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Research Article

Unemployment in the WAEMU Countries:
A Cross-Sectional Data Approach

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The aim of this article is to conduct an empirical evaluation of the microeconomic determinants of unemployment in the West African Economic and Monetary Union (WAEMU), controlling for inactivity. A multinomial logistic analysis has been conducted by using the Harmonized Survey of Household Living Conditions (2019) survey. Our results show that being female, single, young, disabled, and living in urban increases the risk of unemployment and inactivity. Furthermore, despite a higher incidence of unemployment among educated individuals, they are less likely to be inactive compared to those with no education. We also note that women with a university education are less affected by inactivity than men with the same level of education but remain more exposed to unemployment. In addition, age has a very limited influence on unemployment among men, unlike women, where it has a very significant amplifying effect. In addition, the negative effect of university education on unemployment is more pronounced in rural areas than in big cities. Finally, disability does not determine rural unemployment, unlike in urban areas, where it exacerbates it.

JEL codes: D63, J16, J64

Keywords: Unemployment, WAEMU, Cross-sectional data, Employment survey, Inactivity

1 Introduction

In 2020, the gross domestic product (GDP) growth rate in the countries of the West African Economic and Monetary Union (WAEMU) has decelerated (1% versus 6% in 2019) due to the negative impact of the COVID-19 pandemic on all sectors of the economy. In the same year, the average annual inflation rate stood at 2.1%, compared with -0.7% in 2019. The main reason for this increase was the tensions on food prices, which are linked both to stagnant cereal production during the 2019/2020 campaign and disruptions in the supply chain induced by the COVID-19 pandemic.

In terms of employment, agriculture is the sector with the largest number of workers in the WAEMU, covering around 45% of occupied positions in 2019, down from 54% in 2010. While the secondary sector continues to lag far behind (14% of jobs), the share of the tertiary sector has increased from 33% in 2010 to 41% in 2019 (World Bank, 2019). In addition to

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this, over 91% of jobs in the WAEMU are held in the informal sector, which could mean that informality is much more correlated with the agricultural and service sectors (WAEMU, 2019). Thus, the informal sector offers an indispensable survival strategy in countries where there is no safety net, such as unemployment insurance. However, this predominance of informal jobs exposes workers to difficult working conditions, such as inadequate social security coverage and the prevalence of poverty among the working population (ILO, 2020).

In addition, according to the World Bank (2019), the unemployment rate is on a downward trend in both developed and developing countries, as depicted in Figure 1. Indeed, over the period 2000-2019, the unemployment rate fell by 0.3 points in less advanced countries (from 4.3% in 2000 to 4.0% in 2019) and by 1.4 points in the Organization for Economic Cooperation and Development (OECD) countries (from 6.8% in 2000 to 5.4% in 2019). However, in contrast to this global trend, an increase in unemployment has been observed in the WAEMU countries. The unemployment rate rose from 2.95% in 2000 to 4.19% in 2019, an increase of 1.24 points. Furthermore, data from the WAEMU (2019) reveal that countries in the sub-region face inequalities in the distribution of unemployment according to certain individual characteristics. Indeed, youth unemployment is significantly higher than that of other age groups. The unemployment rate among 15-24 years old is 5%, compared with 1% for 41-64 years old. Similarly, depending on the level of education, unemployment persists particularly among higher education graduates, with a rate of 11%, while for the working population without a degree, it is just 2% (WAEMU, 2019). Furthermore, urban workers (5%) are particularly more affected by unemployment than their rural counterparts (1%).
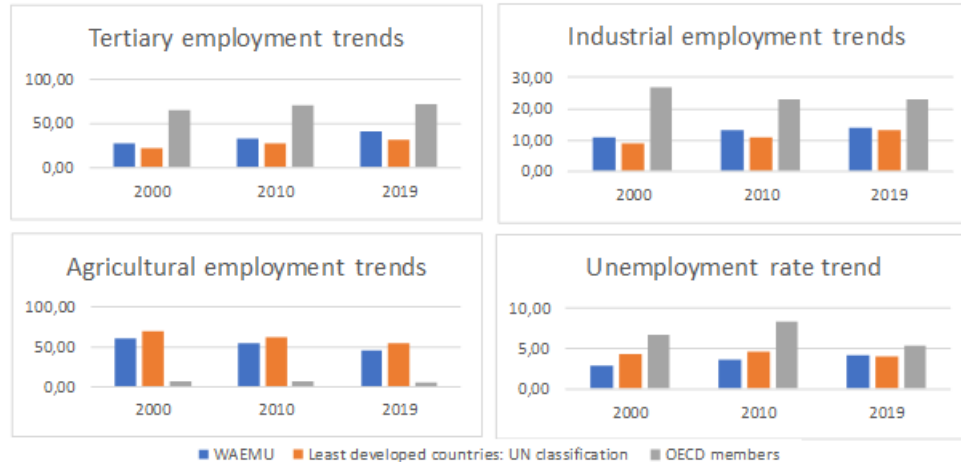

Figure 1: Employment and unemployment trends 2000-2019 (%)
Source: World Bank (2019)

Empirically, several studies have examined individual disparities in the face of unemployment (e.g., Sackey & Osei, 2006; Baah-Boateng, 2013; Kiiru et al., 2013; Msigwa & Kipesha, 2013; Groce & Kett, 2014; Njifen, 2015; Oancea, 2016; Benhabib, 2017; Alawad et al., 2020; Gad, 2021). The main findings of these studies indicate that inequalities in access to employment can be explained by several factors, such as level of education, gender, area of residence, marital status, age and validity status. However, it should be stressed that these studies are not unanimous as to the direction of the relationship (positive/negative)

linking unemployment and its determinants. This divergence in results can be explained by the fact that some samples are localized while others are national in scope. In addition, results may vary according to time lags between analysis periods. Thus, the question of the microeconomic determinants of unemployment remains unresolved. Furthermore, all studies of African countries are limited to the national framework despite the gradual harmonization of employment policies across economic integration zones. Indeed, this harmonization requires studies to be carried out at the community level to identify common employment issues and define shared objectives.

The aim of this study is to carry out an empirical assessment of the microeconomic determinants of unemployment in the WAEMU while controlling for inactivity. The exclusion of the inactive population from the sample could generate a bias in the results, especially if it possesses characteristics significantly different from those of the labor force. Thus, this study should contribute to the existing literature as we use a large data set merging microeconomic data (HHLCS) from several countries, unlike previous works carried out on the African continent, which focus solely on the national framework. Such an extension would enable us to identify the groups most vulnerable to unemployment and consequently define the employment priorities that require a community-based approach. It would also accelerate the harmonization of employment policies initiated by the WAEMU framework of consultation of ministers in charge of employment and vocational training (WAEMU-FCMEVT).

The multinomial logistic analysis shows that being female, single, young, disabled, and living in urban areas increases the risk of unemployment and inactivity. Furthermore, despite a higher incidence of unemployment among educated individuals, they are less likely to be inactive compared to those with no education. We also note that women with a university education are less affected by inactivity than men with the same level of education but remain more exposed to unemployment. In addition, age has a very limited influence on unemployment among men, unlike women, where it has a very significant amplifying effect. In addition, the negative effect of university education on unemployment is more pronounced in rural areas than in big cities. Finally, disability does not determine rural unemployment, unlike in urban areas, where it exacerbates it.

The remainder of this article is organized as follows. The next section is devoted to a brief review of the empirical literature on the microeconomic determinants of unemployment. Section 3 presents the methodological framework, and Section 4 analyzes the sample data. Section 5 presents and discusses the empirical results, and finally, Section 6 concludes.

2 Brief review of the literature

Unemployment is a major concern in all countries, whatever their level of development. It serves as an underpinning for other social (widening inequalities, political unrest, prostitution, family instability), economic (loss of skills, falling demand), security (rising crime rates, terrorism) or migration (from poor to rich countries) problems, all of which are detrimental to economic development. This is why the issue of unemployment has gained prominence in modern economic work, making labor a central argument in public policy (Benhabib, 2017).

On an empirical level, works have focused on gender discrimination to explain disparities in access to employment, and being male is associated with a lower risk of experiencing unemployment compared to women (Isengard, 2003; Baah-Boateng, 2013; Msigwa & Kipesha,

2013; Benhabib, 2017). Indeed, these authors point out that women are subject to several stereotypes, such as frequently taking sick leave or maternity leave, which makes it difficult for them to enter the job market. In the same vein, Ben & Coretta (2007) interpret women's disadvantaged position regarding unemployment as a desire on the part of some employers to preserve male identity when women want to enter jobs traditionally reserved for men. Moreover, inequality between men and women in the face of unemployment is attributable to socio-cultural considerations (Calvès & Kobiané, 2014). Indeed, according to the authors, African societies value women's role as wives and mothers and consider men to be the main providers of household income. This situation limits women's opportunities for full-time employment and exposes them to frequent bouts of unemployment.

The level of education of the working population is often cited in empirical literature as one of the causes of unemployment, such that a high level of education increases the probability of facing unemployment (e.g., Msigwa & Kipesha, 2013; Njifen, 2015; Gad, 2021). According to O'Higgins (2003), this is because educated workers mostly come from affluent backgrounds, where parents can afford to leave their children unemployed until they find a job deemed decent or corresponding to their wage claims. However, Jarousse et al. (2008) argues that the difficulty of integrating graduates reflects the inefficiency of the education system in reconciling training provision with the realities and demands of the job market. On the other hand, Kiiru et al. (2013) are more nuanced about the effect of education on the risk of unemployment and find that it is the level of secondary education that increases the probability of unemployment, while the possession of a university degree facilitates access to employment.

Marital status also influences the risk of unemployment; single people are more likely to be unemployed than married people (Benhabib, 2017; Alawad et al., 2020; Gad, 2021). These authors argue that married workers are less demanding in terms of the quality of jobs and endure the duration of unemployment less, which tends to reduce voluntary unemployment as they have family responsibilities. On the other hand, Baah-Boateng (2013) confirms that married workers are more likely to experience unemployment than single workers. Indeed, geographical mobility theory explains that married workers are confronted with family constraints such as child-rearing and household stability, which reduce their capacity for mobility and distance them from employment pools (Büchel & van Ham, 2003).

Unemployment is also identified as a phenomenon affecting young people to a greater extent (Isengard, 2003; Sackey & Osei, 2006; Baah-Boateng, 2013; Njifen, 2015). As employers are looking for directly usable skills, young people are likely to be unemployed due to their lack of experience. In addition, barriers related to access to financial resources for business start-ups are also important factors contributing to the high incidence of unemployment among young people (Baah-Boateng, 2013).

Studies also confirm that rural workers are less exposed to unemployment than urban workers (Boateng, 1994; Sackey & Osei, 2006; Anyanwu, 2013). These authors explain that, despite the concentration of public and private enterprises in urban areas, the exodus of rural workers to big cities in the hope of finding better jobs means that urban labor markets are unable to absorb enough labor. However, Oancea (2016) states that the low risk of unemployment faced by rural workers is attributable to their occupation in subsistence agriculture, which does not allow them to be counted among the unemployed. On the other hand, other empirical studies (e.g., Alawad et al., 2020; Njifen, 2015) invalidate the above findings, arguing that unemployment is more prevalent in rural areas.

Finally, National Statistics Bureau of Bhutan (2020) shows that disabled workers fare less well in the face of unemployment than able-bodied people in Bhutan. For some authors (e.g., Kett, 2012; Groce & Kett, 2014; Mahmoudi, 2021), disabled workers suffer from a number of prejudices, including low productivity, low autonomy, and frequent sick leave, that make employers reluctant to hire them.

3 Empirical strategy

The simplest empirical strategy for modeling the probability of a worker being unemployed rather than employed is to estimate a logit or probit model. The use of these two models forces us to use a binary dependent variable (unemployed and employed) and, therefore, to exclude inactive individuals from the sample. This exclusion could potentially introduce a bias into the results, particularly if individuals outside the active population have characteristics significantly different from those of the employed. For this reason, the approach adopted in this study is multinomial logit estimation. However, the use of this model relies on the assumption of the independence of irrelevant alternatives (IIA, Mbebi, 2018). In other words, the likelihood ratio between two modalities must not be influenced by other alternatives not considered. We will test the validity of the IIA hypothesis using the Small-Hsiao test.[1] Equation (1) provides the estimated model

$$p(J|x_i) = \frac{1}{1 + \sum_{j=1}^{3} exp(x_i\beta_j)} \tag{1}$$

where J is the set of modalities of the endogenous variable taking the values of 1 (employed individuals), 2 (unemployed individuals), and 3 (inactive individual), p is the probability of an individual belonging to one of the three classes, x_i is the vector of explanatory variables, and β_j is the vector of coefficients.

4 Sample data analysis

The data used in our study come from the Harmonized Survey of Household Living Conditions (HHLCS, 2019). The aim of the survey is to produce socioeconomic indicators in the areas of literacy, education, health, employment, unemployment, housing, ownership of durable goods, money transfers, safety nets and household consumption of goods and services. The HHLCS (2019) enables the various WAEMU countries to harmonize their household survey methodologies to ensure the comparability of results. The survey is carried out by each country's National Statistics Institute, with support from the World Bank and WAEMU. In line with the objective of the study, which is to go beyond the national framework to identify sub-regional trends in unemployment, we have merged the databases of the eight WAEMU countries to obtain a sample of 151,220 individuals. The sample used comprises six explanatory variables: sex, level of education, marital status, age, place of residence and validity status.

We observe a lower presence of women in employed status, but they are over-represented in unemployment and inactivity. According to the level of education, uneducated individuals predominate in all labor market statuses. Regarding marital status, unemployment and

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[1] The results of the test are available in appendix A.

Table 1: Descriptive Statistics, as % of the sample

		Employed	Unemployed	Inactive
Sex	Male*	60	47	32
	Female	40	53	68
Education level	None*	74	42	58
	Primary	18	26	35
	Secondary	4	17	6
	Higher education	4	16	1
Marital status	Single*	23	64	54
	Married	77	36	46
Place of residence	Urban*	42	78	53
	Rural	58	22	47
Age	15-24 years*	19	38	59
	25-35 years	33	46	22
	36-40 years	14	7	6
	41-64 years	34	9	13
Validity status	Valid*	3	3	4
	Disabled	97	97	96

Note: * indicates the reference categories in the regression analyses.

inactivity are more frequent among single people than in employment. In terms of place of residence, most unemployed and inactive people live in urban areas, while a large proportion of the employed come from rural areas. Analysis by age shows a concentration of unemployed and inactive people among young people aged 15-35 and a domination of adults aged 41-64 among the employed. Disabled people are less represented in the various statuses examined, namely employment, unemployment, and inactivity, compared with able-bodied individuals.

5 Discussion of results

Table 2 shows the results of the multinomial logistic models for different samples. Model (I) covers the whole sample, Models (II) and (III) show the results for the male and female samples, respectively, and finally, Models (IV) and (V) show the results for urban and rural areas of residence, respectively. For all models, the second column shows the coefficients of the variables included in the model. However, the values of these coefficients are not directly interpretable, only their signs. Thus, when the coefficient is positive, this means that the variable favors the probability of occurrence of the phenomenon under study, which in our case is unemployment, and vice versa. To better understand the magnitude of these coefficients, we use the relative risk ratio (RRR) presented in the first column. In addition, the parameters of Model (I) will serve as a basis for interpretation.

5.1 Whole Sample

The econometric results highlight the importance of gender in explaining unemployment. Women are 2.2 times more likely to be unemployed than men, and this is in line with the previous findings (Msigwa & Kipesha, 2013; Baah-Boateng, 2013; Benhabib, 2017). These authors point out that women are subject to several stereotypes, such as frequently taking sick leave or maternity leave, which makes it difficult for them to enter the job market. In addition, African societies value women's role as wives and mothers and make men the main income earners in the household, which could prevent women from taking up full-time salaried jobs (Calvès & Kobiané, 2014). This undoubtedly explains the high risk of women

falling into inactivity. Indeed, empirical results show that women are more than 4.8 times less likely to participate in the labor market than men.

Our results show that high levels of education exacerbate unemployment in WAEMU countries. More specifically, higher education graduates are 4.2 times more likely to be unemployed than non-graduates. This problem of the difficult integration of graduates, which invalidates human capital theory (Schultz, 1961; Becker, 1964), can be explained in the context of WAEMU countries. Firstly, it may stem from the inability of community education systems to reconcile the supply of training with the new skills demanded by businesses, notably due to a lack of infrastructure and qualified teachers (OECD, 2016). Secondly, as in most developing countries, the sub-regional economy is dominated by informal activities, which account for over 91% of jobs (WAEMU, 2019). As a result, educated workers are less likely to find jobs that match their level of education, which could increase their vulnerability to unemployment. However, working people with a university degree are 0.7 times less likely to be inactive compared to those with no education. This illustrates the phenomenon whereby educated individuals seeking formal employment are more likely to register with employment agencies, which classifies them as part of the working population. By contrast, people with no education tend to rely on personal ties to enter the informal sector.

In addition to the level of education, marital status also has an influence on an active individual's participation in the labor market. In fact, being married reduces the probability of becoming unemployed by 0.3 times and the probability of falling into inactivity by 0.4 times. This result can be explained by the fact that faced with the assumption of family responsibilities, married workers are less demanding in terms of the quality of the jobs on offer and endure the duration of unemployment less, which tends to reduce voluntary unemployment (Benhabib, 2017; Alawad et al., 2020; Gad, 2021).

Another interesting result is the influence of place of residence on the risk of unemployment and inactivity. Indeed, living in an urban environment increases the probability of unemployment by 0,35 times and increases the risk of falling into inactivity by 0.8 times. The high propensity for unemployment among urban workers confirms the findings of Boateng (1994), Sackey & Osei (2006) and Anyanwu (2013), who explain that, despite the concentration of public and private enterprises in urban areas, the exodus of rural workers to the big cities in the hope of finding better jobs means that urban labor markets can no longer absorb enough labor. However, rural workers are generally engaged in subsistence agriculture, which prevents them from being counted among the unemployed in the absence of a real job (Oancea, 2016).

Furthermore, the empirical analysis shows that age fasting exacerbates both the risk of unemployment and inactivity. In other words, compared to adults aged 41-64, young people aged 15-24 are 0.3 times more likely to be unemployed and 0.4 times more likely to be inactive. Thus, in a context where employers are looking for directly usable skills, young people are likely to be unemployed due to their lack of experience (Sackey & Osei, 2006; Baah-Boateng, 2013; Njifen, 2015). In addition, barriers related to access to financial resources for business start-ups are also important factors contributing to the high incidence of unemployment among young people (Baah-Boateng, 2013).

Finally, the empirical results show that disability increases the probability of unemployment by 1.5 times. This result could be explained by the fact that disabled workers suffer from several prejudices, e.g., low productivity, low autonomy, and frequent sick leave, which make it difficult for them to enter the job market. The results show that disabled workers

Table 2: Regression Analyses

		(I)		(II)		(III)		(IV)		(V)	
		RRR	Coef	RRR	Coef	RRR	Coef	RRR	Coef	RRR	Coef
Unemployed	Female	2.17	0.77***					2.15	0.76***	1.84	0.61***
	Primary Edu.	1.33	0.28***	1.21	0.20***	1.53	0.42***	1.48	0.40***	0.89	-0.12
	Secondary Edu.	2.81	1.03***	2.43	0.89***	3.5	1.25***	3.1	1.13***	2.28	0.82***
	Higher Edu.	4.23	1.44***	3.4	1.22***	5.9	1.78***	4.36	1.47***	5.83	1.76***
	Married	0.27	-1.30***	0.15	-1.89***	0.54	-0.61***	0.32	-1.14***	0.2	-1.61***
	Rural	0.35	-1.05***	0.39	-0.95***	0.31	-1.18***				
	25-35 years old	1.03	0.03	1.12	0.11	0.93	-0.07*	0.9	-0.10*	1.04	0.04
	36-40 years old	0.54	-0.62***	0.76	-0.28*	0.44	-0.82***	0.47	-0.76***	0.54	-0.62***
	41-64 years old	0.39	-0.95***	0.8	-0.22	0.2	-1.63***	0.36	-1.02***	0.31	-1.17***
	Disabled	1.47	0.39***	1.5	0.44**	1.45	0.38**	1.5	0.41***	1.43	0.36
	Constant	0.06	-2.86***	0.07	-2.69***	0.08	-2.57***	0.06	-2.87***	0.03	-3.61***
Inactive	Female	4.82	1.57***					4.04	1.40***	5.77	1.75***
	Primary Edu.	1.62	0.48***	2.46	0.90***	1.26	0.23***	1.71	0.54***	1.49	0.40***
	Secondary Edu.	1.41	0.34***	2.31	0.84***	1.07	0.06	1.63	0.49***	0.93	-0.07
	Higher Edu.	0.68	-0.38***	1.23	0.21***	0.55	-0.58***	0.74	-0.30***	0.75	-0.28***
	Married	0.4	-0.92***	0.15	-1.87***	0.64	-0.44***	0.47	-0.755***	0.33	-1.10***
	Rural	0.84	-0.18***	0.77	-0.26***	0.86	-0.15***				
	25-35 years old	0.3	-1.19***	0.21	-1.59***	0.38	-0.96***	0.22	-1.51***	0.41	-0.89***
	36-40 years old	0.21	-1.56***	0.16	-1.86***	0.28	-1.31***	0.14	-1.96***	0.3	-1.20***
	41-64 years old	0.26	-1.34***	0.35	-1.04***	0.3	-1.20***	0.18	-1.69***	0.35	-1.04***
	Disabled	2.15	0.77***	4.38	1.48***	1.39	0.33***	2.23	0.80***	2.1	0.74***
	Constant	0.96	-0.05***	1.09	0.08***	2.93	1.08***	1.14	0.13***	0.68	-0.39***
		n=151,220		n=75,127		n=76,093		n=71,251		n=79,969	

Note: For reference categories, see Table 1. ***, **, and * indicates statistically significance at 1%, 5%, and 10%, respectively.

are 2.2 times more likely to be out of work than able-bodied people and confirm the fact that many disabled workers withdraw from the job market when faced with these seemingly unbearable obstacles. This situation could aggravate their dependence on society and increase their economic vulnerability.

5.2 Results by sex

The results of Models (II) and (III) show that university education has a more detrimental effect on unemployment for women than for men. However, women with a university degree are less likely to fall into inactivity than men with the same level of education. This could reflect the willingness of female graduates to break down gender stereotypes and remain active in the job market. The results indicate that married women are less affected by unemployment and inactivity than single women. Such a result may seem surprising insofar as women are a priori victims of African socio-cultural norms that force them to stick to the role of wife and mother, leading to their economic subjection to men. However, Doumbia Gakou & Kuépié (2008) argue that, despite social constraints, many women help a husband whose income is insufficient to cover household needs. As a result, cultural norms may take a back seat to economic constraints. Similarly, ILO (2018) confirms that in poor countries, economic necessity means that married women display a greater likelihood of working relative to those in developed countries.

Furthermore, the empirical analysis shows that age has a very limited influence on unemployment among men, whereas it has a negative and highly significant impact on the occurrence of unemployment among women. The weak relationship between age and men's integration into the labor market can be explained by the fact that, in the African context, young men are introduced to income-generating activities from an early age. The aim of this practice is to provide them with the skills they need to ensure the household's economic security once they reach adulthood. Among men, age is not a major obstacle to entering the job market, unlike women, for whom fasting represents a barrier to overcome to avoid unemployment. In addition, disability and urban residence exacerbate unemployment and inactivity, regardless of gender.

5.3 Results by place of residence

According to the results of Models (IV) and (V), urban women are more likely to be unemployed but less likely to be inactive than rural women. This low participation of rural women in the labor market may reveal that they are less independent when it comes to making the decision to work, relative to urban women who are more emancipated from family pressure to conform to domestic tasks. In addition, cities offer childcare facilities that enable mothers to participate in the labour market, whereas rural women do not. Moreover, the negative impact of university education is more pronounced in rural areas than in cities. The predominance of agricultural activities in rural areas considerably reduces employment opportunities for highly educated people, who are more likely to aspire to positions in the formal sector. Moreover, disability does not determine rural unemployment, unlike in urban areas, where it increases the probability of unemployment by 1.5 times.

6 Conclusion

The objective of this article was to conduct an empirical evaluation of the microeconomic determinants of unemployment in the WAEMU while controlling for inactivity. Using the

multinomial logistic model on HHLCS (2019) data, we find that female sex, single status, urban residence, young age, and disability increase the risk of inactivity unemployment. Furthermore, despite a higher incidence of unemployment among educated individuals, they are less likely to be inactive compared to those with no education.

Analysis by sex reveals that women with a university education are less affected by inactivity than their male counterparts but are still subject to unemployment. We also note that married women have a lower risk of unemployment and inactivity than single women, despite the sociocultural considerations that force them to stick to the role of mother and wife. The results also show that age has a very limited influence on male unemployment, unlike in the case of women, where it has a very significant amplifying effect.

Finally, some specific features emerge from the analysis according to place of residence. Women living in urban areas are more likely to be unemployed but less likely to be inactive than those living in rural areas. The adverse effect of university education on unemployment is more pronounced in rural areas than in big cities. The predominance of agricultural activities in rural areas considerably reduces employment opportunities for highly educated people, who are more likely to aspire to jobs in the formal sector. Finally, disability does not determine rural unemployment, unlike in urban areas, where it exacerbates it.

Based on these results, public authorities will have to take steps to reduce unemployment by implementing a number of measures. Faced with the risk of high unemployment among women, the public authorities need to increase the mix of jobs in fields traditionally reserved for men, notably construction and public works, industry, and transport. Regarding the prevalence of unemployment among young people, the authorities need to take steps to promote entrepreneurship, notably by setting up a guarantee fund to enable these working people to access the financial resources they need to start up their businesses. Business incubators should also be set up to provide better support for young entrepreneurs. In the field of education, to address the difficulties of integrating graduates into the job market, the public authorities should establish a framework for discussion between the Ministry of Higher Education and the private sector. This would enable training courses to be adapted to the needs and realities of the job market. States in the sub-region should also introduce measures such as subsidized employment programs to facilitate the integration of disabled workers into the job market. Such measures could include, for example, tax exemptions for companies recruiting individuals with disabilities.

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Appendices

Appendix A: Result of the test of IIA

The Small-Hsiao test shows that the "independence of irrelevant alternatives (IIA)" hypothesis is accepted. In other words, if we delete or add another alternative, this does not affect the relative risk ratio between the two modalities.

Table A.1: Small-Hsiao tests of IIA assumption (N=151,220)

	LnL(full)	LnL(omit)	χ^2	Df	$p > \chi^2$
Employed	-4970.25	-4969.224	2.052	7	0.562
Unemployed	-4.88E+04	-4.88E+04	0.966	7	0.81
Inactive	-5457.99	-5456.592	2.796	7	0.424

Source: Author's calculation using Stata 16