quality, all other things being equal. They accept them, certainly hoping that they will improve over time. However, over time, they may find that the level of quality is not what they had hoped for. A period of unemployment can lead a job seeker to accept a job regardless of its quality, and moreover, if the period of unemployment has been long.

Furthermore, the length of time spent in unemployment can also have an effect on worker mobility. Matus and Prokovas (2014) show that this occupational mobility is more relevant for young and less qualified people. They note that the change in occupational field affects more than a third of those who have returned to work. Young people under 35 years of age and especially those under 25 years of age change their occupational field more than their elders when they return to work. Moreover, they pursue this change of occupation may either constitute a readjustment between the desired occupation and the initial training, or correspond to a simple job opportunity to get out of unemployment. And mobility does not necessarily seem to be a guarantee of better professional integration.

In another article published in 2007 on downgrading after leaving unemployment, Lizé and Prokovas show us that the passage through unemployment often represents a break with serious negative consequences in professional trajectories...Overall, they conclude, about one individual in five is in such a situation but, some unemployed people are more likely than others to be locked into de-skilled jobs with no prospects for advancement... The previous trajectory on the labor market, in particular long or frequent spells of unemployment... makes those who find themselves in an urgent need to return to work more vulnerable. The consequences of long-term unemployment are well documented. The long-term unemployed who have found a job have an income 5% to 15% lower

than those who have not experienced unemployment (Hamermesh (1989) as cited by Nichols et al. (2013)). Moreover, when unemployment persists, the unemployed are more likely to leave the labor force and enroll in disability programs, thereby increasing the number of the inactive population and increasing the cost of social benefits (Nichols et al., 2013).

The consequences of the duration of unemployment can also be analyzed in terms of discrimination. Rothsein (2016) in analyzing long-term unemployment concludes that the re-employment probabilities of Black and non-Black Hispanic workers were very low when they had experienced a long period of unemployment. This conclusion is consistent with the fact that a long spell of unemployment leads to a loss of skills, contrary to the idea that a longer job search would be likely to lead to quality unemployment-insurance (UI), which is still not the case (Cooper, 2014).

In a completely different register, Nekoei and Weber (2017) attempt to establish a link between UI and the subsequent receipt of quality employment captured from higher wages (?). They argue that, while early institutional work argues that UI has a positive effect on the quality of jobs found by the unemployed, empirical work finds no positive causal effect. Clearly, UI cannot guarantee that the unemployed will find quality jobs. Rebollo-Sanz and Rodriguez-Planas (2020) carried out a similar study on Spanish data. They conclude that the incentive reforms, although they have reduced the duration of unemployment, have had no effect on the quality of the jobs obtained.

In order to better perceive the effects of unemployment on subjective job quality, a mathematical model is proposed below.

3. A Theoretical Model Linking Time in Unemployment and Job Quality

This model is based on Rioux's (2001) article, it self-inspired by the work of Lancaster (1985a and 1990 as cited by Rioux) and links reserve job quality and seniority to unemployment. It highlights the effect that a period spent in unemployment can have on the quality of the job as desired by an unemployed person. It shows that the level of reserve job quality can be revised downwards when the duration of unemployment is prolonged. This model is presented as follows: An unemployed person receives job offers with a probability of λ_t per unit of time. The quality of the proposed job is randomly drawn formal quality distribution of $F(\gamma)$. Each time a job offer arrives, the unemployed person has to decide whether to accept it or to continue looking for a better job with good working conditions. In such a situation, the optimal strategy, which maximizes the usefulness of the unemployed, is a reservation strategy: accept the job offer if the quality offered is above a certain value. γ_t (referred to as reserve employment status) and refuse it if it is not. The model is non-stationary if at least one of the exogenous variables (job-offer arrival rate) varies over the unemployment spell. In this case, the unemployed individual determines a sequence of reserve levels

of job quality $\{\gamma_r(t)\}_{t=1,\dots,\tau}$ that maximize its expected utility in each period.

To determine how this sequence of reserve job quality levels changes with unemployment tenure, a semi-structural model is constructed, specifying log-linear functional forms for the reserve quality level, the job-offer arrival rate, and the distribution of job quality offered (Lancaster, 1985a and 1990 as cited in Rioux (2001)).

The functional form chosen for the quality of the reserve job allows it to depend monotonously on the length of time unemployed, i.e.:

$$\gamma_r(t) = \zeta t^{\beta_1} \quad (1)$$

where ζ represents the quality of the reserve job at the beginning of the unemployment spell, t seniority in unemployment and β_1 the elasticity of reserve job quality with respect to unemployment tenure. Reserve job quality can be revised downwards during the unemployment spell ($\beta_1 < 0$) or remain constant ($\beta_1 = 0$). ζ is approximated by a log-linear function of explanatory variables Z_1 to which is added a term of heterogeneity η so that:

$$\zeta = e^{Z_1\mu_1 + \eta} \quad (2)$$

The distribution of job quality levels is assumed to follow a Pareto law⁴, so that in the acceptance region:

$$\bar{F}(\gamma_r(t)) = \left(\frac{\gamma_0}{\gamma_r(t)} \right)^{\beta_2} \quad (3)$$

with $\beta_2 > 0$, γ_0 represents the lower bound in the distribution of levels of job quality offered.

Finally, the rate of arrival of job offers λ_t also depends on how long you've been unemployed. There are several possible reasons for this dependence. Discouraged long-term unemployed people may relax their search effort. Moreover, companies are less likely to offer jobs to the long-term unemployed. More specifically, it is assumed that λ_t depends monotonously on how long you've been unemployed: $\lambda_t = \lambda_0 t^{-\delta}$ where λ_0 is the arrival rate of job offers at the beginning of the unemployment spell. The job offer arrival rate can remain constant during the unemployment spell ($\delta = 0$) or decrease ($\delta > 0$). In order to define the expectation of unemployment tenure, the parameter δ must be less than $1 - \beta_1\beta_2$.

Chance is written:

$$\theta(t) = \lambda_0 t^{-\delta} \bar{F}(\gamma_r(t)) \quad (4)$$

Let us establish the relationship between the quality of the reserve job and the length of time unemployed. The random variable is assumed to follow a Gamma law such that the associated density function is given by:

⁴The alternative would be to assume that the distribution of job quality levels follows a log-normal distribution, such that: $\bar{F}(\gamma) = 1 - \Phi(\log \gamma - \mu)$. But in this case, it is possible to explicitly express the double causal relationship between t and γ .

$$p(t) = \frac{\theta(t)}{\int_0^\infty \theta(t) dt} = \frac{e^{-\int_0^\infty \theta(t) dt}}{\int_0^\infty e^{-\int_0^\infty \theta(t) dt} dt} \tag{5}$$

and,

$$\begin{aligned} \theta(t) &= \lambda_0 t^{-\delta} \bar{F}(\gamma_r(t)) = \lambda_0 t^{-\delta} \left(\frac{\gamma_0}{\gamma_r(t)} \right)^{\beta_2} \\ &= \lambda_0 t^{-\delta} \left(\frac{\gamma_0}{\zeta t^{\beta_1}} \right)^{\beta_2} = \lambda_0 \left(\frac{\gamma_0}{\zeta} \right)^{\beta_2} t^{-\delta} \cdot t^{-\beta_1 \beta_2} \end{aligned}$$

Hence $\int_0^\infty \theta(t) dt = \frac{1}{1-\delta-\beta_1\beta_2} \lambda_0 \left(\frac{\gamma_0}{\zeta} \right)^{\beta_2} t^{1-\delta-\beta_1\beta_2} = \frac{1}{a} \lambda_0 \left(\frac{\gamma_0}{\zeta} \right)^{\beta_2} t^a$ where $a = 1 - \delta - \beta_1\beta_2$

He's coming:

$$\int_0^\infty e^{-\int_0^\infty \theta(t) dt} dt = \int_0^\infty e^{-\frac{1}{a} \lambda_0 \left(\frac{\gamma_0}{\zeta} \right)^{\beta_2} t^a} dt = \Gamma\left(1 + \frac{1}{a}\right) \left[\frac{\lambda_0}{a} \left(\frac{\gamma_0}{\zeta} \right)^{\beta_2} \right]^{-\frac{1}{a}} \tag{6}$$

where $\Gamma(\cdot)$ is the Gamma function.

The density function of unemployment tenure is rewritten as follows:

$$p(t) = \frac{\left[\frac{\lambda_0}{a} \left(\frac{\gamma_0}{\zeta} \right)^{\beta_2} \right]^{-\frac{1}{a}} e^{-\frac{1}{a} \lambda_0 \left(\frac{\gamma_0}{\zeta} \right)^{\beta_2} t^a}}{\Gamma\left(1 + \frac{1}{a}\right)} \tag{7}$$

It turns out afterwards that:

$$E(\ln t) = \frac{1}{a} \left[\Psi\left(\frac{1}{a}\right) - \ln \frac{\lambda_0}{a} \left(\frac{\gamma_0}{\zeta} \right)^{\beta_2} \right] \tag{8}$$

where $\Psi\left(\frac{1}{a}\right)$ is the derivative of the logarithm of the Gamma function.

For the expectation of the logarithm of unemployment tenure to be defined, the parameter a must be strictly positive, which implies that $\delta < 1 - \beta_1\beta_2$. The expectation of the logarithm of unemployment seniority can then be rewritten:

$$E(\ln t) = \frac{1}{a} \left[\Psi\left(\frac{1}{a}\right) + \ln a \right] + \frac{\beta_2}{a} \ln \zeta - \frac{1}{a} \ln(\lambda_0 \gamma_0^{\beta_2}) \tag{9}$$

and, $\ln \gamma_0(t) = \beta_1 \ln t + \ln \zeta$. Hence:

$$E(\ln \gamma_0(t)) = \frac{\beta_1}{a} \left[\Psi\left(\frac{1}{a}\right) + \ln a \right] + \left(\frac{1-\delta}{a} \right) \ln \zeta - \frac{\beta_1}{a} \ln(\lambda_0 \gamma_0^{\beta_2}) \tag{10}$$

Since $\zeta = e^{Z_1 \mu_1 + \eta}$ and $\lambda_0 \gamma_0^{\beta_2} = e^{Z_2 \mu_2 + \nu}$ it can be replaced $\lambda_0 \gamma_0^{\beta_2}$ and by their expression. The reduced form of the model is then obtained by adding a measurement error term to each equation. The semi-structural form is obtained from this reduced form on the one hand by subtracting $\ln \gamma_0(t)$ and $\beta_1 \ln t$ on the one hand, and on the other hand, by subtracting $\ln t$ and $\beta_2 \ln \gamma_0(t)$.

The result is a system of simultaneous equations linking unemployment tenure and reserve job quality:

$$\begin{cases} \ln \gamma_0(t) = \beta_1 \ln t + Z_1 \mu_1 + k_1 + \omega_1 \\ \ln t = \beta_2 \ln \gamma_r(t) + Z_2 \frac{\mu_2 (\beta_1 \beta_2 - 1)}{1 - \delta - \beta_1 \beta_2} + k_2 + \omega_2 \end{cases} \quad (11)$$

where ω_1 and ω_2 are linear functions of the error terms η and ν . Based on the above system, β_1 represents the elasticity of reserve job quality with respect to unemployment tenure. Reserve job quality may decline during the unemployment spell ($\beta_1 < 0$) or remain constant ($\beta_1 = 0$). For example, a high reserve job quality reduces the probability of exiting unemployment, but conversely, an agent who has been unemployed for a long time may have lowered his reserve job quality.

4. Econometric Models and Data

We use “Heckman’s two-step approach” with two models for our regressions. The first is a bivariate probit and the second is a binary probit where we control for the variable “duration of unemployment before getting the job”.

In order to correct a possible selection bias arising from the selection of our individuals of private sector, we generate an inverse of the Mills ratio that we introduce in the second equation. We seek to analyze the effect of unemployment duration on job quality. To do so, we have a sample of workers belonging to both the private sector and having an experience of 2 years at most in their firm.

The bivariate probit is an extension of the binary probit where we have more than one equation, with correlated perturbations as in a regression model but with no apparent relationship (Cameron & Trivedi, 2005; Green, 2002). The model is⁵ as follows:

$$y_{1i}^* = x_{1i} \beta_1 + \varepsilon_{1i}, \quad y_{1i} = 1 \text{ if } y_{1i}^* > 0, \quad 0 \text{ if not} \quad (12)$$

$$y_{2i}^* = x_{2i} \beta_2 + \varepsilon_{2i}, \quad y_{2i} = 1 \text{ if } y_{2i}^* > 0, \quad 0 \text{ if not} \quad (13)$$

$$\text{With, } E[\varepsilon_{1i} | x_{1i}, x_{2i}] = E[\varepsilon_{2i} | x_{1i}, x_{2i}] = 0$$

$$\text{Var}[\varepsilon_{1i} | x_{1i}, x_{2i}] = \text{Var}[\varepsilon_{2i} | x_{1i}, x_{2i}] = 1$$

$$\text{Cov}[\varepsilon_{1i}, \varepsilon_{2i} | x_{1i}, x_{2i}] = \rho$$

where y_{1i} denotes membership in the private sector, y_{2i} having two years’ experience at most the company for an individual i , x_{1i} and x_{2i} characteristics of the individual i . More generally, y_1 can take the values $1, \dots, m_1$ and y_2 can take the values $1, \dots, m_2$.

For this individual we define:

$$p_{ijk} = \Pr[y_{1i} = j, y_{2i} = k], \quad j = 1, \dots, m_1, \quad k = 1, \dots, m_2. \quad (14)$$

where p_{ijk} designates the probabilities of mutually exclusive events and

⁵The following equations are taken from Cameron and Trivedi, 2005.

$$\sum_j \sum_k p_{ijk} = 1.$$

We define $m_1 \times m_2$ corresponding to binary indicator variables with $y_{jk} = 1$ if $(y_1 = j, y_2 = k)$ and $y_{jk} = 0$ if not.

The enclosed density function for the i th individual in the sample is:

$$f(y_{1i}, y_{2i}) = \prod_{k=1}^{m_1} \prod_{j=1}^{m_2} p_{ijk}^{y_{ijk}} \tag{15}$$

The log-likelihood to be estimated by the maximum likelihood method is as follows:

$$\sum_{i=1}^N \sum_{k=1}^{m_1} \sum_{j=1}^{m_2} y_{ijk} \ln p_{ijk} \tag{16}$$

We estimate the model using the maximum likelihood method. However, if $Cov[\varepsilon_1, \varepsilon_2 | X_1, X_2] = 0$, the model is reduced to two distinct binary probit models.

The second model, the binary probit, relates job quality to the characteristics of workers, including the amount of time they spend unemployed before obtaining their job. The inverse of the Mills ratio introduced in this second equation allows a possible correction of the selection bias on the one hand, and on the other hand its significance tells us about the importance of the bias.

The model is as follows:

$$y_i^* = x_i \beta + \varepsilon_i \tag{17}$$

such as: $y_i = 1$ if $y_i^* > 0$ or else. y_i represents job quality and x_i the characteristics of the worker.

In the following **Table 1**, we give the definition and measurement of the variables.

Table 1. Definition and measurement of variables.

Variables	Definition	Measurement
Activity sector	The professional environment in which workers practices	1 = Private sector; 0 = Public sector
Professional experience in the company	Numbers of experience's years of the worker in the company	1 = Two completed years; 0 = Over two years old
Subjective job quality	Perception of job quality that the worker has	1 = Good job quality; 0 = Poor job quality
Sex	Physiological nature of a man or a woman	1 = Man; 0 = Woman
Age	Number of years lived by the worker since birth	0 = [15 - 24]; 1 = [25 - 34]; 2 = [35 - 59]; 3 = [60 - +[
Marital status	Marital status of a person under the law	0 = Never married or cohabiting; 1 = Married; 2 = Divorced or separated; 3 = Widowed
Educational level	Highest educational level attained by worker	0 = No level; 1 = Primary; 2 = Secondary; 3 = University
Way of obtaining employment	Means used by the worker to find his job	0 = By advertisements; 1 = Personal relationships; 2 = Directly to the employer
Company size	The size of company is captured here by the number of workers	0 = Don't know; 1 = [10 - 199]; 2 = More than 199
Branch activity	Branch in which the worker practices	1 = Agriculture; 2 = Industry; 3 = Trade; 4 = Service
Duration of unemployment before obtaining job	Total time in months put into unemployment before obtaining job	0 = 0 month; 1 =]0 - 2]; 2 =]2 - 5]; 3 =]5 - 12]; 4 =]12 - +[

Source: Author.

The statistical **Table 2** provides information on some characteristics of the explanatory variables. It shows that our initial sample is composed of more men than women. With respect to education level, we note that senior workers are under-represented. Agriculture is the sector with the highest concentration of workers. As for the duration of unemployment before obtaining employment, it should be noted that those who have been unemployed for more than 12 months are numerous after workers who have not experienced a period of unemployment.

5. Econometric Results, Interpretation and Recommendations

The results obtained and recorded in the tables below are illustrative. The Rho test in **Table 3** of the bivariate probit indicates that the two binary equations are not independent.

Indeed, since the $\chi^2_{\text{observed}} (6.10174) > \chi^2_{\text{read}} (3.841)$ at 1 degree of freedom at the 5% threshold, the null hypothesis of non-independence of the equations is rejected and it is concluded that the decisions to belong to the private sector and to have up to two years of professional experience in a company are taken simultaneously. Furthermore, in **Table 3**, the variables “age”, “level of education”, “means to obtain employment” and “activity sector” are significant for “private sector” membership. With respect to the explained variable “work experience in a company”, almost all the explanatory variables are significant.

Evidence from the coefficients of the marginal effects shows us that the variables “education level”, “means to obtain employment” and “industry” have a significant positive impact on the probability of perceiving that the job held is of quality. We note with **Table 5** of predictions, that for the workers appreciating their job as being of quality, 1417 cases were correctly predicted (probability higher than 0.5%). The correct prediction rate is 86.35%.

The results in **Table 4** showing the marginal effects of the binary probit obtained after introducing the inverse of the Mills ratio into the structural equation show us that the variables “age”, “education level”, “size of the company” and “unemployment duration before obtaining employment” are significant. The significance of the inverse of the Mills ratio shows us that the selection bias was proven.

Considering the binary probit without the control variable “duration of unemployment before getting the job”, we note that the probability of considering one’s job to be of good quality declines with education and age. Workers with higher levels of education consider their jobs to be no better than those with lower levels of education. Older workers have a less favorable perception of their jobs compared to younger workers. One explanation for this would be the lack of benefits or advancement often associated with long business experience.

When we introduce our control variable, we realize that the signs do not change. However, the probabilities associated with the different variables vary.

Table 2. Descriptives statistics.

Variables & Terms	Frequencies	Percentages	Cumulative percentages
Sex			
Man	6 225	65.14%	65.14%
Woman	3 331	34.86%	100%
Marital status			
Never married or cohabiting	3 333	34.88%	34.88%
Married	5 758	60.26%	95.13%
Divorced or separated	155	1.62%	96.76%
Widowed	310	3.24%	100%
Age (Years old)			
[15 - 24[	1 841	19.27%	19.27%
[25 - 34[	2 826	26.57%	48.84%
[35 - 59[	4 229	44.25%	93.09%
[60 - +[	660	6.91%	100%
Level education			
No level	5 447	57.00%	57.00%
Primary	1 965	20.56%	77.56%
Secondary	1 769	18.51%	96.08%
University	375	3.92%	100%
Path to obtaining employment			
By announcements	600	6.28%	6.28%
Personal relationship	8740	91.46%	97.74%
Directly with employer	216	2.26%	100%
Size of the company			
[Ref. don't know]	8 652	90.54%	90.54%
[10 - 199[	738	7.72%	98.26%
[199 - +[	166	1.74%	100%
Branch activity			
Agriculture	6 143	64.28%	64.28%
Industry	742	7.76%	72.05%
Trade	1 035	10.83%	82.88%
Service	1636	17.12%	100%
Duration of employment before obtaining employment			
0	7 187	75.12%	75.21%
]0 - 2]	436	4.56%	79.77%
]2 - 5]	310	3.24%	83.02%
]5 - 12]	462	4.83%	87.85%
]12 - +[	1 161	12.15%	100%

Continued

Activity sector			
Private sector	8 928	93.43%	93.43%
Public sector	628	6.57%	100%
Professional experience in the company			
2 years old	1 799	18.83%	18.83%
Over 2 years old	7 757	81.17%	100%

Source: Author under Stata.

Table 3. Bivariate probit.

Variables	Bivariate probit			
	Employment in the private sector	Professional experience of 2 years maximum	Marginal effects	
	Coefficients	coefficients	dy/dx	Std. Err.
Sex [Ref. Woman]				
Man	-0.0729	-0.1019	-0.0246***	0.0087
Marital status [Ref. never married]				
Married	-0.1027	-0.3386	-0.0830***	0.0095
Divorced or separated	-0.2393	-0.1724	-0.0377	0.0261
Widowed	-0.0174	-0.1950	-0.0418**	0.0217
Age (Years old) [Ref. 15-24]				
[25 - 34[	-0.1703	-0.4441***	-0.0956***	0.0084
[35 - 59[	-0.4734***	-0.8786***	-0.1984***	0.0100
[60 - +[	-0.4788**	-1.0135***	-0.1460***	0.0070
Level education [Ref. no level]				
Primary	-0.3346***	0.0426	0.0092	0.0102
Secondary	-0.8237***	0.3352***	0.0819***	0.0126
University	-1.1136***	0.3268***	0.0738***	0.0254
Path to obtaining employment [Ref. other means]				
Personal relationship	1.5054***	0.3857***	0.0854***	0.0111
Directly with employer	1.2410***	0.6045***	0.1841***	0.0105
Branch activity [Ref. agriculture]				
Industry	-0.7153***	0.4852***	0.1309***	0.0184
Trade	-0.4401***	0.4548***	0.1236***	0.0154
Service	-1.6831***	0.5929***	0.1309***	0.0142
Constant	2.0794***	-0.7881***		
Observations	9556			
Wald test of rho = 0	Chi2 (1)	2483.02		
Prob > Chi2		0.0000		
Likelihood-ratio test of rho			Chi2 (1) = 6.10174	Prob > Chi2 = 0.0135

Source: Author under Stata.

Table 4. Binary probit.

Variables	Binary probit			
	Without variable of control		With variable of control	
	Coefficients	Marginal effects	Coefficients	Marginal effects
Sex [Ref. Woman]				
Man	-0.0734	-0.0143	-0.0942	-0.0177
Marital status [Ref. never married]				
Married	0.1251	0.0241	0.1045	0.0196
Divorced or separated	-0.0444	-0.0090	0.0007	0.0001
Widowed	0.1487	0.0268	0.1613	0.0279
Age (Years old) [Ref. 15-24]				
[25 - 34[	-0.3597***	-0.0752***	-0.3204***	-0.0643***
[35 - 59[	-0.3558***	-0.0780***	-0.3148**	-0.0663**
[60 - +[	nd	nd	nd	nd
Level education [Ref. no level]				
Primary	-0.0780	-0.0157	-0.0706	-0.0138
Secondary	-0.3815***	-0.0825***	-0.3437***	-0.0716***
University	-0.5472***	-0.1404**	-0.5232***	-0.1298***
Size of the company [Ref. Don't know]				
[10 - 199[	-0.3118***	-0.0700**	-0.2623**	-0.0561**
[199 - +[	-0.3032	-0.0700	-0.2594	-0.0570
Inverse Mills ratio	-0.7070***	-0.1393***	-0.6318***	-0.1207***
Duration of employment before obtaining employment [Ref. 0]				
]0 - 2]			-0.3603**	-0.0819**
]2 - 5]			-0.4385***	-0.1036**
]5 - 12]			-0.4705***	-0.1124***
]12 - +[			-0.4486***	-0.1019***
Constant	1.6783***		1.8357***	
Observations				
LR Chi2 (12)	1659		1659	
LR Chi2 (16)	128.75		156.18	
Prob > Chi2	0.0000		0.0000	
Pseudo R ²	0.0969		0.1176	
Log likelihood	-599.6788		-585.96375	

Source: Author under Stata.

Table 5. Predictions.

	True		
Classified			
+	1417	217	1634
-	14	11	25
Total	1431	228	1659
Classified + if predicted $\Pr(D) \geq 0.5$ True D defined as $QP! = 0$			
Sensitivity		$\Pr(+ | D)$	99.02%
Specificity		$\Pr(- | \sim D)$	4.82%
Positive predictive value		$\Pr(D | +)$	86.72%
Negative predictive value		$\Pr(\sim D | -)$	44.00%
False + rate for true $\sim D$		$\Pr(+ | \sim D)$	95.18%
False - rate for true D		$\Pr(- | D)$	0.98%
False + rate for classified +		$\Pr(D | +)$	13.28%
False - rate for classified -		$\Pr(\sim D | -)$	56.00%
Correctly classified			86.08%

Source: Author under Stata.

Specifically, the probability that workers consider their jobs to be of poor quality declines with time spent in unemployment.

For example, workers with higher levels of education see their likelihood of considering their jobs to be non-quality declining. It could also be said that the probability of considering their jobs to be of good quality increases from -0.14 percentage points to -0.12 percentage points. And this is true for all levels of education. It's the same situation for all variables.

In other words, a period spent in unemployment before obtaining a job seems to have a downward revision effect on expectations in line with the demonstrations above from the Lancaster model [Lancaster, 1985a and 1990 as cited by Rioux (2001), Op Cit.]. The probability of considering one's job to be of good quality increases with the duration of unemployment.

A period of unemployment before getting a job leads to a reconsideration of the expectations that workers had about the employment potential they can acquire. This raises, on the one hand, the problem of information asymmetry, especially adverse selection, which may prove conflicting in the long run, and, on the other hand, the concern to increase the number of offers of non-decent jobs. The period of unemployment having been trying, a given individual accepts to be hired for working conditions that do not reflect his or her expectations because of the high rate of unemployment existing on the labor market. He or she does not reveal information about his or her previous expectations. During the course of the employment relationship, experience gained, the worker may claim

to be legitimate to claim some benefits that could lead to conflicts with the employer in case of mismanagement of negotiations. On the other hand, the continued acceptance of jobs under any conditions due to a period of ex-ante unemployment could lead employers to offer jobs that no longer reflect decent labor standards.

In view of these results, we recommend that the fight against unemployment be stepped up. This fight should concern all categories of unemployed, but particularly those whose unemployment duration is prolonged. The long duration of unemployment is likely to lead on the one hand to discouragement among the unemployed and on the other hand to confine job applicants to jobs which are objectively of lesser quality but which they consider to be of quality for the sole purpose of supporting themselves.

6. Conclusion

The objective of this paper was to analyze the effects of the duration spent in unemployment on subjective job quality. After a review of the literature on the relationship between times spent in unemployment and acquired job quality, the paper presents a theoretical model linking them and borrowed entirely from Lancaster's model. Using "Heckman's two-step approach" with the introduction of an inverse of the Mills ratio in the second equation and controlling for the explanatory variable "time spent in unemployment before obtaining employment", the paper finds that time spent in unemployment has a significant effect on subjective job quality. Workers tend to reconsider their perceptions of their jobs when they have experienced a period of unemployment. On the face of it, having experienced a spell of unemployment increases the likelihood of considering one's job to be of good quality, even though that job may objectively appear to be of poor quality. With these results, the paper argues for a more intensive fight against unemployment.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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