

Topic: Disability and labour force participation in Cameroon

By

Simo Fotso Arlette

Junior Researcher and PhD. Candidate

Faculty of the Economics and Management

University of Yaoundé II-Soa

P.O. BOX 18 Soa

Tel.: (+237) 99698606

Email: simofotsoarlette@yahoo.fr

Abstract: Using data from the Third Cameroonian Household Survey (ECAM3), this paper examines the determinants of the differences in labour force participation between people with and without disabilities. The results obtained indicate that there is a substantial employment gap between disabled and non-disabled people whatever the considered gender and the institutional sector. The decomposition of this gap suggests that it is not explained by differences in human capital, demographic, and other observed characteristics between disabled and non-disabled people; it may result from discrimination.

Key words: Disability, discrimination, Fairlie decomposition, institutional sector.

JEL Classification: I1, J1, J2, J4.

I-Introduction

Disability is increasingly regarded as a major development issue for both the international organizations and national governments first because of their increasing numerical size. In 2007 the International Labour Organization (ILO) estimated the disabled population roughly at 650 million persons, that is, about 10% of the world population, 80% of

them living in developing countries. This population has been estimated at 15% of the world population in 2011 (WHO, 2011). Secondly, there is much evidence that disability, through its negative effect on earnings and labour force participation can lead to poverty (Dumont, 2000).

In fact, disabled people face many difficulties to enter the labour market both in developed and developing countries. The ILO report says that most of the 470 million of disabled people in working age in the world are excluded from the Labour Market; while for disabled people in employment, average earnings are substantially lower than for their non-disabled counterparts (ILO, 2007). As far as Cameroon is concerned, the National Institute of Statistics reports that only 69.08% of persons with disabilities (PWDs) have a job while the employment rate of the non-disabled is around 75.79%; and this despite several decades of existence of laws promoting the employment of PWDs. In 1983, the Cameroonian Government passed the first PWDs Act. This Act has been followed by Decree of 1990 and in 2011 by the Act on the Protection and Promotion of the Disabled which foresees a punishment for all discriminating employers¹. According to this law, disability is a limitation of opportunities for full participation of a person with impairment in an activity in a given environment. However, this Act has no provisions on the non-discrimination in the built environment and it removes the quota imposed by the 1990 decree making it difficult to demonstrate any deviations of employers. Failure of these legislations to cancel the differences between disabled and non-disabled emphasizes the need to question ex-ante on the real determinants of differences between these two groups in the labour market. The question is as to whether PWDs have lower labour market participation than persons without disabilities due to lower productivity or due to labour market discrimination.

Some economists argue that, inequalities in access to employment between non-disabled and disabled would be explained mainly by differences in productive capacity between the two groups. This is the result obtained by Madden (2004), which found that in UK the gap in participation in the labour market between non-disabled and disabled people at 70% is explained by differences in productivity. Others designate discrimination as the main explanatory factor of this gap. It is the case of Mitra and Sambamoorthi (2008), who found that the differential of employment between men with disabilities and without disabilities in India is not explained by observable

¹ARTICLE 45: Are punished of imprisonment of three (3) to six (6) months and a fine of 100,000 (hundred thousand) to 1,000,000 (one million) CFA francs or one of two penalties only those responsible for schools, professionals and academics, employers or business leaders who are discriminated against in admission, hiring or remuneration of persons with disabilities

characteristics. Between these two extremes others authors like Kidd et al. (2000) and Blackady et al. (1999) estimated that each component explains approximately 50% of the differences in employment.

These contradictory explanations show the interest of this work who attempts to explain employment differences between people with and without disability in Cameroon. To our knowledge, this is the first paper to investigate the labour market participation differentials across disability status in Cameroon. It therefore takes into account the specifications of this labour market and makes for the first time in this type of studies, the distinction between public, private formal and informal institutional sectors. It is used here a unique household survey data, the Third Cameroonian household survey (ECAM3) conducted by the National Institute of Statistics (INS) in 2007. The layout of the paper is as follows: after introducing in Section 2 the literature review, details are made on the data used in sections 3. Next, the determinants of inequalities in employment are identified in section 4 followed by conclusion in Section 5.

II- Literature review

II-1 Theoretical framework and Previous Research

There is substantial evidence that disabled people are less employed than non disabled people (DeLeire, 2000; Jones et al.,2003; Hum et al., 1996), but there are different potential reasons why this may be the case. The interaction between disability and labour participation can be rationalized along the lines of disability affecting both the supply of labour and the demand for labour (Madden, 2004; Mitra et Sambamoorthi, 2008). All these thoughts take place in the standard labour leisure choice model which assumes that workers and employers are rational.

On the supply side, this model assumes that each worker has limited endowments hours which will be allocate to labour and leisure to maximize his utility under constrains of income. Given this, people decide to supply their labour force if the offered salary is upper than reservation wage ² which depend on his non-labour incomes and his utility function (Cahuc et Zylberberg, 1996). Disability can affect participation via the raising of the

² Reservation wage is defined as the lowest wage at which a person is willing to work (Mitra et Sambamoorthi; 2008)

reservation wage due to unearned income coming from disabled-related transfers. This is easy to understand as in general, individuals with disabilities have a greater propensity to receive transfers from charitable organizations, their relatives or simply from the state as a disability pension. These transfers would be the cause of differences in the Labour Market participation (Jones *et al.*, 2003; Madden, 2004; Mitra, 2009). Secondly, PWDs will experience a higher cost of working given that greater efforts may be needed compared to persons without disabilities to get to the workplace and do the work (Mitra *et Sambamoorthi*, 2008). This will decrease the opportunity cost of leisure and thus indirectly increase the reservation wage (Jones *et al.*, 2003) which may be greater than the prevailing wage. Finally some disabled individuals will prefer leisure to work. The reservation wage is also a function of some personal characteristic like education or experience which can be negatively affected by the disability understanding as long term health problem. However it is also possible that impairment affects the job search process and explain unemployment duration differential between the two groups. Given in the job-search model the search effort increase with the health state (Zamo, 2008), disability –or ill health in general- will reduce the intensity of search and thus increase unemployment duration of PWDs and this duration will be prolonged given that disabled cannot occupied all type of work because of their endowments.

This supply side explanations of employment gap have been confirmed by Hum and Simpson (1996). Who found that in Canada the wage gap between disabled and non-disabled men is entirely explained by differences in observable characteristics. Concerning the gap between women, they found that it is explained at 92% by observable characteristics. In the same vein, DeLeire (2001) shows that the characteristics of labour supply explained 92% of the wage gap between people with and without disabilities in the U.S. Madden (2004) and Johnson *et Lambrinos* (1985) for their part, estimate respectively that this component explains 70% of the employment gap and 70% of the pay gap in the UK. As for Longhi *et al.* (2010), they said that differences in productive capacities explain nearly the entire pay differential between disabled and non-disabled people in the UK, but this component does not explain the difference for disabled with a mental health condition.

It is also possible that Disability may affect labour market outcomes via the demand for labour. Two elements can be quoted here. First, PWDs may be offered a lower wage due to lower productivity, these lower wages offered may also contribute to lower employment rates. In fact a person's human capital is affected by poor health; especially, disabled people can experience lower productivity if the workplace environment is not accommodating. Thus,

if they are reattributed at their marginal product of labour, the PWDs may be offered a lower market wage which will lead some of them to prefer leisure (wage offered became less than the reservation wage). However, all disabilities are not always a source of lower productivity, depending on the type of disability, type of employment and development of the work environment³ and the discrimination can also take place.

The second factor in the demand side is discrimination. Economists define discrimination as a situation where two groups of workers with equal average productivity have different average wages or opportunities for employment (Baldwin et Johnson, 2001). Discrimination can occur when employer prejudices against certain group of workers⁴ (Becker, 1971) or because of differential information about the average productivity of persons with and without disabilities⁵ (Mitra et sambamoorthi, 2008 ; Arrow, 1971 ; Phelps, 1972 ; Aigner et Cain, 1977). Many authors attempted to measure this. Like Mitra and Sambamoorthi (2008) who find that the total differential of employment between men with disabilities and without disabilities in India is explained by discrimination. Kidd et al. (2000) in UK and Baldwin and Johnson (2005) in the U.S. find for their part that discrimination has between 30 to 60% in earnings differences. Nevertheless, one core difficulty of all these works resides in the measurement of disability itself.

II-2 Disability Measurement

The Disability definition of the Cameroonian Act of 2010 has advantage of operating reconciliation between the medical model which considers disability as caused by a disease, an injury, or other health conditions and the social model considers disability as created by social conceptions and living and work place environment (Mitra et Sambamoorthi, 2008). However, any study who wants to investigate the labour market participation differentials across disability status has to deal with the challenges of measuring disability because of the lack of a standard definition.

There are two main ways to determine the existence of a disability: disability can either be self-assessed looking for its capacity to affect work undertaken⁶ or self reported information on specific health conditions ⁷(Jones, 2005).

³ See Winance, 2008.

⁴ Taste or pure discrimination.

⁵ Statistical discrimination.

⁶ Subjective measure.

In the case where the disability is self-assessed relating to the work, each individual assesses their own health condition, stressing often on affects it has on capacity to undertake work, without any reference to outside standards. The exact wording of the survey question can vary but it takes often this typical form: *Do you have a health condition that limits the kind or amount of work you can perform?* (Jones, 2005). Asking like this, this question gives direct information on work capacities, that is why self-assessed method is appreciated for empirical labours market analysis (Kidd et al., 2000; DeLeire, 2000; Madden, 2004). However put together disability and ability to work can lead to misreport disability status. Firstly, because the answer can depend on person's preference for work. In fact, people with lower preferences for work will justify themselves by reporting disability. Thus there could exist a "justification bias". Given that the report of disability depend employment status, disability becomes endogenous in regression analysis (Jones, 2005). Secondly, the propensity to declare any disability may depend on the possibility of claiming disability benefits. Conversely, stigmatization may also be an incentive to underestimate disability.

Another way to evaluated disability consist for asking individual to report information on specific health conditions. This survey question takes the form of collect of information on specific impairment (deaf, blind, mental illness...), functional activity (capacity seeing, hearing, speaking, walking...), medical diagnostic, mortality rate, body mass index... If the information on disability can suffer from measurement error which will underestimate the true effect of disability on labour market outcomes⁸, it is less likely to suffer from justification bias. Objectivity of this procedure justified its using by some studies (Jonhson et Lambrinos, 1985 ; Mitra et Sambamoorthi, 2008). For this reason and because of the available data we use this disability measurement in this work. In this study, a person is considered to have a disability if he has at less one of this impairments: visual impairment (blind, partially sighted...), auditory impairment (deaf, hard of hearing...), speech impairment (dumb, stammerer...), mental disability (mad, alienated, autistic...), mobility impairment (lame, the paralyzed limb, or atrophied amputated ...) and other (specified by the individual). The disability variable (D) is constructed as follow:

$$\text{Disability} = \begin{cases} 1 & \text{if person is disabled} \\ 0 & \text{if not} \end{cases}$$

⁷ Objective measure.

⁸ This is due to the fact that the information on disability tends not to be as closely related to limitations on work.

In order to identify within-group differences, dummies are generated for each impairment.

III- Data

This study use secondary data coming from the Third Cameroonian Household Survey conducted by the National Institute of Statistics (INS) in 2007, a survey of 652 households which represent 51232 people distributed throughout Cameroon. Its main objective was to update the poverty profile in Cameroon and to evaluate the impact of major policies and programs implemented to the fight against poverty (INS, 2008). It is the most recent survey containing information on disability in Cameroonian context even if its main drawback is de lack of information on disability severity. Only people in working age (it means about 15-64 year old⁹) are considered. It is 28047 people, 4.09% of them have a disability and 75.52% are in employment.

Table 1 displays the prevalence of each impairment (visual, speech, auditory, mental and mobility). In the sample of 28047 people, there is 13593 men et 14454 women. The prevalence of disability is higher in the men population (4.56%) than in female one (3,65%). The most current impairment is the visual, follow by mobility and mental impairments.

TABLEAU 1 : PROFILE OF DISABILITY.

	MEN		WOMEN		TOTAL	
	Fréquence	%	Fréquence	%	fréquence	%
Impairment						
visual	198	31.94	227	42.99	425	37.02
speech	52	8.39	26	4.92	78	6.79
auditory	48	7.74	49	9.28	97	8.45
mental	84	13.55	44	8.33	128	11.15
mobility	214	34.52	152	28.60	365	31.79
any impairment	24	3.87	31	5.87	55	4.79
total	620	100	528	100	1148	100

Source: From ECAM's data.

The Summary statistics for some variables of the estimation sample are shown separately for disabled and non disabled men and women in table 2.

⁹ Indeed, below 15 years old, the ILO considers individuals as school age and above 64 year old, they are supposed to retirees; these individuals should not be on the labour market.

TABLE 2: DESCRIPTIVE STATISTICS ON PEOPLE WITH AND WITHOUT DISABILITIES.

Variables	ENTIRE SAMPLE				MEN				WOMEN			
	NON-DISABLED		DISABLED		NON-DISABLED		DISABLED		NON-DISABLED		DISABLED	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Employed	0.75	0.43	0.69	0.46	0.81	0.39	0.72	0.45	0.71	0.45	0.66	0.47
Age	30.46	12.49	37.04	14.66	30.45	12.52	36.78	14.69	30.47	12.46	37.34	14.62
Age²	1083.81	894.86	1586.53	1140.75	1083.831	894.68	1568.208	1147.35	1083.789	895.06	1608.05	1133.65
Health problem	0.24	0.43	0.38	0.48	0.21	0.41	0.34	0.47	0.27	0.44	0.43	0.49
Annual non-labour income	867093.8	9195425	1391200	1.15e+07	904864.3	9303438	1111927	1.01e+07	831908.1	9093842	1719134	1.30e+07
Education												
Illiterate	0.18	0.39	0.26	0.44	0.12	0.33	0.23	0.42	0.24	0.43	0.32	0.47
Primary school	0.30	0.46	0.32	0.47	0.30	0.46	0.35	0.48	0.31	0.46	0.30	0.45
Secondary school	0.28	0.45	0.22	0.42	0.29	0.45	0.23	0.42	0.27	0.45	0.22	0.42
Higher secondary school	0.16	0.37	0.12	0.33	0.20	0.40	0.13	0.34	0.13	0.34	0.11	0.31
Diploma, graduate. or Postgraduate level	0.05	0.23	0.05	0.23	0.08	0.27	0.06	0.24	0.04	0.19	0.05	0.21
Married	0.44	0.50	0.37	0.48	0.39	0.49	0.40	0.49	0.48	0.50	0.33	0.47
Urban	0.59	0.49	0.55	0.497	0.60	0.48	0.54	0.498	0.58	0.49	0.56	0.49
Region												
Adamaoua	0.06	0.23	0.046	0.21	0.058	0.23	0.039	0.19	0.057	0.23	0.055	0.22
Center	0.16	0.37	0.16	0.369	0.17	0.37	0.17	0.37	0.159	0.36	0.15	0.36
East	0.055	0.23	0.04	0.20	0.055	0.23	0.04	0.20	0.055	0.22	0.04	0.20
Extreme-north	0.14	0.34	0.14	0.34	0.13	0.34	0.14	0.34	0.14	0.35	0.13	0.34
Littoral	0.15	0.35	0.19	0.39	0.15	0.36	0.19	0.396	0.14	0.35	0.19	0.39
North	0.077	0.27	0.059	0.24	0.079	0.27	0.06	0.24	0.076	0.26	0.054	0.22
North-west	0.12	0.32	0.12	0.33	0.11	0.31	0.12	0.32	0.12	0.33	0.13	0.33
West	0.11	0.31	0.10	0.30	0.098	0.297	0.09	0.29	0.11	0.31	0.11	0.32
South	0.05	0.21	0.05	0.22	0.051	0.22	0.047	0.21	0.045	0.20	0.055	0.23
South-west	0.09	0.29	0.08	0.27	0.09	0.29	0.087	0.28	0.088	0.28	0.074	0.26
female	0.52	0.49	0.46	0.498	---	---	---	---	---	---	---	---
Observations	26899		1148		12973		620		13926		528	

Overall, non-disabled people have an employment rate of 75.79%, while disabled have employment rate of 69.08%, a 6.71 % point gap. The employment gap is more severe between Male (8.98%) than between female (5.214%) (but even so, the employment rate of disabled men are greater than the non-disabled women). For both men and women, disabled persons are on average older reflecting the fact that many disabilities exhibit age-related onset (Jones *et al.*, 2003). They are less educated, which could result from unequal access to education. Disabled are also more likely to be sick, to live in urban area and have higher non-labour income.

IV- Employment and disability

This section examines the determinants of the employment gap across disability status. This is made using two steps. In the first step, logistic regressions are run in order to identify the determinants of labour force participation for disabled, non-disabled, and for the whole sample; which permit in the second step to run a non-linear version of the Oaxaca-Blinder technique, which was developed by Fairlie (2006).

IV-1 Logistic regressions on employment

In this work, labour force participation is modeled via a binary variable indicating whether the person is employed or not¹⁰. In order to take in account the segmentation of Cameroonian labour market, the dependant variable is also modeled as follow in the multinomial regression: employment equal 1 if the individual is employed in the public sector, 2 if he is employed in the private formal sector, 3 if he is in the informal sector and 0 if he is not employed. The control for worker productivity is made through education dummies and work experience as measured by age. In addition, a health dummy variable indicating whether the person has been sick over the past two weeks measures the potential productivity limitation that may result from the disability (see Mitra et Sambamoorthi, 2008). We also introduced non-labour income variable and demographics variables as control variables.

The first column of table 3 presenting the logit of employment for the whole sample, shows that the dummy indicating that a person has a disability does have a negative and statistically significant coefficient (It is true whatever the sex, see table A3 and A4). It means that having a disability is associated with a lower probability of employment. This result is

¹⁰ An individual is considered as employed is he is occupied in the ILO sense

confirmed in the public, private formal and informal sector, with however a greater prejudice of disability on employment in these two last sectors (see table A2).

TABLE 3 : LABOUR FORCE PARTICIPATION LOGIT ESTIMATES.

VARIABLES	ALL		NON-DISABLED		DISABLED	
	coefficients	t-student	Coefficients	t-student	coefficients	t-student
Disabled	-0.89***	-11.41	–	–	–	–
Log non-labour income	-0.011**	-2.19	-0.01**	-1.97	-0.026	-1.44
Age	0.37***	43.63	0.38***	42.91	0.19***	6.39
Age ²	-0.004***	-37.85	-0.004***	-37.07	-0.002***	-5.83
Health problem	-0.02	-0.63	-0.022	-0.54	-0.059	-0.40
Education						
Primary school	0.61***	10.10	0.58***	9.22	0.607***	2.96
Secondary school	-0.16***	-2.74	-0.227***	-3.59	0.352	1.58
Higher secondary school	-0.69***	-10.62	-0.78***	-11.39	0.242	0.93
Diploma, graduate, or Postgraduate level	-0.869***	-10.53	-0.98***	-11.47	0.44	1.30
Married	-0.03	-0.68	-0.09**	-2.14	0.806***	4.62
urban	-1.25***	-31.96	-1.276***	-31.47	-1.02***	-6.37
Region						
Adamaoua	-0.18**	-2.33	-0.22***	-2.73	0.47	1.23
East	0.28***	3.52	0.277***	3.32	0.307	0.79
Extreme-north	0.27***	4.10	0.26***	3.76	0.256	0.96
Littoral	0.07	1.31	0.058	1.06	0.196	0.87
North	0.19***	2.65	0.177**	2.31	0.384	1.08
North-west	0.39***	6.14	0.40***	6.12	0.257	0.94
West	1.13***	15.98	1.17***	15.92	0.615**	2.08
South	-0.134*	-1.70	-0.152*	-1.88	0.21	0.59
South-west	0.013	0.20	0.001	0.02	0.19	0.66
Female	-0.79***	-23.30	-0.825***	-23.40	-0.23	-1.59
Constant	-3.99***	-28.15	-4.097***	-27.66	-2.762***	-4.96
-log likelihood	11874.83		11211.22		612.72	
LR chi2(21) [(20). (20)] =	7471.92		7353.57		194.60	
Prob > chi2 =	0.0000		0.0000		0.0000	
Observations	28047		26899		1148	

Source: From STATA 10 and ECAM3's data. The *illiterate and Center* variables are residual respectively for education and region. **, ** and * denote significance at the 1%, 5% and 10% level respectively.

The summary of separate employment equations among individuals with and without disability is present in columns (2) and (3) of table 3. There are strong age effects, with positive and negative signs on the linear and quadratic terms respectively observed in all cases, meaning the younger are less likely to have a job but there is a threshold beyond which senior have difficulty to integrating the labour market. In accordance to neo-classical theory, non-labour income measured in logarithmic terms has a negative effect on employment; however this effect is significant only for non-disable people¹¹. The results observed seem to

¹¹ This may be due to the smaller sample size for the disabled (Mitra et Sambamoothi, 2008).

show that, overall, individual with higher educational qualifications are significantly less likely to be in employment than those without any qualifications. This surprisingly result express the domination of informal sector in the Cameroonian labour market. In fact, when we look at employment access to different institutional sectors, the negative effect of education on employment appears mostly in the informal sector. The result in this sector could be due to the effect of education on the reservation wage, so that in developing country it exists an unemployment waiting to entrance in formal sector and this unemployment concern specially the educated people (see Dumont, 2000). In addition, people living in urban zone (disabled or not) are less likely to be employed than those living in rural areas. Table A5 presents the logit of employment but focus on the disabled groups only, incorporating impairment variables. It shows that those with other impairments are significantly more likely to be in employment than the omitted category of mental health. Overall, the results presented in second and third column of table 3 suggest that there is a lot of heterogeneity in the determinants of employment across disability status, so it necessary to conduct decomposition to identified the determinants of employment gap existing between these groups.

IV-3 Decomposition of differences in labour force participation.

The method usually used to evaluate the effect of disability on employment is employment logit model with a disabled dummy. The significance of disabled variable is thus interpreted like discrimination. However, this interpretation is made under the strong hypothesis that the coefficients of the characteristics are the same across disability status (Mitra et Sambamoorthi, 2008). Now this assumption not holds¹². To relax this hypothesis, a decomposition of the employment rate gap is run. Given that the dependent variable (labour force participation) is binary, we adopt non-linear decomposition techniques proposed by Fairlie (2006). It is inspired from the Oaxaca-Blinder decomposition (Oaxaca, 1973; Blinder, 1973) traditionally used to run decompositions using coefficient estimates from linear regressions for the outcome of interest.

For the non linear equation $Y = F(X\hat{\beta})$, where F is the cumulative distribution function from the logistic distribution (logit)¹³, the Fairlie decomposition can be presented as follow:

$$\bar{Y}^{ND} - \bar{Y}^D = \left[\sum_{i=1}^{N^{ND}} \frac{F(X_i^{ND} \hat{\beta}^{ND})}{N^{ND}} - \sum_{i=1}^{N^D} \frac{F(X_i^D \hat{\beta}^{ND})}{N^D} \right] + \left[\sum_{i=1}^{N^D} \frac{F(X_i^D \hat{\beta}^{ND})}{N^D} - \sum_{i=1}^{N^D} \frac{F(X_i^D \hat{\beta}^D)}{N^D} \right] \quad (1)$$

¹² See coefficients presented in column 2 and 3 of table 3

¹³ The cumulative distribution function from the standard normal distribution can be also used (fairlie, 2006).

Here, \bar{Y}^j is the average probability to be employed for the group j [j = Non-disabled (ND), Disabled (D)], N^j is the sample size of the population j , $\hat{\beta}^{ND}$ and $\hat{\beta}^D$ are, respectively, the estimated coefficients from the binary regressions among ND and D and X_i^{ND} and X_i^D represent observed characteristics in each group, respectively. The first component represents the employment gap that is due to the differences in endowments of human capital and other observable characteristics. The second component may be viewed as the discrimination; it represents the part due to differences in the group processes determining employment. The follow expression for the decomposition is also valid even if the results may vary from those obtained in equation (1).

$$\bar{Y}^{ND} - \bar{Y}^D = \left[\sum_{i=1}^{N^{ND}} \frac{F(X_i^{ND} \hat{\beta}^D)}{N^{ND}} - \sum_{i=1}^{N^D} \frac{F(X_i^D \hat{\beta}^D)}{N^D} \right] + \left[\sum_{i=1}^{N^D} \frac{F(X_i^{ND} \hat{\beta}^{ND})}{N^{ND}} - \sum_{i=1}^{N^{ND}} \frac{F(X_i^{ND} \hat{\beta}^D)}{N^{ND}} \right] \quad (2)$$

In equation (2) the disabled coefficient estimates is used as weights for the first term and distributions of the non-disabled as weight in the second term. But for this work, we adopt the specification suggested by Oaxaca and Ransom (1994), using coefficient estimates from a pooled sample of the two groups to weight the first term of the decomposition.

We made here two type of employment decomposition. The first compares the disabled with the non-disabled overall (table 4) and separately for men and women (table A6). The second compare disabled women with the disabled men (Table A7) to consider whether the disabled women are more discriminate than men.

The first column of table 4 shows that, it exists a significant¹⁴ employment gap of 6.7 percentage point between disabled and non-disabled. Results based on the use coefficient estimates from a pooled sample as weights suggest that the portion explained by individuals endowments is negative (-78%), meaning that if the disabled had the characteristics of the non-disabled, the employment rate of the disabled would be lower and the employment gap would be larger. Thus discrimination could explain the whole employment gap. A similar result has been obtained by Mitra et Sambamoorthi (2008) in India. Given the surprising sign of education obtained above, the decomposition is also made by taking in account different sectors¹⁵. These decompositions show that the existing gap between people without and with

¹⁴ The significant test is presented in table A8.

¹⁵ In fact, Fairlie decomposition can be run only if the dependant variable is binary. So to taking in account the different institutional sectors, three dummies are generated. For example, to estimate the likelihood to be employed in public sector, the variable generated equal 1 if the individual considered is employed in the public sector and 0 if he is not employed. We are aware of omission bias related to the fact that these variables do not

disability is about 1.2% in public sector, 5% in private formal sector and 7.5% in informal sector. While in the public and private formal sector differences in education tend to increase employment gap between, they reduce this gap in the informal sector. This confirms the fact that in this later sector, education reduces the likelihood to be employed.

TABLE 4: DECOMPOSITION OF LABOUR FORCE PARTICIPATION GAP AMONG PEOPLE WITH AND WITHOUT DISABILITY.

	ALL	PUBLIC	PRIVATE FORMAL	INFORMAL
Non-disabled	0.75790922	0.17444219	0.16715693	0.73108688
Disabled	0.69076655	0.16273585	0.11691542	0.65600775
Difference	0.06714267	0.01170634	0.0502415	0.07507913
Explained by				
Log non-labour income	0.0008194 (1.22%)	0.0008225 (7.03%)	0.0004039 (0.80%)	0.0011896 (1.58%)
Age	-0.0418803 (-62.37)	-0.0947887 (-809%)	-0.0473593 (-94.26%)	-0.0374825 (-49.92%)
Health problem	0.0007853 (1.16%)	0.0035029 (29.92%)	0.0024989 (4.97%)	0.0004675 (0.62%)
education	-0.008292 (-12.34%)	0.0350589 (299.49%)	0.0152989 (30.45%)	-0.0151413 (-20.16%)
Married	3.20e-06 (0.00%)	0.0015915 (13.59%)	0.0017184 (3.42%)	-0.0002616 (-0.34%)
Urban	-0.0012766 (-1.90%)	-0.0038584 (-32.95%)	-0.0009276 (-1.84%)	-0.0027067 (-3.60%)
Region	0.0010673 (1.58)	0.0014431 (12.33%)	-0.0002891 (-0.57%)	0.0019984 (2.66%)
female	-0.0038049 (-5.66%)	-0.0107892 (-92.16%)	-0.0257899 (-51.33%)	-0.0047542 (-6.33%)
Total explained	-0.05272264 (-78%)	-0.06488007 (-554%)	-0.05458985 (-108%)	-0.05668944 (-75%)
discrimination	0.11986531 (178%)	0.07658641 (654%)	0.10483135 (208%)	0.13176857 (175%)

Source: from STATA 10 and ECAM3s' data.

In addition, the comparison of disabled women with the disabled men (Table A7) tells us that disabled women are the most handicapped at the entrance of labour market. The employment difference between these is of 5.5 percentage point and it is explained both by differential in endowment (28.84%) and discrimination (81.16%).

V- Conclusion

In this work, the determinants of employment gap between disabled and non disabled people have been examined. To our knowledge, it is the first paper to conduct this kind of

considered the others positions on the labour market. It is worth to note that this procedure is used simply to give a general idea of differences leaning on more usual sign of variables.

studies in Cameroonian labour market and to include the segmentation of labour market observed in the developing countries in its analysis.

It appears a substantial difference in likelihood of employment, even after several years of operation of the Disability Acts in Cameroon. Only 69.07% of people with disabilities work compared to 75.79% for people without disabilities, a gap of 6.71%. This gap is about 8.98% between men and 5.21% between women even if the employment rate of men (disabled or not) is greater than the one of women (disabled or not). The gap is also observed whatever the institutional sector considered. Significant heterogeneity within the disabled group is also identified with a greater prejudice for those suffering from mental forms of disability. The Fairlie decomposition reveals that, overall, the employment gap is not explained by differential in human capital, demographic, and other observed characteristics between disabled and non disabled it may result from discrimination by employers.

All these results call for the following policy implications. The antidiscriminatory legislation must be reinforced with an Act combining policy of reservation and punishment measures to discourage employers' taste for discrimination. Secondly, employers' access to information concerning the various types of disability and their implications for work must be improved to rectify the popular conception of disability and reduce prejudices. It may also be helpful in order to reduce discrimination at the entrance of labour market, to emphasize the adjustments that can help disabled people to create their own jobs. It may equally be worthwhile to concentrate efforts upon mental disabled and disabled women who are more vulnerable and upon private sector where disability creates more prejudices. To conclude, it would be necessary to improve the quality of disability data in developing countries in general and in Cameroon in particular for the more rigorous future analyses on the implication of disability.

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Annexe.

TABLE A1: WORKERS BY INSTITUTIONAL SECTOR.

Secteur institutionnel	ALL		MEN		WOMEN	
	Non-disabled (%)	Disabled (%)	Non-disabled (%)	Disabled (%)	Non-disabled (%)	Disabled (%)
public	6.75	8.70	9.31	10.14	4.06	6.88
Private formal	6.41	5.93	9.46	8.56	3.20	2.58
Private informal	86.84	85.37	81.24	81.31	92.74	90.54
Total	100	100	100	100	100	100

Source : from ECAM3's data.

TABLE A2: DISABLED LABOUR FORCE PARTICIPATION MULTINOMIAL LOGIT.

VARIABLES	PUBLIC		PRIVATE FORMAL		INFORMAL	
	coefficients	t-student	Coefficients	t-student	coefficients	t-student
Disabled	-0.70***	-4.42	-0.92***	-5.41	-0.92***	-11.49
Log non-labour income	-0.01*	-1.74	-0.01	-1.32	-0.014***	-2.67
Age	0.72***	30.46	0.62***	30.10	0.34***	40.03
Age ²	-0.008***	-26.83	-0.0075***	-26.85	-0.004***	-35.09
Health problem	0.007	0.10	-0.02	-0.25	-0.014	-0.35
Education						
Primary school	2.33***	9.92	1.74***	9.02	0.52***	8.71
Secondary school	2.79***	11.96	1.41***	7.22	-0.31***	-5.19
Higher secondary school	3.74***	16.00	1.52***	7.73	-1.03***	-15.28
Diploma, graduate, or Postgraduate level	4.31***	17.81	1.64***	7.89	-1.84***	-19.38
Married	0.14*	1.74	-0.10	-1.32	-0.10**	-2.36
urban	-0.72***	-8.56	-0.34***	-3.95	-1.29***	-33.14
Region						
Adamaoua	0.008	0.05	0.25	1.61	-0.24***	-3.06
East	0.43***	2.58	0.22	1.32	0.25***	3.08
Extreme-north	0.88***	5.97	-0.37**	-2.11	0.24***	3.59
Littoral	-0.72***	-6.31	0.47***	4.97	0.07	1.36
North	0.91***	5.67	-0.23	-1.23	0.17**	2.24
North-west	0.32**	2.46	0.25*	1.94	0.39***	5.97
West	0.81***	6.04	0.71***	5.12	1.18***	16.36
South	0.14	0.94	0.43***	2.97	-0.21***	-2.59
South-west	0.41***	3.36	0.15	1.18	-0.038	-0.57
Female	-1.13***	-15.34	-1.69***	-23.27	-0.68***	-19.63
Constant	-17.81***	-35.47	-12.99***	-32.36	-3.48***	-24.11
-log likelihood	18969.571					
LR chi2(63)=	13699.56					
Prob > chi2=	0.0000					
Observations	28047					

Source : From STATA 10 and ECAM3's data. The *illiterate* and *Center* variables are residual respectively for education and region. **, ** and * denote significance at the 1%, 5% and 10% level respectively. baseline : not employed

TABLE A3 : MALE LABOUR FORCE PARTICIPATION LOGIT ESTIMATES .

VARIABLES	ALL		NON-DISABLED		DISABLED	
	coefficients	t-student	Coefficients	t-student	coefficients	t-student
Disabled	-1.33***	-11.24	–	–	–	–
Log non-labour income	-0.029***	-3.59	-0.0285***	-3.31	-0.04	-1.62
Age	0.52***	35.74	0.55***	35.23	0.19***	4.50
Age ²	-0.0066***	-33.39	-0.007***	-32.73	-0.002***	-4.62
Health problem	0.07	1.09	0.08	1.15	-0.01	-0.09
Education						
Primary school	0.49***	3.87	0.38***	2.62	0.60**	2.13
Secondary school	-0.60***	-4.95	-0.80***	-5.73	0.56*	1.80
Higher secondary school	-1.38***	-10.88	-1.61***		-0.08	
Diploma, graduate, or Postgraduate level				-11.16		-0.24
Married	-1.77***	-12.04	-2.08***		0.45	
urban				-12.73		0.98
	1.34***	11.59	1.25***	10.00	1.65***	5.31
	-0.94***	-15.33	-0.96***	-14.85	-1.05***	-4.66
Region						
Adamaoua	-0.06	-0.48	-0.06	-0.50	0.14	0.24
East	0.396***	3.00	0.40***	2.92	0.19	0.33
Extreme-north	0.70***	6.28	0.71***	6.04	0.40	1.07
Littoral	0.098	1.16	0.10	1.14	-0.021	-0.07
North	0.44***	3.65	0.44***	3.51	0.38	0.76
North-west	0.04	0.44	0.07	0.71	-0.33	-0.90
West	1.19***	10.46	1.27***	10.74	0.30	0.71
South	-0.04	-0.33	-0.07	-0.61	0.66	1.20
South-west	-0.13	-1.34	-0.14	-1.33	-0.08	-0.20
Constant	-5.99***	-24.23	-6.33***	-23.53	-2.40***	-3.04
-log likelihood	4551.42		4187.58		312.07	
LR chi2(20) [(19). (19)]=	4429.81		4390.20		115.61	
Prob > chi2=	0.0000		0.0000		0.0000	
Observations	13593		12973		620	

Source : From STATA 10 and ECAM3's data. The *illiterate* and *Center* variables are residual respectively for education and region. **, ** and * denote significance at the 1%, 5% and 10% level respectively.

TABLE A4 : FEMALE LABOUR FORCE PARTICIPATION LOGIT ESTIMATES .

VARIABLES	ALL		NON-DISABLED		DISABLED	
	coefficients	t-student	Coefficients	t-student	coefficients	t-student
Disabled	-0.65***	-5.93	—	—	—	—
Log non-labour income	-0.002	-0.34	-0.0015	-0.20	-0.019	-0.67
Age	0.29***	26.53	0.29***	25.83	0.22***	4.97
Age ²	-0.003***	-22.11	-0.003***	-21.40	-0.002***	-4.26
Health problem	-0.04	-0.77	-0.03	-0.60	-0.09	-0.42
Education						
Primary school	0.48***	6.65	0.45***	6.04	0.79**	2.47
Secondary school	-0.14*	-1.79	-0.18**	-2.31	0.28	0.82
Higher secondary school	-0.56***	-6.53	-0.63***	-7.17	0.74*	1.76
Diploma, graduate, or Postgraduate level	-0.69***	-5.93	-0.77***	-6.48	0.67	1.22
Married	-0.26***	-5.16	-0.30***	-5.81	0.52**	2.09
urban	-1.50***	-29.09	-1.52***	-28.72	-1.15***	-4.72
Region						
Adamaoua	-0.35***	-3.40	-0.40***	-3.81	0.77	1.44
East	0.16	1.54	0.15	1.36	0.52	0.93
Extreme-north	-0.026	-0.30	-0.04	-0.50	0.059	0.15
Littoral	0.039	0.55	0.01	0.22	0.48	1.40
North	0.017	0.18	-0.01	-0.12	0.53	0.99
North-west	0.55***	6.53	0.54***	6.31	0.86**	2.03
West	1.11***	12.12	1.11***	11.90	0.85*	1.96
South	-0.18*	-1.72	-0.17	-1.58	-0.25	-0.50
South-west	0.10	1.21	0.08	0.96	0.61	1.27
Constant	-3.21***	-17.88	-3.19***	-17.19	-3.85***	-4.67
-log likelihood	6918.82		6615.65		283.16	
LR chi2(20) [(19). (19)]=	3537.64		3461.18		109.93	
Prob > chi2=	0.0000		0.0000		0.0000	
Observations	14454		13926		528	

Source: From STATA 10 and ECAM3's data. The *illiterate* and *Center* variables are residual respectively for education and region. **, *** and * denote significance at the 1%, 5% and 10% level respectively.

TABLE A5 : DISABLED LABOUR FORCE PARTICIPATION LOGIT ESTIMATES.

VARIABLES	ALL		MEN		WOMEN	
	coefficients	t-student	Coefficients	t-student	coefficients	t-student
Log non-labour income	-0.03*	-1.77	-0.04*	-1.73	-0.03	-1.04
Age	0.25***	7.59	0.25***	5.31	0.28***	5.72
Age ²	-0.003***	-7.11	-0.003***	-5.44	-0.003***	-5.07
Health problem	-0.14	-0.87	-0.09	-0.40	-0.13	-0.57
Education						
Primary school	0.40*	1.85	0.32	1.05	0.62*	1.83
Secondary school	0.005	0.02	0.18	0.52	-0.06	-0.16
Higher secondary school	-0.18	-0.63	-0.58	-1.53	0.39	0.86
Diploma, graduate. or Postgraduate level	0.09	0.26	-0.02	-0.05	0.46	0.80
Married	0.50***	2.72	1.25***	3.77	0.24	0.93
urban	-1.12***	-6.55	-1.18***	-4.87	-1.20***	-4.65
Region						
Adamaoua	0.36	0.90	-0.16	-0.27	0.77	1.41
East	0.29	0.73	0.36	0.61	0.38	0.66
Extreme-north	0.04	0.14	0.16	0.40	-0.15	-0.37
Littoral	0.13	0.56	-0.15	-0.46	0.42	1.18
North	0.09	0.25	-0.03	-0.07	0.28	0.49
North-west	0.16	0.56	-0.49	-1.23	0.86*	1.96
West	0.66**	2.13	0.45	0.99	0.77*	1.72
South	0.24	0.66	0.56	1.00	-0.14	-0.27
South-west	0.11	0.36	-0.30	-0.71	0.59	1.19
female	-0.45***	-2.94	-	-	-	-
Impairment						
Visual	2.09***	7.75	2.13***	5.86	1.96***	4.53
Speech	1.92***	5.38	1.93***	4.27	1.84***	2.98
Auditory	2.30***	6.38	2.14***	4.25	2.66***	4.80
Mobility	1.79***	7.03	1.70***	5.18	1.69***	3.98
Any impairment	2.06***	5.04	1.75***	3.00	2.27***	3.63
Constant	-4.74***	-7.35	-4.24***	-4.65	-6.20***	-6.23
-log likelihood	574,14		289.58		267.86	
LR chi2(25) [(24), (24)]=	271.77		160.58		140.52	
Prob > chi2=	0.0000		0.0000		0.0000	
Observations	1148		620		528	

Source: From STATA 10 and ECAM3's data. The *illiterate*, *Center* and *mental* variables are residual respectively for education, region, and impairment. **, ** and * denote significance at the 1%, 5% and 10% level respectively.

TABLE A6: DECOMPOSITION OF LABOUR FORCE PARTICIPATION GAP AMONG PEOPLE WITH AND WITHOUT DISABILITY BY GENDER

	HOMMES	FEMMES
Accès à l'emploi non-handicapé	0.8059	0.7131
Accès à l'emploi handicapé	0.7161	0.6609
Différence	0.0898	0.0521
Expliquée par		
Log non-labour income	0.0010537 (1.17%)	0.000127 (0.2%)
Age	-0.085693 (-95.37%)	-0.1674109 (-321.07%)
Age²	0.0663476 (73.84%)	0.1315651 (252%)
Health problem	-0.0003596 (-0.40%)	0.0009222 (1.7%)
Education	-0.0220005 (-24.48%)	-0.0040395 (-7.74%)
Married	-0.0081652 (-9.08%)	-0.0038438 (-7.37%)
Urban	-0.0040434 (-4.50%)	-0.0032906 (-6.31%)
Region	-0.0001977 (-0.22)	-0.0008168 (-1.57%)
Total expliqué	-0.05294772 (-59%)	-0.04763058 (-91%)
discrimination	0.1427 (159%)	0.0997 (191%)

Source : From STATA 10 and ECAM3's data.

TABLE A7 : DECOMPOSITION OF LABOUR FORCE PARTICIPATION GAP AMONG DISABLED MEN AND DISABLED WOMEN.

ECART BRUTE	CARACTERISTIQUE	DISCRIMINATION
0.0551	0.0097	0.0454
	18%	82%

Source : From STATA 10 and ECAM3's data.

TABLE A8: TWO-SAMPLE TEST OF EMPLOYMENT PROPORTION.

	ALL	MEN	WOMEN
Employment differential (Standard errors)	0,067 (0,012)	0,0898 (0,016)	0,052 (0,020)
T-student	5,18	5,49	2.5954
Pr (diff != 0)	0,0000	0,0000	0.0095
Pr (diff > 0)	0,0000	0,0000	0.0047
Pr(diff < 0)	1,0000	1,0000	0.9953
Observations	28047	13593	14454

Source : From ECAM3's data.