



HUMAN CAPITAL AND EMPLOYMENT IN BENIN LABOR MARKET

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ABSTRACT

The issue of employment is one of the main challenges of inclusive growth for most African countries. 11 million young people enter the labor market each year, while the sub-Saharan Africa labor market offers only 3 million jobs, a gap of around 8 million jobs per year (ADB, 2017). From this work, we evaluate, using a multinomial logit model (MLM), the impact of human capital on the probability of access to employment in the Benin labor market with data from household surveys. The results indicate that a significant increase in human capital leads to the occupation of a skilled job in Benin.

KEYWORDS : *Human capital; Employment; Labor market ; Multinomial logit model ; WAEMU.*

INTRODUCTION

The issue of employment is one of the main development challenges for most African countries. In sub-Saharan Africa, 60% of the population, or 200 million, are under 25 years old. Among them, 11 million enter the labor market each year, while the sub-Saharan Africa labor market offers only 3 million jobs, a gap of around 8 million jobs per year (AfDB, 2017). WAEMU countries's GDP growth will be in real terms at 6.8% in 2018 (Central Bank of West African States, 2018). Despite sustained economic growth for years and progress in education and training, the issue of employment remains a major challenge for many countries in sub-Saharan Africa. Research on human capital theory has shown that education is an economic investment that increases the productivity skills of workers and, de facto, is a form of human capital (Becker 1964, Schultz 1963). Education and training can be likened to investments that, accumulating, form a stock of professional skills, called "human capital" (Pierre and André, 2004). The state of the labor market in the West African Economic and Monetary Union (WAEMU) countries has always been one of the major concerns of the authorities of the zone. Since 2012, WAEMU countries have obtained from the African Development Fund (ADF) a foreign exchange donation of 20 million units of account to finance the Higher Education Support Project (ASPP) of the WAEMU countries. One of the three components of this project is "Support for reforms and harmonization of higher education systems in the WAEMU area". According to the Central Bank of West African States (2016), investments in human capital made in WAEMU countries have positively affected the efficiency of investments in other sectors. Thus human capital can be seen as a factor of human development in the area by its contribution

to the acquisition of knowledge useful for insertion and the active participation of the population in the labor market. Therefore, the countries of the union must increase their level of investment in education and vocational training to enable the population to access quality jobs and sufficiently high wages. In the four WAEMU countries, much effort has been made in the sectors of education and training. This, with the aim of fostering strong growth and creating quality jobs.

In Benin, the gross enrollment rate went from 119.72% in 2012 to 121.13% in 2013. According to the UNESCO Institute for Statistics, public spending on education increased from \$ 261 to \$ 974 PPP (millions) between 2000 and 2015 and the gross primary school graduation rate increased from 29.29% in 2006 to 68.28% in 2015 (UIS¹, 2017). This positive trend is the result of various measures implemented by the Beninese government with the support of its technical and financial partners, including education spending which makes up 24% of the state budget, and free education in primary school was introduced in 2006 (GSPR², 2011-2015). However, these efforts are not felt in terms of access to employment for the working-age population. The unemployment rate increased by 1.8 percentage points from 2007 to 2011. Moreover, unemployment increases with educational attainment and reaches 12.5% for those with higher education and 8.4% for those with secondary level (EMICoV, 2011).

Despite efforts to invest in education, the economic situation in the four WAEMU countries is characterized by very high unemployment rates and a very low employment offer, implying the failure of the education system to respond at the request of the labor market. And yet, according to Becker and Schultz (1964), the more educated individuals are, the more likely they are in the labor market.

Faced with this paradoxical situation, the following question should be asked: does the accumulation of human capital enable individuals to access employment in the Benin labor market ?

The relationship between education and the labor market has attracted a lot of attention since Mincer's study showed a correlation between income and the level of education attained (Mincer, 1958). In theory, education decisions are motivated by two aspects. First, education makes workers more productive and increases their earnings in accordance with human capital theory (Becker 1964, Schultz 1961). Secondly, education increases the duration of individual employability, and thus is a protection against exclusion. This is because more educated workers are also more productive, so firms agree to train them for longer. According to this vision, individuals and employers invest in training when they can expect a profit that exceeds the costs incurred. These include the direct costs of training but also the opportunity costs of the gains that we did not have because we were in training.

OBJECTIVE

The objective of this paper is to evaluate the impact of human capital on the probability of access to employment in

the Benin labor market. The rest of the article is organized as follows. The first section presents stylized facts. Section 2 describes the state of the issue in the literature and Section 3 develops the Multinomial Logit Model (MLM) specification. The last section presents the results.

1. BACKGROUND : HETEROGENEITY OF PUBLIC EDUCATION EXPENDITURE AND EMPLOYMENT IN WAEMU COUNTRIES

This section presents the public expenditure on education (% GDP). Table 1 highlights public expenditures on education (% GDP) in the WAEMU zone. The share of public expenditure as a percentage of GDP is 7.4% in Senegal, 6.7% in Niger, 4.4% in Benin and 4.4% in Burkina Faso against 4.5% in Sub-Saharan Africa. This table also highlights the share of public expenditure on education in the total expenditure of the States. In fact, education expenditures (% total expenditure) of all four countries has exceeded the average education expenditure of Sub-Saharan Africa (17.48% in Benin, 18.03% in Burkina, 21.66% in Niger, 24.76% in Senegal versus 16.62% in Sub-Saharan Africa).

Table 1. Education Expenditures (% GDP) and (% Total Expenditures) in WAEMU

WAEMU countries	Year	Education expenditure (% Pib)	Education expenditure (% total expenditures)
Benin	2015	4,36	17,48
Burkina Faso	2015	4,06	18,03
Cote d'Ivoire	2015	5,03	21,17
Guinée-Bissau	2013	2,17	16,19
Mali	2014	3,74	18,22
Niger	2014	6,71	21,66
Sénégal	2014	7,40	24,76
Togo	2015	5,22	17,99
Reference			
Sub-Saharan Africa	2013	4,5	16,62

Source : WDI, UNESCO 2017

Table 2 shows the distribution of employment by sector in the four WAEMU countries. In the four countries of the

union, the level of employment is below the average for sub-Saharan Africa (7.153 million).

Table 2. Distribution of employment by sector in the four WAEMU countries

Pays	employment (%)				Total employment (milliers)
	année	Agriculture	Industrie	Service	(âges 15+)
UEMOA					
Benin	2013	42,7	9,5	47,8	4 260
Burkina Faso	2013	84,7	3,1	12,2	7 455
Niger	2013	56,9	11,1	31,1	5 598
Sénégal	2013	49,1	14,8	36,1	5 494
Référence					
Afrique subsaharienne	2013	7 153

Source : WDI, ILO, 2017

2. LITERATURE REVIEW

2.1.Theoretical review

The first part of the literature is rather centered on a theoretical approach of the links between education, economy and employment. The links between education and the economy are important and have an impact on the training-employment relationship

2.1.1. Education and the labor market

The concept of human capital has been used constantly in economics since the works of Schultz (1961) and Becker (1964). Some authors make it go back to Adams Smith in the 18th century. In the OECD (1998) report, human capital is defined as “knowledge, skills, competences and other qualities possessed by an individual and relevant to economic activity”. The relationship between education and the labor market has attracted a lot of attention since Mincer’s study showed a correlation between income and the level of education attained (Mincer, 1958). In theory, education decisions are motivated by two aspects. First, education makes workers more productive and increases their earnings in accordance with human capital theory (Becker 1964, Schultz 1961). Secondly, education increases the duration of individual employability, and thus is a protection against exclusion. This is because more educated workers are also more productive, so firms agree to train them for longer. According to this vision, individuals and employers invest in training when they can expect a profit that exceeds the costs incurred. These include the direct costs of training but also the opportunity costs of the gains that we did not have because we were in training. According to Lucas (1988), the production function of an economy is composed of three elements: capital, labor and work efficiency reflecting the quality of human capital. This Lucas model refers to a set of knowledge available in the population and a qualitative improvement of training over time.

In most countries education is a bulwark against unemployment. As a result, Borooah and Mangan (2008) argue that the lowest unemployment rates are generally found among the most educated segments of the population. Although this theory has the advantage of advancing the theory of labor supply by bringing training and employment closer together by market logic, it nevertheless has some limitations, particularly the emphasis on individual productivity and supposedly measurable. This poses a problem especially when we know that the production process is of the collective type as a whole. Hence the consideration of complementary and alternative theories to the theory of human capital.

2.1.2. Complementary and alternative theories to the theory of human capital

These theories seek to explain the upsurge of unemployment by asymmetric information, the refusal of downgrading, the opposition insiders / outsiders, the failure of the matching process (Azariadis 1975, Spence 1973, Lindbeck and Snower 1988 ; Pissarides and Mortensen, 1999).

- **Signal Theory, formulated by Spence (1973)**

The author makes the assumption that education is not a way to increase human capital but a means of selection. In this perspective, individuals invest in education to send signals to employers. Unlike the theory of human capital, signal theory considers that it is the rank in the hierarchy of diplomas that counts and not the level. As a result, beyond a certain threshold,

investment in training would be a social waste and produce over-education and downsizing.

The main idea is that the employer, in a state of asymmetry of information with respect to the labor suppliers, does not know the productivity or the potential of the person she is going to hire and that this search for information is too much expensive. As a result, it transfers this burden to the education system and relies on the degree or level of education to rank individuals.

- **The “insiders / outsiders” model**

This model was developed by Lindbeck and Snower in 1988. The distinction is based on the observation that in large, highly structured companies for labor relations, workers already present in the company (insiders) are clearly distinguished from external candidates (outsiders). The latter are confronted with an attitude of rejection on the part of the former, thus defending their wages and working conditions. The threat represented by their power of intervention in the life of the company is sufficient to modify the decision of the employer. Insiders want a rise in wages while outsiders have an interest in lowering wages so that the demand for labor increases and they can maximize their chances of finding employment.

At the end of the 1980s, this idea was developed in relation to that of turnover costs. Insiders have been a cost to the company, and departures would be a cost. As long as the claim of the “insiders” does not exceed the estimated cost of their current presence, the “outsiders” will not be hired.

- **Matching theory**

The theory of matching is based on the idea that the employer is looking for a profile that is perfectly adapted to the job (Jovanovic, 1979). For this, he needs a period of time necessary to assess the adequacy between the profile sought and the job to be filled. He may therefore make any salary adjustments. Indeed, at the time of recruitment, the diploma is an insufficient marker. Among the reasons given for the persistence of imbalances in the labor market, the efficiency of the matching process occupies a prominent place. This matching theory accounts for the coexistence of high unemployment and labor shortages in some sectors (Pissarides 1990, Pissarides and Mortensen 1999). The authors argue that the pairing results from the confrontation between job search of workers who have imperfect knowledge of job vacancies and recruitment of companies that have an unclear idea about the characteristics of job seekers.

To stimulate employment, it is necessary to stimulate the supply of labor rather than reduce the activity rate (Cahuc and Zylberberg, 2004a, b).

The suitability of the worker’s characteristics to those associated with a vacant job is a determining factor in the hiring process as described by the matching or job matching models (Jovanovic 1979, Mortensen 1988, Sattinger 1993).

2.2. Empirical review

Empirically, a 1% increase in the GDP of public investment in France would generate in the short term a GDP increase of 1.1% at three years and a reduction of 245 000 unemployed if it is financed by debt (OFCE, 2016). As a primary source of human capital, education increases the productivity of the workforce, improves and promotes growth (Dissou et al., 2016). Boutin (2010) conducts a study in Cameroon with data from ECAM 3 conducted in 2007 where she analyzes the determinants of access to employment using a probit model. The results reveal that the probability of accessing employment is higher for individuals with a primary

or secondary education compared to individuals with no education or those with a higher level of education. In parallel, Nordman and Doumer (2012) find opposite results to those of Boutin on the link between level of education and access to employment. From the data of the 1-2-3 survey carried out between 2001 and 2003 in seven capitals of the WAEMU zone (all capitals except Bissau), the authors find with the help of a logit model that in Lomé, Cotonou and Abidjan, there is a positive correlation between unemployment and educational level, the chances of unemployment increase with the level of education. In other cities, however, unemployment and educational attainment form a bell curve. Individuals without a level of education have a lower probability of being unemployed. Their results show a positive impact of the diploma on remuneration with more pronounced effects for secondary and higher education diplomas. According to Chirache (2014), the unemployment rate in France of recent workers, with at most a college diploma, is 4.5 times higher than that of higher education graduates. Further, Nordman and Doumer (2012) show a clear correlation between level of education and quality of employment in WAEMU capitals, applying the segmentation “public, private formal, informal”. In the seven cities studied, 91% of those who did not complete primary education work in the informal sector. This proportion is 75% for those with a primary level, and only 19% for individuals who have completed higher education. Using a multinomial logit model, the authors show that an additional year of study increases the odds to integrate the public and the formal private sector than to work in the informal sector. However, Camara and Benjamin (2011) did a study in Ivory Coast and found a contradictory result to the

human capital theory. Their results reveal that the higher the level of education, the lower the employability of young people. As for the formation of incomes, the level of education acts positively.

In Senegal, Cabral et al (2014) find the following results: (i) the socio-professional categories of the “low-skilled” are those where there is a shortage of manpower; then (ii) there is an excess of labor supply in the “unskilled” segment and in the “highly skilled” segment; and finally (iii) in the “highly skilled” labor market, supply is dominated by the non-youth segment. On the other hand, in all other segments of the market, young people account for most of the labor supply. These studies show us that human capital, measured by level of education, plays a predominant role in access to employment, even if qualification adequacy problems are noted.

3. METHODOLOGY

3.1. Classification of skilled employment and unskilled employment

With regard to the qualification of professions (skilled, unskilled), we have relied on the International Classification of Occupations- ISCO08, adapted to the four WAEMU countries.

Table 3 presents the employment classification (skilled employed, unskilled employed) using ISCO-adjusted to developing countries and applied in the four WAEMU countries. The skilled employed includes senior managers, engineers and related professionals, middle managers and supervisors, skilled employees and workers, semi-skilled employees and manual workers. Finally non-skilled employed includes informal self-employed persons, laborers, caregivers and apprentices.

Table 3: Classification of Employment by Adjusted-ISCO08

ISCO groups	Employment classification
1- Senior manager, engineer and related	Skilled segment
2- Middle manager, master agent	
3- Employee / skilled worker	
4- Employee/ semi-skilled worker	Unskilled segment
5- Independent (seller, grower, tailor)	
6- Maneuver	
7- Help family	
8- Apprentice paid or unpaid	

Source: author, ILO (2013)

3.2. Model

The multinomial logit model (MLM) is our analytical model. This model is an extension of the simple logistic regression model. It was introduced by McFadden in 1968 and it allows to study situations where the individual must make a choice among several modalities. In unordered models, the variable to be explained represents the possibilities of choice of an individual among $M + 1$ possibilities and therefore his preferences. This is why they are also called random utility models.

The decision $Y_i = j$ is retained if

$$U_{ij} = \text{Max} (U_{i0}, U_{i1}, \dots, \dots, U_{iM})$$

Suppose that each individual has to choose between the three alternatives ($j = 0$ to 2) more precisely (unemployed, skilled employment and unskilled employment). What we seek to study is the unique decision of an individual among a number of unordered alternatives. In a model of unordered choices, the individual we will compare the different levels of utility associated to the various states, and then we will opt for the one that maximizes its utility U_{ij} among the J states. For the individual i , the utility of the state j is given by :

$$U_{ij} = \beta' Z_{ij} + \varepsilon_{ij}$$

Where Z_{ij} is a vector of individual characteristics (education level, vocational and /or technical training, age group, gender, residence place, etc.), β is a vector of unknown parameters and ε_{ij} is a random error term. If the individual i is

in the state j , we shall consider that U_{ij} is the greatest utility among the utilities considered by the individual i . In fact, the probability that the individual i participates in sector j corresponds to the probability that the utility of sector j is greater than that associated with all other sectors:

$$\text{Prob}(Y_i = j) = \frac{e^{\beta_j' z_i}}{\sum_{k=0}^2 e^{\beta_k' z_i}}, \text{ with } j = 0, 1, 2 \text{ et } \beta_0 = 0$$

The estimation of the parameters will be done by the likelihood maximum method. The maximum likelihood estimators are obtained once again by canceling the partial derivatives with respect to the different parameters of the likelihood of the sample. We will admit the classical results on the asymptotic behavior of the estimators: asymptotic variance deduced from the Fisher information matrix, asymptotic normality of the maximum likelihood estimator, Wald tests, likelihood ratio etc. The odds ratio appear directly in the software outputs for the multinomial model.

3.3. Data and study area

The study area concerns the country of Benin. We used the data collected by the National Institute of Statistics and Economic Analysis (INSAE), specifically the Integrated Modular Survey on the Living Conditions of Households in Benin (EMICoV-2011). Assets are the subject of our study and we obtain a sample of 4303 subjects.

4.RESULTS & DISCUSSION

Table 5 presents the results of the multinomial logit model (MLM) estimation for access to employment where the dependent variable is the employment state (described in Table 4) and for which the base is the alternative 0 (unemployed).

$$P(U_{ij} > U_{ik}), \text{ with } k \neq j; j, k=0, 1, 2$$

In many studies, the estimation of the reduced equation of labor force participation is done from this point using a multinomial logistic model³. In this model, the probability that the individual i is in the state j is expressed by:

The overall significance test of the model shows that the model is globally significant. We then did the independence tests of the variables (likelihood ratio test, wald test) to check the partial significance of these variables. The LR test of alternative combinations, another test that we performed to check whether it makes sense to combine certain categories of the dependent variable - for example: whether it makes sense to combine “unemployed” and “skilled occupation”. Finally, the independence test for irrelevant alternatives (IIA) has been validated for this model.

To clarify the effect of human capital, Table 4 gives the results of a simulation of the probability of being in a skilled job or an unskilled job using odds ratios.

In all four countries, an increase in the level of education significantly increases the probability of being in a skilled job.

A one-point increase in the level of higher education leads to an increase in the probability of having a skilled job of 4.10 points in Benin.

In Benin, the more educated the individual, the less likely he is to belong to the unskilled segment. Compared with the non-educated, a rise in higher-level human capital in these three countries significantly reduces the probability of entering an unskilled occupation. The chances of belonging to the unskilled segment decrease by 0.02 points for Benin.

Table 4: Effect of variables on the probability of access to employment in the four WAEMU countries (odds ration)

Variables	Benin	Burkina	Niger	Sénégal
Skilled employment				
primary	2.88***	2.00**	1.13**	1.49***
middle	3.42***			1.64***
general secondary	4.44***			2.17***
general high educ	4.10***	35.17***	9.08***	5.24***
technic secondary				6.29***
technic high edu				6.46***
women	0.54***	0.47*	0.59***	0.32***
rural	0.74*	0.52***	61.81***	0.55***
AGE24_35	2.71***	19.24***		2.20***
AGE236_59	4.74***	57.00***		4.42***
AGE60_plus		56.53***		7.08***
Unskilled employment				
primary	0.52***	2.05**	0.75***	
middle	0.20***	2.37**		0.65***
general secondary	0.07***			0.48***
general high educ	0.02***	19.87***	0.05***	0.19***
technic secondary				0.20***
technic high edu				0.10***

women	0.77**	0.36***	0.59***	0.65***
rural	2.16***	0.55**	144.47***	2.48***
AGE24_35		18.93***		
AGE236_59	2.41***	75.12***		1.53**
AGE60_plus		84.54***		3.18**
Statistics				
N	4303	43788	10804	12662
Ll	-2418.54	-5893.84	-1.12e+06	-6163.42
df_m	34.00	38.00	32.00	40.00
chi2	1396.80	908.30	817005.12	3082.84

Source: Author *** p<0.01, ** p<0.05, * p<0.1

Other individual characteristics that significantly affected the probability of belonging to the employment state are: gender, residence place, youth (AGE24_35), adults (AGE236_59), olders (AGE60_plus). Compared to men, women are at a disadvantage in all segments and in the Benin labor market. In rural areas, where skilled employment has increased by 61.81 points compared with the urban area, access to skilled employment is very limited in this country. However, the results reveal a strong presence of unskilled employment in Benin in rural areas.

Compared to youths (AGE_15_24), the results reveal that Age significantly increases the probability of belonging to the skilled segment in Benin.

According to the results, an increase in the education level increases the probability of having a skilled job in Benin. So education and skilled employment are positively correlated in this country.

CONCLUSION

In this paper, we study, using a multinomial logit model, the impact of human capital on the probability of access to employment in the Benin labor market. Empirical analysis reveals that:

- The results indicate that a significant increase in human capital leads to the occupation of a skilled job in the Benin labor market.
- Compared to rural people who are mainly immersed in unskilled employment, urban households are more likely to be in a skilled job.

The results have important implications for serving education policies and labor market policies in the Benin labor country:

- An education policy focused on the correction of imbalance between supply and demand for qualification in the Benin labor market.
- A technical and professional training policy of the workforce to increase the employability of it.

The extension of the study area and the consideration of the matching issue between labor market supply and demand for qualification seems original for future research.

REFERENCES

1. Adair P., Bellache Y., Gherbi H. (2012), « L'accès à l'emploi informel en Algérie : Déterminants et fonctions de gains, Inequalities and Development : new challenges, new measurements ? » Submission to the 4th Economic Development International Conference, Université de Bordeaux. 22 p.
2. AFRISTAT (1999) « Concepts et indicateurs du marché du travail et du secteur informel », Série Méthodes N°2. 65 p.
3. Alain Jaquot (2000), « Les modèles économétriques-LOBIT-PROBIT-TOBIT », Dossier d'Etude N° 6, CNAF-Bureau des Prévisions.
4. Angel de la Fuente et Ciccone Antonio, (2002), « Le capital humain dans une économie mondiale fondée sur la connaissance », RAPPORT FINAL(2002).
5. ANSD (2017), ENES
6. ANSD (2016), ENES
7. ANSD (2014), « Evolutions économiques récentes ».
8. ANSD (2013), « RGPHAE », rapport définitif.
9. Arrow K.J., 1973, « Higher Education as a Filter », *Journal of Public Economics*, 2, (3), juillet, pp.193-216.
10. BAD (2014), « La Stratégie du capital humain pour 2014–2018 », *Communications Development Incorporated, Washington, D.C.*
11. BAD (2017), « Stratégie pour l'Emploi des Jeunes en Afrique », *Conférence Ministérielle Régionale sur l'Emploi et l'Entreprenariat des Jeunes en Afrique.*
12. BAD (2017), « Perspectives Economiques Africaines en2017»
13. Becker G. S. (1993), « Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education », *the University of Chicago Press.*
14. Berman, E., Bound, J., Machin, S., (1998) « Implications of skill-biased technological change: international evidence », *Q. J. Econ.* 113, 1245-1279.
15. Boutin D. (2010), « La transition des jeunes camerounais vers le marché du travail », *Document de travail, DT 152/2010, Groupe d'Economie du Développement Lare-Efi, Université Montesquieu Bordeaux IV.* 29 p.
16. Brilleau A., Roubaud F., Torelli C. (2004), « L'emploi, le chômage et les conditions d'activité dans les principales agglomérations de sept Etats membres de l'UEMOA : principaux résultats de la phase 1 de l'enquête 1-2-3 de 2001-2002 », *DIAL, Document de travail DT/2004/06.*
17. Bruyère M. et lemiStre P., (2005), « Trouver un emploi en rapport avec sa spécialité de formation une situation rentable ? », *Des formations pour quels emplois, coord. J F. Giret, A. Lopez et Rose J., préface C. Thélot, ed. La Découverte.*
18. CABRAL F. J. et al. , (2014), « Diagnostic sur l'emploi des jeunes au Sénégal », *ICEJA, Mai.*
19. Camara Ibrahima, (2011), « Human capital and the process of integrating young people into the labor market: The case of the township of ABOISSO », *World statistical Congress, Dublin (Session CPSO55).*

20. Carl Shapiro and Joseph E. Stiglitz, (1994), « Equilibrium Unemployment as a worker Discipline Device », *The American Economic Review*, Vol. 74, No. 3 (Jun., 1984), pp. 433-444, American Economic Association.
21. Chirache S. (2014), « Eléments de synthèse sur la relation formation-emploi », *Éducation & formations* n° 85.
22. Conférence internationale du Travail, (2012), « La crise de l'emploi des jeunes: Il est temps d'agir », Bureau international du Travail Genève, Première édition.
23. Doeringer P, Piore M. (1971), « Internal labour markets and Manpower analysis », Heath Lexington Books.
24. Emmanuelle Nauze-Fichet et Magda Tomasini, (2002), « Diplôme et insertion sur le marché du travail : approches socioprofessionnelle et salariale du déclassement », *ÉCONOMIE ET STATISTIQUE* N° 354.
25. J. Gaude (1997), « L'insertion des jeunes et les politiques d'emploi-formation », Copyright Organisation internationale du Travail, Première édition
26. Jovanovic B. (1979), « Job matching and the Theory of Turnover », *The Journal of Political Economy*, n° 87.
27. Le Rhun B., Pollet P. (2011), « Diplôme et Insertion professionnelle », France Portrait Social, Édition 2011.
28. Mincer J., (1974), « Schooling, Experience and Earnings, Columbia University Press », New York..
29. Mohammed BOUGROUM, Aomar IBOURK et Ahmed TRACHEN (2002), « L'insertion des diplômés au maroc : trajectoire professionnelle et déterminants individuels », *Revue Région et Développement* numéro 15.
30. Nordman C., Pasquier-Doumer L. (2012), « Vocational Education, On-the-Job Training and Labour Market Integration of Young Workers in Urban West Africa », Document de travail UMR DIAL. 42 p.
31. OCDE (1998), « l'investissement dans le capital humain : Une comparaison internationale, Paris.
32. OCDE (2012), « Quel est l'impact du niveau de formation sur les taux d'emploi ? », Regards sur l'éducation 2012 : Panorama, Éditions OCDE.
33. OIT (2012), « Tendances mondiales de l'emploi ».
34. SNDES (2012), « Stratégie Nationale de Développement Economique et Social ».
35. Spence M. (1973), « Job Market Signaling », *The Quarterly Journal of Economics*, n° 87.
36. Thurow L., 1975, « Generating inequality », New-York, Basic Books.<http://www.ilo.org/public/french/bureau/stat/isco/isco08/index.htm>
37. Vincens (1998), « L'insertion professionnelle des jeunes, quelques réflexions théoriques », formation-emploi, n°61, CEREQ, France.

ENDNOTES

¹ UNESCO Institute for Statistics

² Growth Strategy for Poverty Reduction.

³ Nerlove et Press [1973]