

# Youth Labour Market Participation and Sectoral Choices in Côte d'Ivoire

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and  
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## List of abbreviations and acronyms

AGEPE	Employment Studies and Promotion Agency
BEPC	Brevet d'études du Premier Cycle
BTP	Bâtiments et Travaux Publics (Buildings and Publics Works )
EEMCI	Enquête Emploi auprès des ménages en Côte d'Ivoire (Household Employment Survey)
ENSEA	National School of Statistics and Applied Economics
ENSETE	National Survey on the Employment Situation and Child Labour
HES	Household Employment Survey
ILO	International Labour Organization
INS	National Institute of Statistics
NDP	National Development Plan
YEA	Youth Employment Agency

# Abstract

Several employment options are available to job seekers in Côte d'Ivoire. Four employment options are offered according to the market structure. This makes reference to the public sector, formal private sector, non-agricultural informal sector, and the agricultural informal sector. This study aims at analysing the determinants for youth labour market participation and sectoral choices. The data is drawn from the National Survey on the Employment Situation and Child Labour (ENSETTE) conducted in 2013 by the Agency for Studies and Job Promotion (AGEPE). In this study, two econometric tools have been used.

The binary probit model by selection reveals that age, gender and place of residence impacts negatively the participation of the youth in the labour market. The individual multinomial probit model underlines the negative influence of gender on employment in the formal sectors (public sector and formal private sector). However, the young women have up to 18% chance of being absorbed in the non-agricultural informal sector. In the event that the urban area is conducive for all sorts of economic activities, the young women's chances increase to more than 50% in terms of their likelihood to conduct non-agricultural informal businesses. The probability of a youth getting employed in public or non-agricultural formal sectors decreases as he or she continues to age. These phenomena create employability problem as underscored by the outcomes obtained with the duration of unemployment period.

**Keywords:** Employment integration; Public sector; Formal private sector; Non-agricultural informal sector; Probit model; Côte d'Ivoire.

**JEL Classification:** J21; J82.

# 1. Introduction

Issues concerning youth employment take a centre stage in all major African, Pan African and international meetings. The fundamental reason for this interest is that this important group of the population in developing countries is faced with enormous challenges in getting integrated into the labour market.

Côte d'Ivoire is faced with a youth employment crisis. The youth represent the proportion of the working-age population with the highest unemployment rate. The average age of those who are unemployed is estimated at 27 years, which is five years higher than the average age of the total population. Almost three-quarters of these unemployed are under 30 years of age and 18% between 30 and 39 years old. Most of them are looking for their first job and 70% of them have been unemployed for a long period of time. This unemployment mainly affects young people in urban areas (Kouakou, 2006). In 1998, the youth unemployment rate was around 85.7% nationally. However, it affected 57% of youth in urban areas. The unemployed are people without work but who are ready and willing to work. In 2012, the unemployment rate among young people remained high. It was 13.8% for 14-24 year-olds and 12.2% for 14-35 year-olds (EEMCI, 2012). In 2013, it was at 9.6% among 14-24 year-olds (ENSETTE, 2013). This adapted unemployment does not take into account the criterion of "job search" in accordance with the recommendations of the 13th International Conference of Labour Statisticians (ILO, 2013).

In order to provide a lasting solution to this problem, the government is committed, through the National Development Plan (NDP), to facilitate young people's access to employment<sup>1</sup> This inevitably requires knowledge of the situation of the youth in the labour market. In addition, the segmented nature of the Ivorian labour market requires a sectoral analysis. This would allow for a better understanding of the specificities of each market segment in order to provide more appropriate solutions. It is with this in mind that our study is conducted. Thus, it attempts to answer the following question: what are the determinants of participation and choice of the sector for integration of young people into the labour market in Côte d'Ivoire?

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1 Strategic axis 2: Accelerating human capital development and promoting social wellbeing / Impact 2: Women and men... youth and people with disabilities have access to productive, decent and sustainable employment.

Four segments can be distinguished in the Ivorian labour market. These are: the public sector, the formal private sector, the non-agricultural informal sector, and the agricultural informal sector. The public sector includes jobs in public administration, parastatals and international organizations. It represents only 2.5% of the jobs held by the youth (ENSETTE, 2013). The other 97.5% are in the private sector. The distinction between formal private sector (4.3%) and informal sector (93.2%) is based on the criterion of registration of the production unit, including whether or not to pay taxes. Thus, workers who are neither in the public nor in households and whose establishment is subject to at least synthetic tax are classified in the formal private sector. The others are classified as informal. The latter is subdivided into informal non-agricultural (43.1%) and informal agricultural (50.10%). This distinction is justified by the large size of agriculture in developing countries and its reverse shift towards expanding non-agricultural activities.<sup>2</sup>

The interest of such a study is to promote a better understanding of the situation of the youth in labour market in Côte d'Ivoire. This work could be a valuable tool for guiding decision making in the development of appropriate policies to reduce youth unemployment.

The work is structured in the following manner. Section 2 presents a review of theoretical and empirical literature on the subject. Section 3 describes the methodology (data, variables and econometric approaches). Section 4 presents and discusses the results obtained. Section 5 concludes and discusses the implications of these results.

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<sup>2</sup> Charmes (2002) in Adair and Bellache (2012).

## 2. Literature review

By positioning itself on the supply side, human capital theory (Becker, 1964; Mincer, 1974) is the ideal framework for understanding the situation of individuals in the labour market. This theory is even more relevant in explaining the plight of the youth because most of them leave the education system directly and are first-time job seekers. The theory gives a prominent place to the level of education of the individual. Indeed, it postulates that individuals who invest heavily in their education and/or training are those who hold the "good jobs".<sup>3</sup> Education is an instrument for improving productivity and increasing earnings. As a result, these individuals receive better pay. Thus, training is an investment aimed at increasing the individual's productive capacities, the latter fully determining the qualification and remuneration of the job held (Camara and Zanou, 2011).

Upon completing his or her studies, the individual will have to devote time to finding a job. Indeed, according to job search theory, the time spent looking for a job can be considered as an investment in obtaining a job with a better salary (Stigler, 1962). In addition, the academic certificate obtained is a signal to the employer. The higher it is, the better it is as an indicator. This is what signal theory postulates (Spence, 1974).

In addition to factors related to human capital, studies dealing with the choice of the integration sector incorporate certain socio-demographic variables into the analyses. These include residence, gender, marital status, etc. Since the dependent is qualitative, discrete and unordered, these studies mobilize non-ordered polytomous logit models<sup>4</sup> (McFadden, 1968, 1973; Theil, 1969) or multinomial probit models (Hausman and Wise, 1978).

Doğrul (2012) studies the determinants of inclusion in the public, private and informal sectors in Turkey. The author finds that gender, marital status, household status and education level are determining factors in the choice of sector. The study identifies education as a major factor determining participation in modern paid employment. Similarly, Glick and Sahn (1997), in analysing the determinants of labour market participation, employment sector and wages in Conakry, Guinea, focuses on the effect of gender education on the individual's situation. The authors conclude that education plays a major role in the choice of sector of activity.

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3 "Good jobs" refer to jobs in the regulated or formal sector as highlighted by labour market segmentation theory (Doeringer & Piore, 1971; Cain, 1976).

4 These models constitute a family of models whose basic model is the multinomial logit (Essafi, 2003).

Indeed, higher education reduces the probability of being independent, while it greatly increases the probability of being in the public sector. Furthermore, the study points out that few women are in salary-earning employment.

Kabubo-Mariara (2003), in analysing gender wage discrimination in Kenya, also points out that education and certain demographic factors such as age, place of residence and marital status explain the choice of the integration sector. Indeed, higher level of education strongly determines inclusion in the public and formal private sectors compared to self-employment. Nyaga (2010) comes to the same conclusion for the analysis of integration choices between the public, private, informal and agricultural sectors. However, the author finds that in addition to the factors mentioned above, marital status and household size explain access to the different sectors.

Ndjobo and Abessolo (2013) point out in the case of Cameroon that individuals choose to work in the sectors that best value their education. Thus, it is more likely that these people will choose to integrate into sectors associated with lower levels of education than those in other sectors.

Njikam et al. (2005) argues that human capital variables are a weak predictor of employment integration. However, work experience is crucial to access to protected employment status in both the public and formal private sectors. In addition, residence and union involvement are factors that influence young people's access to employment. The study by Hammouda and Souag (2012), in Algeria, concludes that the youth are the most affected by unprotected agricultural and modern jobs in the informal sector. A study by Gherbi (2014) reveals that young women, particularly single women, are mostly hired as non-permanent employees on short-term contracts. Having a vocational training academic certificate increases the probability of working in a self-employed and informal capacity. Kane (2013) finds that in Senegal, young people (15-25 years old) are attracted to the formal private sector because of the more attractive remuneration in this sector.

Da Maia (2012) focuses on the relationship between education and other individual characteristics on the probability of integrating the six specified segments<sup>5</sup> in Mozambique. The study reveals that young people are less likely to, not only enter the public and private sectors, but also to become self-employed. These opportunities are even more limited for young women. Thus, having a high level of education increases the chances of entering the public sector only among men. However, a high level of education increases women's chances of working in public and formal private jobs.

Adair and Bellache (2012) also show that, in Algeria, being young reduces the individual's chances of taking up formal employment but facilitates access to the informal sector. Also, they found that the probability of being an informal micro-entrepreneur is higher among young workers with a low level of education, no seniority and no employee (self-employed), working without specific premises (market, construction site). In addition, the probability of being an informal wage earner is higher among those who are single and those with a low level of education, low pay and working in services and in buildings and public works sector.

5 These are: the formal private sector, the public sector, self-employment, family employment, unemployment, and inactivity.

## 3. Methodology

### Data

National Survey on Employment Situation and Child Labour (ENSETE) is the second of its kind<sup>6</sup>, carried out by Employment Studies and Promotion Agency (AGEPE) in 2013. This database provides the information useful for our analysis. The survey covered a sample of 12,000 households spread throughout the country, obtained after a proportional draw of 600 survey areas and a systematic draw of 20 households in each of the survey areas (after having identified all the households living in this area). The data was collected in February 2014. The quality of this data was ensured by the technical measures taken by the National Institute of Statistics (INS) and the quality control carried out by the National School of Statistics and Applied Economics (ENSEA).<sup>7</sup>

The data indicate that the labour force (active population) is estimated at 8,070,764 individuals, representing 55.7% of the working-age population. In addition, the young workforce (individuals aged 14-35) stands at 12,916 individuals. This last population is our base sample.

### Econometric approach

Two empirical models are used; each one of them corresponds to a well-defined level of analysis. Model 1 is a binary probit with selection. Since the decision to participate in the labour market and the choice of the integration sector take place simultaneously, this model seems ideal for this analysis. As this modelling may suffer from selection bias, we use probit with selection as proposed by Heckman (1979). In the formulation of the said model, the first equation explains labour market participation and the second, integration into employment in one of the sectors (formal or informal).

The structure of the labour market in Côte d'Ivoire shows that the candidate for entry into the labour market has several alternatives.<sup>8</sup> Indeed, the above-mentioned formal and informal sectors are themselves subdivided into public and private segments, on the one hand, and agricultural and non-agricultural segments on the

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<sup>6</sup> It was conducted after the Household Employment Survey (HES) carried out in 2012.

<sup>7</sup> cf. AGEPE (2014), p.6.

<sup>8</sup> Figure A1 in the appendix shows these different alternatives.

other hand. The nested logit model is adopted for the second stage of our analysis. However, this model is subject to the strong assumption of the independence of an irrelevant alternative (Hausman and McFadden, 1984). In the case where the IIA hypothesis is tested, Hausman and Wise (1978) recommend the use of multinomial probit as a flexible model of discrete choices. Indeed, the probit model can address problems that cannot be addressed under the IIA hypothesis.

The results obtained with the nested logit (see Table A1 in the appendix) underscore that the IIA hypothesis is not verified. This situation leads us to retain the multinomial probit model. More precisely, the second model used is an individual multinomial probit.<sup>9</sup> The reason for choosing this model is that the percentages of chance of making this or that choice are not separate from each other. This is justified by the proximity of nature that may exist between these choices. In addition, the multinomial probit model is suitable for models where the number of modalities does not exceed four (Traoré, 2002).

### **Binary probit with selection (model 1)**

We simultaneously estimate the decision to participate in the labour market and the choice of the work integration sector (formal and informal). Since the two decisions are linked, probit model with selection allows this analysis to be performed. The method developed by Heckman (1979) makes it possible to formalize this model.

First, the probability for a young person to offer his or her labour force (selection equation) can be written as follows:

$$p_i^* = x_i\alpha + \mu_i p_i^* = x_i\alpha + \mu_i \quad (1)$$

In a second step (substantial equation), the estimation of the choice of the work integration sector (formal/informal) is written as follows:

$$q_i = y_i\beta + \vartheta_i q_i = y_i\beta + \vartheta_i \quad (2)$$

In the two previous equations,  $p_i^*$  is observed if a young person  $i$  participates in the market:  $q_i$  is the probability of being in the formal or informal, observable if  $p_i^* = 1$ ;  $x_i$  and  $y_i$  are socio-demographic variables (age, sex, place of residence, level of education, marital status, status in the household);  $\mu_i$  and  $\vartheta_i$  are the error terms of the normal laws  $N(0; 1)$  and  $N(0; \sigma_\varepsilon)$ , respectively;  $\alpha$  and  $\beta$  are the parameters to be estimated.

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<sup>9</sup> The database provides only one observation per individual including its own characteristics and the type of alternatives chosen. On the other hand, a multinomial probit of choice is used when we have characteristics specific to each of the alternatives and characteristics specific to individuals (Cahuzac & Bontemps, 2008).

## ***Individual multinomial probit (model 2)***

Subsequently, a multinomial model is useful to analyse the factors that explain the choice of the "sub-sector" in which the young person fits. That is,  $s_j$ , all the possible choices of integration. The values of  $s_j$  are, respectively, defined as follows:  $s_1$ , when the young person is integrated into the public sector;  $s_2$ , in the formal private sector;  $s_3$ , in the non-agricultural informal sector; and  $s_4$ , in the agricultural informal sector. The model for estimating the choice of the integration sector for the four possible modalities is written as follows:

$$s_{ij} = y'_{ij}\gamma_j + \eta_{ij} ; j = \{1, \dots, 4\} \quad (3)$$

where,  $s_{ij}$  is the probability that individual  $i$  is engaged in an activity in the sector  $j$ ;  $y_{ij}$ , the factors explaining this choice;  $\gamma_j$ , the parameter to be estimated; and  $\eta_{ij}$ , the term of the error.

## **Variables**

At this level, we are mainly interested in the variables of model 2. The variable dependent on this model is a variable with four modalities which are the different alternatives available to the candidate for integration in the labour market: public, private formal, informal agricultural, and informal non-agricultural. This choice is made according to the specific characteristics of each individual. Thus, as factors that may explain the sectoral choice, we use the following variables: age, duration of unemployment, household size, sex, nationality, place of residence, marital status, and level of education.

Table 1 describes the structure of these different explanatory variables by age group. The first class consists of persons between the ages of 14 and 24 as defined by the ILO. The second class is composed of individuals aged 25-35 years. Thus, our sample is composed of individuals between 14 and 35 years of age: the youth.

Age is a quantitative variable measured in number of years. The age of the individual may have a mixed or differentiated effect on the choice of the integration sector. For example, it is expected to have a positive sign in the public sector and a negative sign in the informal non-agricultural sector. As the table shows, the study concerns individuals between the ages of 14 and 35. The introduction of the age square captures the non-linear effect of age on the choice of sector.

Like age, the duration of unemployment is also a quantitative variable measured in number of years. This variable captures the time it takes for the youth to get a job. A relatively long duration reduces the employability of individuals (N'Gratier, 2008). Thus, we expect a negative sign for formal sectors and a positive sign for informal activities. The average time to secure employment is about 10 months (or 0.84 years).

However, it should be noted that young adults (25-35 years old) are on average twice as likely to be unemployed as young people (14-24 years old).

The size of the household (quantitative variable) in which the young person lives can also influence the choice of the sector of integration. Indeed, a family with several members can constitute a social capital for the young person but also be a barrier to his or her schooling, for example.

**Table 1: Descriptive statistics of independent variables**

Explanatory variables	14-24 year		25-35 year		All together		Min.	Max.
	Average	Standard deviation	Average	Standard deviation	Average	Standard deviation		
Age	19.91	2.89	29.73	3.21	25.92	5.69	14	35
Age2	404.86	112.33	894.74	192.46	704.68	290.78	196	1225
Duration of unemployment	0.51	1.50	1.05	2.29	0.84	2.04	0	15
Size of household	5.81	3.74	4.98	3.28	5.30	3.49	1	25
Women	0.51	0.49	0.44	0.49	0.47	0.49	0	1
Foreigners	0.18	0.38	0.19	0.39	0.19	0.39	0	1
Abidjan	0.15	0.36	0.20	0.40	0.18	0.38	0	1
Other urban	0.21	0.41	0.23	0.42	0.22	0.41	0	1
Married	-	-	0.61	0.48	0.50	0.50	0	1
Widowed/ Divorced	-	-	0.01	0.11	0.01	0.10	0	1
Primary	0.30	0.46	0.25	0.43	0.27	0.44	0	1
Secondary and above	0.19	0.39	0.24	0.42	0.22	0.41	0	1

Source: Authors, from ENSETÉ 2013.

The "sex" variable is introduced in the regressions to capture gender effects in the choice of the sector of integration. It is a qualitative variable that takes the value 1 if the young person is of the female gender and 0 if not. Statistics show that young women represent 47% of the sample under study. Work in the Ivorian labour market highlights that women have difficulty entering the labour market, mainly in the unregulated sector.

The nationality of an individual is also taken into account in the analysis. It is a qualitative variable that takes the value 0 when individual is Ivorian and 1 if not. Statistics show that young foreigners represent 19% of the total youth population. Kouamé (2018) shows that these young foreigners are mainly oriented towards activities in the formal non-agricultural sector.

The place of residence, a qualitative variable with three modalities, makes it possible to capture the effects of the young person's location on the choice of the

sector of integration. This variable takes the values 0, 1 and 2 when the youth lives in a rural area, Abidjan or an urban area other than the economic capital, respectively. The type of employment offered by these different areas of residence can strongly influence the young person's choice. Indeed, since the rural environment mainly offers only agricultural activities, young people in this environment will be forced to enter into this sector. We observe that 60% of young people live in rural areas. Moreover, Abidjan alone accounts for 45% of the youth population.

The level of education is also a qualitative variable with three modalities, rated 0 when the young person has no level of education, 1 when he or she has primary level, and 2 for a secondary level and above. According to these modalities, the level of education will have a differentiated effect on the choice of sector. According to human capital theory, individuals with high levels of education will choose to enter into the regulated sectors (public and formal private). Table 1 show that just over half of young people (51%) have no level of education at all in any age group.

## 4. Results and discussion

The discussion of the econometric results obtained is preceded by a statistical analysis of some explanatory variables under the various alternatives.

### Statistical analysis

The survey data reveal that agricultural and non-agricultural sectors employ 42.4% and 46.3% of people, respectively; that is 88.7% of people employed in the informal sector. Only 3.3% of all jobs are offered by the formal private sector. Moreover, the figures indicate that majority of the employed population is young. Three-quarters of this population is between 25 and 59 years of age.

Table 2 presents the average duration of youth unemployment by sector of activity. This unemployment duration expresses the time taken by the young person to enter the labour market depending on the sector of activity. Overall, it is observed that the time taken to enter the public sector is longer (about 19 months). The informal agricultural sector is the one with a relatively shorter duration. According to the age group, it appears that it takes longer for 25-35 year-olds to integrate into the labour market. This observation is valid regardless of the sector of activity with a more pronounced duration gap in the informal non-agricultural sector.

**Table 2: Duration of youth unemployment by sector of activity (year)**

		Sectors of activity			
		Public	Private	Informal agricultural	Informal non-agricultural
Age group	14 - 24 years	1.06	0.60	0.21	0.87
	25 - 35 years	1.66	1.32	0.57	1.52
Total		1.56	1.11	0.42	1.28

Source: Authors, from ENSETÉ 2013.

In Table 3, employed youth are categorized according to sector of activity, taking into account gender, residence and level of education. By gender, it appears that men are the majority in all sectors with a larger gap in the public sector, with the exception of the informal non-agricultural sector. An analysis by industry shows that more girls are involved in retail trade (Kouamé, 2018).

**Table 3: Proportions of young people employed according to the sector of activity (%)**

		Sectors of activity											
		Public			Private			Informal agricultural			Informal non-agricultural		
		14-24 years	25-35 years	All together	14-24 years	25-35 years	All together	14-24 years	25-35 years	All together	14-24 years	25-35 years	All together
Sex	Men	59.6	74.9	72.4	57.6	73.3	68.7	54.4	57.6	56.3	43.6	51.6	48.6
	Women	40.4	25.1	27.6	42.4	26.7	31.3	45.6	42.4	43.7	56.4	48.4	51.4
Place of residence	Rural	53.2	27.6	31.8	50.0	34.2	38.8	93.2	93.3	93.2	34.2	28.0	30.3
	Abidjan	19.1	27.2	25.9	22.2	33.3	30.1	0.3	0.3	0.3	28.0	33.6	31.5
	Other urban areas	27.7	45.2	42.3	27.8	32.5	31.1	6.5	6.4	6.5	37.8	38.4	38.2
Level of education	No education	34.0	10.0	14.0	41.0	36.2	37.6	63.0	66.4	65.0	41.4	45.2	43.7
	Primary	19.1	5.9	8.0	28.5	21.8	23.8	26.1	23.3	24.4	36.7	29.0	32.0
	Secondary and above	46.8	84.1	78.0	30.5	42.0	38.6	10.9	10.3	10.5	21.9	25.8	24.3
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors, from ENSETE 2013.

Depending on the place of residence, the statistics reflect reality. Indeed, they reveal that the rural environment concentrates almost all the young people employed in agricultural activities (93.2%). In addition, there is predominance (two-thirds) of young people employed in the public sector and especially in the informal non-agricultural sector in urban areas. The city of Abidjan alone accounts for half of these activities.

In addition, it appears that most young people employed in informal activities (agricultural and non-agricultural) have little (primary level) or no education, unlike those employed in the public or formal private sector. As proof, 43% of young people employed in informal non-agricultural activities have no formal education, compared to 14% in the public sector.

## Results and estimations

We discuss the results of the estimates obtained from the participation model (probit with selection), on the one hand, and those provided by the multinomial probit model, on the other hand.

### *Determinants of participation in the job market*

Table 4 summarizes the results of the probit estimates with selection. Before interpreting the effects of the different explanatory variables on the explained variable, we shall first examine the results of some tests. The Wald test rejects the  $H_0$  hypothesis (Wald  $\chi^2 = 1802.08$  and  $\text{Prob} > \chi^2 = 0.000$ ) thus indicating that the model seems well specified. The  $\chi^2$  test also rejects the null hypothesis ( $p$  value  $< 0.05$  if critical threshold is 5%). This suggests that the substantial equation is not separate from the selection equation. More specifically, the decision to participate in the job market and the choice of the sector of integration into the labour market are not made in isolation from each other.

**Table 4: Determinants of youth participation in the job market**

Variables	Substantial equation		Selection equation	
	Coef.	z	Coef.	z
Age group				
Youth (14-24 years)	Ref.	Ref.	Ref.	Ref.
Adults (25-35 years)	0.074	1.99	-0.337***	-10.2
Sex				
Men	Ref.	Ref.	Ref.	Ref.
Women	0.068	1.53	-0.312***	-11.3
Marital status				
Single	Ref.	Ref.	Ref.	Ref.
Married	-0.047	-1.20	0.316***	10.8
Widowed/Divorced	0.205**	2.41	0.439***	5.29
Status in the household				
Other members	Ref.	Ref.	-	-
Head of household	-0.238***	-6.17	-	-
Place of residence				
Rural areas	Ref.	Ref.	Ref.	Ref.
Abidjan	-0.702***	-14.4	-0.9.36***	-28.7
Other urban areas	-0.529***	-14.7	-0.557***	-16.9
Level of education				
No education	Ref.	Ref.	-	-
Primary	-0.141***	-3.83	-	-
Secondary and above	-0.867***	-20.4	-	-
Constant	1.946***	29.0	1.981***	47.8
/athrho	0.585*** (3.57)	$\chi^2(1) = 9.59$	$\text{Prob} > \chi^2 = 0.0020$	
Number of observations :	20974	Observations censurées : 1747		

(\*\*\*), (\*\*), (\*), respectively, represent the significance at the threshold of 1%, 5% and 10%.

Source: Authors, from ENSETÉ 2013.

To return to the estimates,<sup>10</sup> all the variables considered for the selection model are significant at the 1% threshold. It can be seen that only marital status has a positive effect on participation in the job market. Indeed, being married rather than being single has a positive impact on the job market participation. On the other hand, being of the female gender, being in the 25-35 age group, or living in an urban environment has a negative influence on the decision to offer one's labour force.

The results of the substantial equation reveal that the choice of sector seems not to be influenced by age, sex and marital status. In addition, it is observed that household status, place of residence and level of education have a negative and significant effect on the choice of the sector of activity. Thus, when the young person is the head of the household rather than another member, the probability of engaging in an informal activity instead of a formal activity decreases by 23.8%. Moreover, the fact that the young person resides in an urban environment reduces the probability of engaging in an activity in the informal sector: in Abidjan, the probability is 70.2% and for other urban areas it is 52.9%. This situation could be understood in terms of the quality of employment and the low level of income in the informal sector. Furthermore, the higher the level of education, the less attracted it is to informal activities. Youth with a secondary level or higher are up to 87% less likely to be in the informal sector. Indeed, the most educated individuals are inclined to seek quality jobs with higher wages (Becker, 1964; L'Hoir, 2002).

### ***Determinants of integration sector choice into the job market***

The probit model with selection mainly highlighted the influence of place of residence and level of education on the choice of activity to be carried out. The multinomial probit model makes it possible to carry out a more detailed analysis by taking into account the different possibilities available to the candidate for integration into the labour market. These alternatives are the public, the formal private sector, the non-agricultural informal sector and the agricultural informal sector. The latter is the reference alternative for analyses. In total, taking into account age groups, three regressions were carried out: first on the 14-24 age group, then on the 25-35 age group, and finally on all young people.

The probability associated with Wald's statistic is 0.000 for all the three estimates, significant at the 1% threshold. It can therefore be concluded that the model is adequate. Additionally, the variables selected are globally significant with a high degree of significance. Table A2 in the appendix presents the results of the coefficient estimates. As expected, there is a differentiated effect of the variables depending on the sector. Table 5 (marginal effects) quantifies the influence of these different explanatory variables on the probability of entering one of the sectors.

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<sup>10</sup> In the probit with selection (heckprobit), the coefficients of the selection equation are interpreted as those of a simple probit. Those in the substantial equation, representing the change in the dependent variable following a change in the explanatory variable, are of marginal effects (Danelutti, 2003).

The age of the individual has a positive and significant effect on integration in the public and informal non-agricultural sectors as compared to the informal agricultural sector. Thus, the probability of entering into the public sector increases with age (positive sign) but less and less (negative sign of "Age2") for 14-24 year-olds. The same result is obtained for the informal non-agricultural sector but more so among 25-35 year-olds. These probabilities are 1.9% and 11.6%, respectively. However, the effect of this variable is negative and not significant on inclusion in the formal private sector. Several reasons could justify these results. As most civil service entrance exams are limited to a certain age (around 25 years of age), only young people in the first age group are eligible for these entrance exams and therefore have a higher probability of entering into this sector. As they age, young people have no alternative but to move towards informal non-agricultural activities.

The results obtained with unemployment duration add to those obtained with age. Indeed, the time spent seeking employment before integration into the job market has a positive and significant effect on access to jobs in the informal non-agricultural sector for both age groups. Thus, a relatively long duration increases the probability of 14-24 year-olds and 25-35 year-olds to engage in informal non-agricultural activities by 4% and 2%, respectively. The loss of employability would be the main factor that could justify this result.

The size of the household in which the young person lives has a negative and significant effect on his or her integration into the public sector as compared to the informal agricultural sector for all age groups. This effect is the same for the informal non-agricultural sector among 25-35 year-olds. Thus, it appears that young people tend to move away from public and informal non-agricultural activities to agricultural activities as the size of the household in which they live expands. With these results, it could be argued that instead of building social capital for the youth, the large size of the household acts as a barrier to schooling. Indeed, since integration into the public and informal non-agricultural sectors requires a minimum level of education, only educated individuals can access it.

The results also reveal that the different modalities of the level of education have a positive and significant effect on integration in the three sectors under study compared to the informal agricultural sector. These confirm our expectations for this variable. Thus, having a primary level rather than no level of education increases the probability of entering the informal non-agricultural sector as opposed to the informal agricultural sector. This probability increases by 17% and 10%, respectively, for 14-24-year-olds and 25-35-year-olds. However, it is noted that this modality (primary level) is not significant for the public and formal private sectors. Indeed, the minimum academic qualification required for public service entrance examinations is the Brevet d'études du premier cycle (BEPC) or equivalent academic qualifications. In addition, formal private sector jobs require a minimum level of skills that cannot be acquired at the primary level. Moreover, having at least a secondary level education instead of no education increases the probability of entering into the formal sector for all age groups. Nevertheless, this probability increases by 2% when moving from

14-24-year-olds to 25-35-year-olds in the formal private sector but decreases by 6% in the same order for the public sector. In the first case, the positive difference could be understood through the acquisition of experience, a very important factor in this sector (Doğrul, 2012). This experience would be acquired in the informal non-agricultural sector (a modality that is not significant for 25-35-year-olds) and then valued in the formal private sector. In the second case, the negative gap could be due to the attractiveness of salary payments in the formal private sector, leading to departures from the public to the formal private sector.

By gender and in general, the expected effects are not in line with the results obtained. Being a woman rather than being a man has a positive impact, with a high significance (1%) probability of integrating into the informal non-agricultural sector as opposed to the informal agricultural sector. This probability increases by 15.5% for 14-24-year-olds and by 19.5% for 25-35-year-olds. However, being a woman reduces the likelihood of accessing jobs in the public and formal private sectors. In these two sectors, this result is observed among 25-35-year-olds with a significantly higher proportion in the formal private sector (0.6% against 3.4%). These results obtained with this variable confirm the preponderance of women in the informal sector.

**Table 5: Determinants of the choice of the sector of integration (marginal effects)**

Sectors of activity	Explanatory variables	14-24 years		25-35 years		All together	
		M a r g . effects.	z	M a r g . effects.	z	M a r g . effects.	z
Public	Age						
	Age2	0.019**	2.11	0.016	1.56	-0.001	-0.68
	Duration of unemployment	-0.000**	-2.13	-0.000	-1.39	0.000	1.23
	Size of household	0.001**	2.20	0.000	1.00	0.000	1.56
	Sex						
	Women	-0.001***	-2.79	-0.001***	-2.74	-0.001***	-3.96
	Women	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Women	-0.002	-0.80	-0.006*	-1.70	-0.003	-1.51
	Nationality						
	Ivoirian	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Foreigner	-0.008*	-1.70	-0.020***	-3.56	-0.016***	-3.96
	Place of residence						
	Rural	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Abidjan	0.004	0.95	0.007**	2.35	0.006***	2.59
	Other urban areas	0.003	1.06	0.016***	4.28	0.012***	4.57
	Marital status						
	Single	-	-	Ref.	Ref.	Ref.	Ref.
	Married	-	-	0.005*	1.82	0.002	1.14
	Widowed/Divorced	-	-	-0.010*	-1.68	-0.010**	-2.21
	Level of education						
No education	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	
Primary	-0.001	-0.43	-0.000	-0.15	-0.000	-0.12	
Secondary and above	0.019***	2.56	0.128***	10.22	0.088***	10.18	

Private formal	Age	-0.002	-0.17	-0.002	-0.13	0.002	0.56
	Age2	0.000	0.32	0.000	0.23	-0.000	-0.15
	Duration of unemployment	0.000	0.37	0.000	0.38	0.000	0.54
	Size of household	0.000	0.96	0.000	0.28	-0.000	-0.09
	Sex	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Men	-0.007	-1.08	-0.034***	-4.37	-0.023***	-4.23
	Women						
	Nationality	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Ivoirian	-0.003	-0.36	0.007	0.80	0.002	0.42
	Foreigner						
	Place of residence	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Rural areas	0.300***	2.80	0.054***	5.94	0.048***	6.63
	Abidjan	0.015**	2.09	0.035***	5.13	0.028***	5.38
	Other urban areas						
	Marital status						
	Single	-	-	Ref.	Ref.	Ref.	Ref.
	Married	-	-	-0.002	-0.34	-0.000	-0.16
	Widowed/Divorced	-	-	0.017	0.51	0.014	0.53
	Level of education	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	No education	0.003	0.49	0.003	0.48	0.004	0.79
Primary	0.032***	2.64	0.053***	4.83	0.047***	5.66	
Secondary and above							
Informal agricultural	(base outcome)						
	Age						
	Age2	0.024	0.59	0.116**	2.54	0.028***	3.02
	Duration of unemployment	-0.000	-0.55	-0.002***	-2.64	-0.000***	-3.04
	Size of household	0.040***	6.07	0.021***	6.64	0.024***	8.52
	Sex						
	Men	0.001	0.65	-0.010***	-4.38	-0.005***	-3.24
	Women						
	Nationality	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Ivoirian	0.155***	8.47	0.195***	12.31	0.187***	15.24
	Foreigner						
	Place of residence	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Rural areas	0.076***	3.32	0.081***	4.38	0.078***	5.36
	Abidjan						
	Other urban areas	0.696***	47.53	0.674***	56.06	0.677***	71.29
	Marital status	0.549***	33.34	0.552***	42.81	0.547***	53.21
	Single	-	-	Ref.	Ref.	Ref.	Ref.
	Married	-	-	-0.083***	-5.17	-0.102***	-7.85
	Widowed/Divorced	-	-	0.004	0.08	-0.048	-0.88
	Level of education						
	No education	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Primary	0.170***	8.50	0.104***	5.97	0.127***	9.52
	Secondary and above	0.134***	5.06	0.004	0.22	0.047***	2.91
Informal Non-agricultural							
	N						
	Wald chi2(36)	4342		7039		11195	
	Prob > chi2	1293.67		2567.83		3833.34	
	Log likelihood	0.000		0.000		0.000	
		-2655.45		-4636.22		-7220.81	

(\*\*\*), (\*\*), (\*) represent, respectively, the significance at the 1%, 5% and 10% threshold.

Source: Authors, from ENSETE 2013.

Women are more present in jobs that do not require a high level of education or a high qualification such as retail trade, domestic work (Kouamé, 2018). The high number

of women in this sector is also attributable to the fact that they are able to balance "family activity" and "market activity". On the other hand, this balance is proving to be less and less feasible in the formal sectors among the 25-35-year-olds. Moreover, discrimination by employers, pre-empting the interruption of women's activity due to births, could explain this result. The non-significance of this variable in these sectors (public and formal private) is explained by the absence of family constraints at this age (14-24 years).

The results obtained with the place of residence confirm our expectations. Indeed, it appears that this variable has a positive and significant influence on the probability of accessing jobs in the non-agricultural sectors as compared to the agricultural sector. Thus, living in an urban area increases the probability that young people (all age groups combined) will enter the public, formal private and informal non-agricultural sectors. However, specificities are observed according to the modalities of this variable and according to the sectors. For example, residing in Abidjan as opposed to rural areas increases the probability of engaging in informal non-farm activities by about 68% compared to 55% in other urban areas. These results highlight the importance of the informal non-agricultural sector in urban areas and mainly in the economic capital. It is, therefore, important to question the quality of the employment of 87% of young people working in this sector.

The informal non-agricultural sector is also the one that welcomes young people of foreign origin. This result confirms our expectations for this variable. Indeed, they reveal that being a foreigner, as opposed to being an Ivorian national, increases the probability of being part of this sector by nearly 8% as compared to the informal agricultural sector. Even if this variable is not significant for the formal private sector, it is important to focus on the sign according to the two age groups. The difference in sign (negative for 14-24-year-olds and positive for 25-35-year-olds) could be understood by the professional experience that characterizes the latter. This confirms the conclusions made regarding the level of education and the importance of work experience in accessing employment in this sector.

## 5. Conclusion

The purpose of the study was to assess the determinants of participation and choice of the sector for the integration of young people into the labour market in Côte d'Ivoire. An analysis of the market structure makes it possible to define four choices or alternatives for candidates for integration into the labour market. These are the public sector, the formal private sector, the non-agricultural informal sector, and the agricultural informal sector. The review of both the theoretical and empirical literature highlighted the factors that may explain the decision to participate in the market and the choice of the sector of integration. The econometric tools used confirm the effect of these factors.

The probit model with selection reveals that the youth's gender, place of residence and age determine their participation in the labour market. These different variables have a strong and negative impact on the decision to participate in the labour market. Indeed, young women, 25-35 years old and urban youth have reduced opportunities to participate in the labour market. Moreover, this model reveals that, in addition to the residential environment, the youth's household status and level of education explain the choice of the type of activities (formal or informal). Thus, it is noted that the young person is less likely to be involved in activities in the informal sector as the level of education increases.

The multinomial probit model makes it possible to carry out a deeper analysis by taking into account the different alternatives available to the candidate for integration. The different explanatory variables used for the analysis are almost all significant at 1%. Additionally, they have different effects depending on the sector of activity. Thus, it is noted that older youth tend to move into the informal non-agricultural sector. Besides age, a long period of unemployment promotes integration into the sector. The impacts of the young person's level of education and gender on the choice of sector of activity are worth noting. Indeed, it appears that a high level of education increases the chances of working in both the public and formal private sectors. Moreover, being of the female gender increases the chances of entering into the non-formal non-agricultural sector. Furthermore, being of the female gender and belonging to the 25-35 age group reduces the chances of access to formal jobs.

In the light of these results, economic policy recommendations are made. The aim will be to increase employability and integration capacities of young people in the labour market; to broaden the capacities and scope of action of the Youth Employment Agency (YEA); and to pursue reflections on the status of women in the labour market.

Upon completion of the education system, many young people turn to the public sector, which offers only limited opportunities for integration into the labour market. Increasing employability necessarily requires the revitalization of the informal non-agricultural and informal agricultural sectors. Indeed, modernization and training in agricultural activities will encourage young people to take an interest in this sector, but not out of spite.

Furthermore, consideration should be given to the formalization of certain activities in the informal non-agricultural sector. The survey on the informal sector requested by the government will make it possible to take stock of the abundant activities in this sector.

Young people turn to their "networks" in their search for employment. They do not register with the agency because they no longer believe in its ability to find them jobs. Providing this agency with the necessary resources (financial and human) would give it more credibility and capacity to solve the problem of youth employment.

The school enrolment rate for girls is higher than that of boys thanks to awareness campaigns and free schooling (MENET-FP, 2017). Despite the government's efforts to boost girls' levels of education, the results show that they still face difficulties in entering the job market. These difficulties could be understood, not only through discriminatory practices, but also through the family constraints they face. A thorough study on these issues would shed light on them.

## References

- Adair, P. and Bellache, Y. 2012. "Informal employment and sector in Algeria: determinants, segmentation and labour mobility". *Region and Development*, 35: 121-49.
- Adair, P., Y. Bellache and H. Gherbi. 2012. "Access to informal employment in Algeria: Determinants and functions of earnings". Submission to the 4th Economic Development International Conference, Inequalities and Development: New Challenges, New Measurements? University of Bordeaux, 13-15 June.
- AGEPE. 2013. "Employment situation in Côte d'Ivoire in 2012: Household Employment Survey in Côte d'Ivoire". Republic of Côte d'Ivoire, April 2013.
- AGEPE. 2014. "National Survey on the Status of Employment and Child Labour : Descriptive report on the status of employment". Republic of Côte d'Ivoire, August 2014.
- Becker, G. 1964. *Human Capital: A Theoretical and Empirical Analysis with Special References to Education*. 3rd Edition, Chicago and London, The University of Chicago Press.
- BIT. 2013. "Report II: Statistics on labour, employment and under-utilisation of labour". 19th International Conference of Labour Statisticians. Department of Statistics, Geneva, ILO.
- Cain, G. 1976. "The challenge of segmented labour market-theories to orthodox theory: A survey". *Journal of Economic Literature*, 14: 1215-57.
- Cahuzac, E. and C. Bontemps. 2008. *Stata through Practice: Statistics, Graphs and Programming Elements*. College Station (Tex.) Stata Press impr. 2008, cop. 2008.
- Camara, I. and B. Zanou. 2011. "Human capital and integration of young people into the job market: Case of the municipality of Aboisso (Côte d'Ivoire)". *Ecole Nationale Supérieure de Statistique et d'Economie Appliquée (ENSEA)*.
- Da Maia, C. 2012. "Education and labour market outcomes in Mozambique". In *Understanding Poverty and Inequality in Mozambique: The Role of Education and Labour Market Status*. Stellenbosch University, pp. 73-117.
- Danelutti, T. 2003. "A study on consumption of beer, wine and spirits in Switzerland". *Ecole des HEC – University of Lausanne*.
- Doğrul, H. 2012. "Determinants of formal and informal sector employment in the urban areas of Turkey". *International Journal of Social Sciences and Humanity Studies*, 4(2), 2012 ISSN: 1309-8063.

- Doeringer, P. and M. Piore. 1971. *Labour Markets and Manpower Analysis*. Massachusetts, Lexington Books.
- Essafi, C. 2003. "Non ordered polytonic logit models: Theory and applications". Working paper series, Direction of demographic and social statistics, INSEE.
- Gherbi, H. 2014. "Characteristics and determinants of women's informal employment in Algeria. Case of the District of Bejaia". In *Informal Economy in Developing Countries: Determinants, Gender and Employment Dynamics*. *Developing Worlds*, 166: 45-58.
- Glick, P. and D. Sahn. 1997. "Gender and education impacts on employment and earnings in West Africa: Evidence from Guinea". *Economic Development and Cultural Change*, 45: 793-823. DOI: 10.1086/452308.
- Hammouda, N.E. and A. Souag. 2012. "Segmentation of the labour market in Algeria and wage determination in modern unprotected and modern protected agricultural sectors". *Economic Research Forum*, Working Paper No. 699.
- Hausman, J. and D. McFadden. 1984. "Specification tests for the multinomial logit model". *Econometrica*, 52 (5): 1219-1240.
- Hausman, J. and D. Wise. 1978. "A conditional probit model for qualitative choice: Discrete decisions recognizing interdependence and heterogeneous preferences". *Econometrica*, 46(2): 403-426.
- Heckman. 1979. "Sample selection bias as specification error". *Econometrica*, 47(1): 152-161.
- Kabubo-Mariara, J. 2003. *Wage Determination and the Gender Wage Gap in Kenya: Any Evidence of Gender Discrimination?* AERC Research Paper No. 132. African Economic Research Consortium, Nairobi.
- Kane, A. 2013. "Occupational choices in Senegalese labour market: A multinomial logit Analysis". *International Journal of Education and Research*, 1(2). ISSN: 2201 6333 (Print) ISSN: 2201-6740 (Online).
- Kouakou, K. 2006. "Professional integration of urban youth and active employment policy in Côte d'Ivoire". PhD Thesis. Félix Houphouët Boigny University, RCI.
- Kouamé, A. 2018. "Analysis of the labour market situation of foreign young people in Côte d'Ivoire". PhD Thesis. Félix Houphouët Boigny University, RCI.
- L'Hoir, M. 2002. "Human capital and competition effect". At SSRN: <https://ssrn.com/abstract=1950788> or <http://dx.doi.org/10.2139/ssrn.1950788>.
- McFadden, D. 1968. "The revealed preferences of a government bureaucracy". *Economic Growth Project*, Technical Report No. 17, Berkeley.
- McFadden, D. 1973. "Conditional logit analysis of qualitative choice behaviour". In P. Zarembka, ed., *Frontiers in Econometrics*. New York: Academic Press.
- Mincer, J. 1974. "Schooling, experience and earnings". New York, National Bureau of Economic Research.
- Ministry of National Education, Technical Education and Professional Training (MENET-FP). 2017. "Statistical analysis report on the Ivorian education system in 2016-2017". Republic of Côte d'Ivoire.

- Ministry of State, Ministry of Planning and Development. 2016. "National plan on development 2016-2020, Tome 3: Priority action matrices". Republic of Côte d'Ivoire.
- Ndjobo, P. and Y. Abessolo. 2013. "The impact of education on the behaviour of labour supply in Cameroun: An analysis using the nested multinomial logit model". Munich Personal RePEc Archive. At <http://mpra.ub.uni-muenchen.de/51158/>MPRA Paper No. 51158, posted 4. November 2013.
- N'Gratier, A. 2008. "The employability of young people in Côte d'Ivoire". Dissertation for DEA PTCl. Félix Houphouët Boigny University, RCI.
- Njikam, N., L. Tchoffo and F. Mwaffo. 2005. "Characteristics and determinants of youth employment in Cameroon". Employment Strategy Papers, Employment Policy Unit, Employment Strategy Department.
- Nyaga, K. 2010. Earnings and Employment Sector Choice in Kenya. AERC Research Paper No. 199. African Economic Research Consortium, Nairobi.
- Spence, M. 1974. "Job market signalling". *The Quarterly Journal of Economics*, 87(3): 355-74.
- Stigler, G. 1962. "Information in the Labour Market". *Journal of Political Economy*, 70(5): 94-104.
- Theil, H. 1969. "A multinomial extension of the linear logit model". *International Economic Review*, 10(3): 251-259.
- Traoré, O. 2002. "The determinants of health care use in cases of childhood malaria fever at the Niakha Population Observatory". African Centre for Higher Studies in Management (CESAG) - Higher Institute of Health.

# Appendix

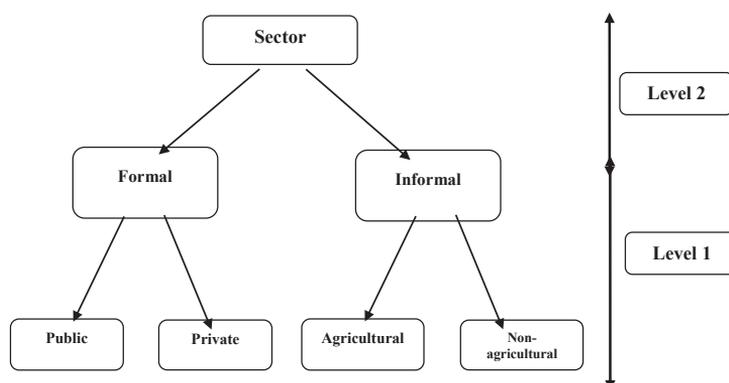
**Table A1: Determinants of youth sector choice  
(estimates obtained from the nested logit model)**

Variables	Coefficients	Z
Characteristics of alternative choices		
Average number of studies	-0.095***	-3.92
Working hours	0.003	0.34
Average salary	-0.009***	-7.49
Characteristics of youth's socio-demographics		
Formal sector <sup>11</sup>		
Base outcome		
Informal agricultural sector		
Sex		
Men	Ref.	Ref.
Women	-0.096	-0.61
Nationality		
Ivoirian	Ref.	Ref.
Non-Ivoirian	0.106	0.49
No level of education		
No	Ref.	Ref.
Yes	2.966***	13.44
Primary level		
No	Ref.	Ref.
Yes	2.398***	10.55
Secondary level		
No	Ref.	Ref.
Yes	0.595***	5.53
Non-agricultural informal sector		
Sex		
Men	Ref.	Ref.
Women	0.562***	3.54
Nationality		
Ivoirian	Ref.	Ref.
Non-Ivoirian	0.314	1.45
No level of education		
No	Ref.	Ref.
Yes	1.918***	9.08
Primary level		
No	Ref.	Ref.
Yes	2.190***	10.19
Secondary level		
No	Ref.	Ref.
Yes	0.688***	6.86
Test IIA (tau=1)	chi2(3)=2.98	Prob>chi2=0.3944

(\*\*\*), (\*\*), (\*) represent, respectively, the significance at the 1%, 5% and 10% threshold.

Source: Authors, from ENSETE 2013.

**Figure A1: Potentials choices of labour market insertion in Côte d'Ivoire**



Source: Construction by authors.

**Table A2: Determinants of the choice of the sector of integration (coefficients)**

Sectors of activity	Explanatory variables	14-24 years		25-35 years		All together	
		Coef.	z	Coef.	z	Coef.	z
	Age	0.947**	2.11	0.724**	2.22	0.007	0.10
	Age2	-0.023**	-2.11	-0.011***	-2.07	0.000	0.47
	Duration of unemployment	0.162***	3.97	0.063***	3.16	0.057***	4.22
	Size of household	-0.065**	-2.48	-0.065***	-3.87	-0.014	-4.68
	Sex						
	Women	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Women	0.134	0.84	0.134	1.22	0.176*	1.96
	Nationality						
	Ivoirian	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Foreigner	-0.280	-1.16	-0.432**	-2.51	-0.394***	-2.82
	Place of residence						
Public	Rural	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Abidjan	2.960***	9.67	3.115***	15.70	3.054***	18.65
	Other urban areas	1.398***	7.72	1.892***	16.74	1.762***	18.83
	Marital status						
	Single	-	-	Ref.	Ref.	Ref.	Ref.
	Married	-	-	0.001	0.01	-0.101	-1.13
	Widowed/Divorced	-	-	-0.535	-0.88	-0.725	-1.23
	Level of education						
No education	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	
Primary	0.235	1.16	0.192	1.15	0.241*	1.86	
Secondary and above	0.927***	4.87	1.904***	15.00	1.660***	16.13	
Contant	-12.17***	-2.75	-14.65*	-2.99	-3.714***	-3.55	

*Continuation of the table on the next page*

Sectors of activity	Explanatory variables	14-24 years		25-35 years		All together	
		Coef.	z	Coef.	z	Coef.	z
Private Formal	Age	0.044	0.18	0.240	0.98	0.083	1.53
	Age2	-0.000	-0.02	-0.003	-0.90	-0.001	-1.08
	Duration of unemployment	0.091**	2.45	0.050***	2.99	0.057***	3.75
	Size of household	0.012	0.92	-0.020*	-1.71	-0.014	-1.63
	Sex	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Women	0.157	1.46	0.001	0.01	0.064	0.93
	Women						
	Nationality	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Ivoirian	0.067	0.49	0.197**	2.01	0.148*	1.86
	Foreigner						
	Place of residence	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Rural	3.185***	12.52	3.406***	18.74	3.329***	
	Abidjan	1.451***	11.37	1.779***	19.33	1.657***	22.58
	Other urban areas						
	Marital status	-	-	Ref.	Ref.	Ref.	22.14
	Single	-	-	-0.187**	-2.20	-0.203***	
	Married	-	-	0.165	0.53	0.045	Ref.
	Widowed/Divorced						-2.85
	Level of education	Ref.	Ref.	Ref.	Ref.	Ref.	0.16
	No education	0.371***	2.99	0.257***	2.60	0.310***	
	Primary	0.705***	4.96	0.845***	8.31	0.806***	Ref.
	Secondary and above	-3.623	-1.50	-6.231*	-1.70	-3.836***	3.98
	Contant						9.76
						-5.44	
Informal agricultural	(base outcome)						
Informal non agricultural	Age	0.121	0.80	0.465***	2.78	0.109***	3.15
	Age2	-0.002	-0.72	-0.007***	-2.83	-0.002***	-3.00
	Duration of unemployment	0.154***	6.19	0.082***	6.83	0.094***	8.70
	Size of household	0.004	0.53	-0.040***	-4.77	-0.023***	-3.83
	Sex	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Women	0.550***	8.31	0.655***	11.18	0.643***	14.31
	Women						
	Nationality	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Ivoirian	0.258***	3.11	0.279***	4.14	0.264***	5.01
	Foreigner						
	Place of residence	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	Rural	4.052***	17.59	4.095***	24.20	4.042***	29.67
	Abidjan	2.260***	28.05	2.426***	37.48	2.343***	46.10
	Other urban areas						
	Marital status	-	-	Ref.	Ref.	Ref.	Ref.
	Single	-	-	-3.090***	-5.13	-0.377***	-7.86
	Married	-	-	0.034	0.16	-0.171	-0.87
	Widowed/Divorced						
	Level of education	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	No education	0.633***	8.61	0.397***	6.18	0.481***	9.82
	Primary	0.596***	6.07	0.415***	5.26	0.460***	7.45
	Secondary and above	-3.014**	-2.08	-8.040***	-3.23	-2.787***	-6.33
	Contant						
N		4156		7039		11195	
Wald chi2(36)		1245.73		2567.83		3833.34	
Prob > chi2		0.000		0.000		0.000	
Log likelihood		-2535.94		-4636.22		-7220.81	

(\*\*\*), (\*\*), (\*) represent, respectively, the significance at the 1%, 5% and 10% threshold.

Source: Authors, from ENSETE 2013.



## Mission

To strengthen local capacity for conducting independent, rigorous inquiry into the problems facing the management of economies in sub-Saharan Africa.

The mission rests on two basic premises: that development is more likely to occur where there is sustained sound management of the economy, and that such management is more likely to happen where there is an active, well-informed group of locally based professional economists to conduct policy-relevant research.

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