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Migration and Wages Differentials in Urban Cameroon

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Abstract

The purpose of this article is to evaluate the importance of wages differentials between migrants and non migrants and determine what account for it among habitants of Yaoundé and Douala, two cosmopolite cities of Cameroon. We use data derived from the Employment and Informal Sector Survey implemented by the National Institute of Statistics in 2005. Econometric analyses of the migration decision, based on a sample of 3585 individuals, indicate that migration and participation decision are negatively correlated. After controlling for migration and labor force selection, results show that there exist a 12.8% wage differential in favor of migrants due to endowments (10.1%) and unexplained factors (2.7%). Yet, this wage differential does not determine speculative migration decisions to urban Cameroon.

Keywords: migration, wages, labor market, Oaxaca-Blinder decomposition

1. Introduction

Both the volumes and patterns of migration have undergone important changes during the last few decades; making migration a critical issue of our times. Since the 1960s, the overall volume of international migrants has doubled. In 2000, the Population Division of the United Nations estimated the total number of international migrants to be approximately, 175 million. Thus, about 2.9 per cent of the world's population or one in every 35 persons are moving across borders (IOM, 2003). Taken together, migrants would make up the fifth most populous "country" in the world (ILO, 2004). These cross-border movements have been accompanied by the increase in the number of urban resident and for the first time, the percentage of urban residents has gone over that of rural residents (Note 1).

Over the last decades, identifying the factors accounting for population intra-national and international movements has underlined the growing body of literature on interregional migration. Grounded on the fact that entry into labor force is the period where geographic mobility is highest, these movements were explained by employment motives (Van Ommeren et al., 1996; Zax, 1991). Earlier studies provided the basis for the analysis of the links between migration choices and employment. As far as intra-national migration is concerned, individuals migrate in response to a gap between an expected urban and a de facto rural wage (Harris & Todaro, 1970). Based on the fact that urban wages are high and institutionally determined, migrants expect to secure either jobs or better-paying jobs at the destination. Sjaastad (1962) explained migrations decisions as the outcome of human capital investment decisions. This view led to the explanation of labor moves as responses to either interregional wage differentials (Greenwood, 1975; 1985) or unemployment differences among local labor markets (Kriaa & Plassard, 1996). The "New economics of migration" added explanatory power to the neo-classical model. It advocated that migration is a collective endeavor enabling rural households to diversify incomes (Stark & Levhari, 1982; Stark, 1991). In this literature, migrants choose destinations where they are either well connected (Lucas 1997) or have family/community ties (Winters et al., 2001; Munshi, 2003). While increasing the probability of migration, these networks are thought to influence the economic returns to migration; although the large empirical literature devoted to the relationship between individual labor market outcomes of migrations have had mixed results.

Migrations being essentially contracted in Europe (Van Dijk et al., 1988; Détang-Dessendre, 1999) (Note 2), much of scholarly focus have been more on this type of migration. Numerous studies indicate that migrants are economically disadvantaged throughout their working lives. Using the *1970 US Census*, Chiswick (1978) found that immigrants' wages were 17 percent lower than those of natives; US immigrants are thought to have contributed to the increase in wage inequality observed US during the 1980s. Other US studies have found positive effects migration on (re-) employment (see Goss et al., 1994; Boehm, Herzog, & Schlottmann, 1998). Based on Bengali labor migrants' experiences, Rogaly (2003) argues that migration outcomes can cumulate and end up getting migrants out of poverty and thus reducing inequality and poverty.

Despite the intensity of migration flows and their significant socioeconomic, political and ecological impacts, availability and reliability of statistical sources heavily limited the possibilities and quality of migration studies in Africa to such an extent that this demographic phenomenon remained for a long time the least understood demographic phenomenon in the continent (Konseiga, 2005). From the existing literature, Adepoju (1988) and Traoré (1997) found that migrants face unemployment problems. Unlike these studies, other studies reveal that migrants' labor market outcomes in urban areas are better than those of non migrants. Piché & Gringas (1998) and Bocquier & LeGrand (1998) give evidence of this in Bamako.

As far as Cameroon is concerned, the economic slowdown faced by this country during the 1980s, induced an afflux of rural job-seekers to urban areas, leading to a substantial increase of the urban population. Since poverty severity is higher in rural than it is in urban areas (Note 3) the search for a better and more secured livelihood drove many migratory movements from the former to the later. For example, 35.4 percent of individuals living in cities are made of non-natives of those areas and migrants in urban areas represent one-half of the urban population (INS, 2005). Yaoundé and Douala are the most concerned by internal moves (see Appendix 1). In both cities, migrants account respectively for 51.9 and 53.6 percent of total residents; most of them expecting a salaried job. Job opportunities being scarce in urban Cameroon and long period of unemployment unaffordable, migrant workers tend to concentrate in the informal sectors of the economy and most of the time in poorly paid work without any labor contract.(Note 4) Patterns of regional moves to cities reveal that, before looking for a job, labor force entrants choose to locate on the labor market where returns to search are the highest. Thus rural-urban migrations in Cameroon are essentially speculative. This exposes them to hazardous circumstances, such as abusive employers, illegality and exploitation by middle men, and to danger, risk of injury, illness, and poverty. As a consequence, migration to urban areas is a socioeconomic concern for Cameroon (Note 5). Yet, very few studies have been devoted to this issue. The unique study found in the literature demonstrated that migrants from rural areas and from other urban zones get their first employment later than locals do (Kishimba, 2002). The present study fills in this research gap of studies devoted to relationship between migration and wages.

Following earlier studies in US (Nakosteen & Zimmer, 1980), Canada (Robinson & Tomes, 1982), and France (Margirier, 2006), the objective of this study is to determine whether wage differentials between (speculative) migrants and non-migrants determine the decision to move to the Cameroon biggest urban agglomerations (Yaoundé and Douala). Focusing on private sector workers, such an objective entails the decomposition of wages differentials between migrants and non-migrants and the estimation of a structural migration decision equation. The remainder of this paper is organized in four sections. Section 1 specifies the model, section 2 describes the data. Section 3 discusses the results and section 4 concludes.

2. The Model

An empirical framework for measuring the impact of migration on wage begins with the specification of the wage equation, based on the Mincer (1974) equation. In addition to the

classical determinants likely to influence wage such as marital status, educational level and job characteristics, we include a dummy variable *M* to take into account the impact of migration. Thus we might have the following model:

$$\ln(W_i) = X_i B + \tau M_i + \varepsilon_i \qquad (1)$$

were the *ln(W)* variable is a measure of the natural logarithm of earnings, *X* is a vector of exogenous individual characteristics ; *B*, τ are parameters to be estimated, and ε is an unobserved error term. This formulation in terms of effects on earnings is problematic in two related ways. First, Heckman (1976, 1979) have identified a sample selectivity bias in earnings equation due to individual preferences for labor force participation. That is, some individuals will have no earnings to report. Labor force selectivity bias can produce inconsistent and biased estimated coefficients. Second, social scientists studying migration have long known that migrants are self-selected and that the characteristics that differentiate the two groups could also affect their labor market outcomes (Borjas, 1987). If the migrant self-selection criteria hold, logically one would also expect the relationship between migration and earnings to produce a selection bias problem (Heckman, 1979; Nakosteen & Zimmer, 1980). In order to control for labor force and migration selection bias, both decisions are modelled as joint processes (Tienda & Wilson, 1992; Shumway & Hall, 1996). The appropriate framework for specifying such a relationship is the bivariate probit model, a simultaneous equations model that controls for the endogeneity of two related choices (Greene, 1993). It is specified as follows:

$$\begin{cases} A_i^* = \alpha' Z_i + \upsilon_i, \quad A_i = 1 \; if \; A_i^* > 0 \quad and \; 0 \; otherwise & (2) \\ P_i^* = \mu' S_i + \nu_i, \quad P_i = 1 \; if \; P_i^* > 0 \quad and \; 0 \; otherwise & (3) \end{cases}$$

where equation 2 and 3 determine respectively migration and labor force participation decisions. Z_i (respectively S_i) is a vector of determinants of the latent utility of migrating A_i^* (resp. of participating to the labor force P_i^*); υ_i and ν_i are the stochastic error terms, assumed to follow a bivariate normal distribution with a correlation term ρ.

The above relationships subdivide the sample in terms of migration and employment status (Heckman, 1979; Tunaly, 1986) and determine four selection regimes in which individuals can be found that is: migrant-worker, migrant-non-worker, non-migrant-worker and non-migrant-non-worker. These regimes define the log-likelihood for the bivariate probit model as:

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$$\ln L = \{A_i P_i \ln \Phi_2(\alpha' Z_i, \mu' S_i; \rho) + A_i (1 - P_i) \ln [\Phi(\alpha' Z_i) - \Phi_2(\alpha' Z_i, \mu' S_i; \rho)]$$
$$+ (1 - A_i) P_i \ln [\Phi(\mu' S_i) - \Phi_2(\alpha' Z_i, \mu' S_i; \rho)]$$
$$+ (1 - A_i)(1 - P_i) \ln [1 - \Phi(\alpha' Z_i) - \Phi(\mu' S_i) - \Phi_2(\alpha' Z_i, \mu' S_i; \rho)]\}$$

where $\Phi_2(.,.;\rho)$ denotes the bivariate standard normal cumulative density function with correlation coefficient ρ and $\Phi(.)$ is the univariate normal cumulative density function.

Since the paper's interest is primarily on earnings differentials between migrants and non-migrants, only those observed on the labor market (migrant-workers and non-migrant-workers) are concerned by the estimation of wage equations. So, instead of including a dummy variable *M* in one single wage equation, a distinction is made between wages for migrants (W_{im}) and wages for non-migrants (W_{in}). Following Nakosteen & Zimmer (1980), selectivity controls variables analogous to the inverse Mills ratios are included to correct wage equations from biases due to both migration status (λ_m) and individuals' selection on the labor market (λ_p). These wage equations appear as follows:

$$\ln(W_{im}) = X_{im} B_m + \beta_1 \lambda_m + \beta_2 \lambda_p + \varepsilon_{im} \quad (4)$$
$$\ln(W_{in}) = X_{in} B_n + \beta_3 \lambda_m + \beta_4 \lambda_p + \varepsilon_{in} \quad (5)$$

where the error terms ε_{im} and ε_{in} are assumed to be normally distributed with zero mean and variances σ_{im} and σ_{in} (Note 6).

The analysis goes further as it tries to determine what account for the wage gap between migrants and non-migrants. An often used methodology to study labor-market outcomes by groups (sex, race, and so on) is to decompose mean differences in log wages in a counterfactual manner. The procedure known in the literature as the Blinder–Oaxaca decomposition (Blinder 1973; Oaxaca 1973) divides the wage differential between two groups into a part that is "explained" by group differences in productivity characteristics, such as education or work experience, and a residual or "unexplained" part that cannot be accounted for by such differences in wage determinants (Note 7). This decomposition breaks down the wage gap between migrant workers and non-migrant workers into several components:

- the differences in endowments between the two groups, $\beta^{*'}(\overline{X}_m - \overline{X}_n)$;

- the difference between how the migrant equation would value the characteristics of the non-migrant group, and how the non-migrant equation actually values them $\left(\beta_m - \beta^*\right)'\overline{X}_m$ and $\left(\beta^* - \beta_n\right)'\overline{X}_n$.

The variant of the decomposition used in this study considers selection terms as ordinary variables; that is $\lambda_i s$ are included in vector X and the associated coefficients $\left(\beta_{\lambda j}\right)$ in the relevant vector; with the contribution of selection the processes to the wage differential being $\beta_{\lambda m}\overline{\lambda}_m - \beta_{\lambda n}\overline{\lambda}_n$. Thus, the average wage differential between migrants and non-migrants is decomposed as:

$$\overline{w}_m - \overline{w}_n = \beta^{*'}\left(\overline{X}_m - \overline{X}_n\right) + \left(\beta_m - \beta^*\right)'\overline{X}_m + \left(\beta^* - \beta_n\right)'\overline{X}_n;$$

Where $\overline{w}_j$ represents the average wage of group j expressed in logarithmic form; $\overline{X}_j$ a vector of the means of regressors; $\overline{\lambda}_j$ the means of selection terms and the vector of associated coefficients. β^* is the arithmetic mean of the coefficients in β_j.

The analysis ends up estimating a structural migration equation to determine whether the net benefit of migration (Note 8) influences the likely of an individual to migrate either to Yaoundé or Douala.

$$A_i^* = \gamma_0 + \gamma_1\left[\overline{\ln\left(W_{im}\right)} - \overline{\ln\left(W_{in}\right)}\right] + \gamma_2'X_i + \gamma_3'Z_i + u_i \qquad (6)$$

3. Data

The data used in this study are drawn from the National Institute of Statistics' 2005 *Employment and the Informal Sector Survey*. Information was collected over 8,540 households that is 38,599 individuals around the country. Coverage was restricted to 4,594 residents of Yaoundé and Douala aged between 16 and 65. Since civil servants' location choice is decided by administrative authorities, this category of workers is excluded from the analysis. For each individual, the data furnish information on earnings, age, sex, state of employment, along with the characteristics and the environment of the employment. These factors can be grouped into determinants of the migration decision and those of wages. The decision to migrate being essentially governed by human capital (education) and personal characteristics (among which, age, marital status, sex, presence of children in the household, job experience). Wage determinants are divided into personal characteristics, human capital and job characteristics. Table 1 give details on these variables and Table 2 shows some descriptive statistics associated with migrants and non-migrants.

Within the entire pool, 75.07 percent are migrants (74.8% in Yaoundé and 75.2% in Douala). In this sample, the average migrant is older than the non-migrant (the mean ages being 33 and 29 respectively for migrants and non-migrants), slightly more experienced and likely to be a female living alone. In fact, women represent 52 and 49.5 percent of migrants in Yaoundé and Douala, indicating an equal attitude of men and women toward migration. Of all the sampled individuals, those having the level of secondary education represent the highest proportion. As far as the employment is concerned, only few migrants are employed as a manager, an engineer or a member of the supervisory staff; 31.3 (resp. 33.3) percent of them are self-employed in Yaoundé (resp. in Douala).

Table 1. Definition of variables included in the analysis

Variables	Description
Migrant	A dummy variable equal one if the individual is not a native of his zone of residence (Yaoundé or Douala).
lnWage	Wage is an estimation of the mean income generated by the activity of an individual during a month. It represents the monthly wage for those who are employed and the income generated by the activity for the self-employed. Thus lnWage is the natural logarithm of the monthly earning.
Education	Dummy variables designating No-education, Primary school, Secondary, or some high school. They are coded either 1 or 0.
Age	Age in years.
Female	An indicator of marital sex coded 1 if female and 0 otherwise.
Single	An indicator of marital status. It is coded 1 if not married, widow, or divorced) and 0 otherwise.
Experience	Indicates the number of years spent in actual employment.
Religion	Dummy variables designating Christian, Muslim or Other-religion.
Self-employment	1 if self-employed; 0 otherwise.
Manager	Dummy variable designating the socio-professional group. It is coded 1 if manager (middle or senior manager; engineer, or member of the supervisory staff); 0 otherwise.
Informal sector:	An indicator of labor market sector location. It is coded 1 if

	located in the informal sector and 0 if in formal one (be it public or private).
NIPU	Number of informal production units identified in the respondent's zone of residence.
Presence of children	A dummy variable indicating whether or not there exist children in the household. This it is coded 1 or 0.
Lambda migration/employment	Represent the selectivity controls variables.

The Cameroonian National Institute of Statistics give the monthly mean income of both wage earners and self-employed; it appears that migrants earn more than non-migrants in both cities. Since the differences in average number of years of education are not statistically significant, we expect these differences to be due to differences in characteristics other than human capital. Education represents an investment that should be positively related to both labor force participation and earnings. This variable is disaggregated into three dummy variables (primary school education, secondary education and high school education) in order to capture some nonlinear effects.

Table 2. Selected sample characteristics by city and migration status

Variables	**Yaoundé**		**Douala**		**Total**
	Migrants	**Non-migrants**	**Migrants**	**Non-migrants**	
			Mean		
			(standard deviation)		
Age	32,93	28,32	34,74	29,65	32,76
	(10,968)	(9,386)	(11,488)	(9,768)	(11,114)
Experience	4,231	3,787	5,044	3,951	4,52
	(5,970)	(5,193)	(5,995)	(4,910)	(5,795)
NIPU	0,332	0,283	0,392	0,278	0,345
	(0,509)	(0,507)	(0,551)	(0,487)	(0,526)
Wage (x 10^3)	59,699	48,448	65,217	52,056	60,113
	(82,09)	(83,53)	(88,042)	(76,425)	(84,409)
			Proportions		

Sex					
Male	0,48	0,448	0,505	0,484	0,48
Female	0,52	0,552	0,495	0,516	0,52
Education					
No education	0,043	0,013	0,044	0,014	0,036
Primary	0,313	0,263	0,295	0,245	0,291
Secondary	0,563	0,664	0,582	0,661	0,595
High	0,081	0,060	0,079	0,080	0,078
Marital Status					
Couple	0,390	0,214	0,514	0,286	0,411
Single	0,610	0,786	0,486	0,714	0,589
Religion					
Christian	0,867	0,919	0,857	0,872	0,869
Muslim	0,084	0,044	0,067	0,030	0,064
Other religion	0,049	0,037	0,076	0,098	0,067
Self-employed	0,313	0,260	0,333	0,244	0,306
Manager	0,052	0,025	0,050	0,042	0,047
Migrant					0,750
Employed					0,670

Source : EISS (2005)

The *Age* variable is included in the migration equation to reflect the widely held notion that the probability of migration declines with age; thus the coefficient of this variable is expected to be negative; age squared captures quadratic effects of age on earnings. The *Female* dummy variable controls for the influence of sex on both labor market outcomes and migration decisions. We expect males more likely to live rural areas than females especially when the later have new born babies. As far as Religion is concerned, Muslims are expected to be less likely to participate to the labor market, as compared to the others, especially in the formal sector. This is partly due to their low endowment in productivity characteristics such as education.

Traditional human capital migration theory suggests that migration is determined by the prevailing wage rate at the destination and the likelihood of obtaining employment at the destination (Todaro, 1969; Harris & Todaro, 1970). Thus, areas with high likelihood of providing employment and increasing lifetime earnings are expected to attract migrants. The variable NIPU, related to the prospect of finding a job (at least in the informal sector) in the neighborhood, is thus expected to increase both migration and labor force participation probabilities. The occupation is broadly divided in two categories managerial and non-managerial (reference category). The expectation is that those in the managerial category will have the highest earnings. Demographic variables such as marital status, reflect incentives to work and increase earnings.

3. Empirical Results

3.1 Migration Decision and Labor Force Participation

Maximum likelihood estimates of migration and labor force participation decisions are presented in Table 3. The correlation coefficient ρ is positive and statistically different from zero; this suggest that migration and labor force participation decisions are influenced by the same random forces; the positive sign indicates that unobservable factors that determine labor force participation decisions are likely to encourage individuals' migration to Yaoundé and Douala. Age, Sex, marital status, education and religion influence both decisions. Singles have better chances than those living with their spouse to participate to the labor market. Unlike Margirier (2006), women are 16.7 percent less likely than men to migrate and find a job on the labor market. This result reflects the traditional theory of family responsibility in which husbands account for earnings (and are involved in the job search process which conducts to migration) while women concerns is about rearing children. Further, boys unlike girls prefer urban lifestyle to country life and tend to modify the rural sex-ratio. This women risk aversion is perceptible in the sample, as the proportion of migrants is relatively higher in male population (76.05%) that in female one.

Despite their high propensity to migration, few Muslims enter the labor market. However, their chances of becoming migrant-worker are 7.1 percent greater than those of other religious faiths. The traditional view that migration is more common behavior for the highly-educated people than for low educated workers (Da Vanzo, 1983) is rejected in this study. In fact, over the bulk of individuals who migrated for because matters related to the labor market, only 27.37 percent had a job, meaning 73.63 percent where speculating migrants. In the later group, the proportion of individuals concerned decreases as the level of education increases (we have 77.12%, 72.96%, and 55.74% of speculating-migrants respectively for primary, secondary, and high school). The idea being that highly graduated have grater opportunities in the labor market and thus are less likely to move from one area to another once they have a job. The number of informal production units in the neighborhood has a positive influence on both decisions.

Table 3. Bivariate probit estimation of migration and labor force participation decisions

Variables	**Migration**	**Participation**	**Marginal Effect**
			Pr (migrant=1, employed=1)

Age	0,019***	-0,006**	0,005***
	(9,04)	(-2,48)	(6,56)
Female	-0,188***	-0,998***	-0,167***
	(-3,49)	(-14,87)	(-7,76)
Single	-0,441***	0,110**	-0,106***
	(-9,70)	(2,11)	(-7,06)
Presence of children	-0,423***	0,043	-0,114***
	(-6,45)	(0,58)	(-5,28)
Female* Presence of children	-----	-0,202*	0,039
		(-2,03)	(1,47)
Education	-0,392**	0,734***	-0,038
Primary	(-2,51)	(4,40)	(-0,73)
	-0,530***	0,859***	0,005
Secondary	(-3,43)	(5,22)	(0,10)
	-0,494***	1 232***	-0,087
High	(-2,90)	(6,82)	(-1,34)
Religion	0,015	-0,181*	-0,017
Christian	(0,19)	(-1,96)	(-0,69)
	0,391***	-0,133	0,071**
Muslim	(3,14)	(-0,98)	(2,08)
	0,093**	3 608***	0,494***
NIPU	(2,26)	(11,84)	(15,93)
	0,883***	0,003	
Constant	(4,47)	(0,01)	
Athrho		0,070**	
		(2,18)	
Rho		0,070	
LR Test Rho = 0			
Chi2 (1) = 4,750 / Prob > Chi2 = 0,0293			
N=		4546	
Wald chi2(20) =		1373,04	
Prob > chi2 =		0,0000	

Note: Dependant variables: Migration and Labor force participation. t-student in parentheses. *No-education* and *Other religion* are reference categories for education and religion. *** (**)* Statistically significant at 1% (5%) and 10%.

3.2 Migration, Earning Determinants and Differentials

Earning equations are specified to include only those variables which are thought to influence earnings in a manner distinct from their in impact on migration and labor force participation decisions. Estimates presented show that the model is globally significant, most of parameters

too (see Table 4). Of particular interest are the estimated coefficients of the selectivity variables. The positive selection to the labor market for both groups means that there is a positive correlation between unobservable factors that determine labor market entry and earnings. The migration selection term is statistically significant for migrants only. The negative sign of that selection coefficient for migrants is counterintuitive, since it is not reflecting the mean wage differential in favor of migrants. Despite its conformity with Margirier's findings, this result contrasts with those by some authors who found a positive selection coefficient (Nakosteen & Zimmer, 1980; Shumway & Hall, 1996; Détang-Dessendre et al., 2005).

Table 4. Migrants/non-migrants earning equations

Variables	**Migrants**	**Non Migrants**
Age	0,0776***	0,0689***
	(6,74)	(3,26)
$Age^2/100$	-0,0009***	-0,0006***
	(-6,70)	(-2,25)
Male	0,5278***	0,5026***
	(13,30)	(7,18)
Single	-0,0599	-0,0744
	(-1,64)	(-1,32)
Experience	0,0164***	0,0179***
	(5,31)	(2,67)
Education		
Primary	0,1365	0,4055
	(1,43)	(1,00)
Secondary	0,3655**	0,5628
	(3,57)	(1,39)
High	0,9083***	0,9747***
	(7,37)	(2,34)
NIPU	0,1402***	0,2560***
	(2,83)	(3,07)
Manager	0,4476**	0,5924***
	(5,57)	(4,88)
Informal sector	-0,4552***	-0,4830***
	(-11,26)	(-7,05)
Lambda migration (λ_m)	-2,1043**	1,1643
	(-2,98)	(0,92)
Lambda employment (λ_p)	1,6547***	1,5411***
	(6,24)	(3,58)
	2,0409***	0,4638

Constant		(4,84)		(0,55)
N=		2193		630
F(. , .)	=	F(13, 2179)=	105,94	F (13, 616) =30,19
Prob > F	=	0,0000		0,0000
R-squared	=	0,4272		0,4171

Note: Dependant variable: Wage. t-student in parentheses. *No-education* and *Other religion* are reference categories for education and religion. *Formal private and Other categories* are reference category for the labor market sector and socio-professional group. *** (**)* Statistically significant at 1% (5%) and 10%.

Notwithstanding these, there appears a positive relationship between age and earnings but this relationship becomes negative for migrants (respectively. non-migrants) who are over 43 (resp. over 57). Earnings differentials between men and of women in Douala and Yaoundé are approximately 69.5 percent ($e^{0,5278}$-1) in the migrants group and 65.30 percent ($e^{0,5026}$-1) in the other one. The greater the education level, the greater the income; differences between non-educated individuals and high school graduates are much more pronounced in the non-migrant group (165.03% vs. 148.01%). Returns to experience and status are greater for non-migrants than for migrants. For example, manager's earnings are approximately 80.83 percent higher than that of other employees in the non-migrants and only 56.45 percent in the other one. The informal sector variable is significant and negatively related to earnings.

Does this differentiated contribution of determining factors cumulate to earning discrimination between migrants and non-migrants? The answer to this question is given by the Oxaca-Blinder decomposition of the wage gap between migrants (considered as the high-wage group) and non-migrants (the reference group). This decomposition shows how much of the wage gap is due to differing endowments between the two groups and the portion of the wage gap due to the combined effect of coefficients and slope intercepts for the two groups; the latter proportion being regarded as the discriminatory part (see Table 5). The results are presented using Blinder's (1973) original formulation of E, C, U and D. (Note 9)

Table 5. Earnings decomposition results for variables (as %)

	Endowments	Coefficients	Attributable
Variables			
Age	33.7	26.8	60.5
$Age^2/100$	-30.0	-32.7	-62.7
Male	1.6	1.4	3.0
Single	1.2	0.8	2.1
Experience	1.3	-0.7	0.7
Primary education	1.1	-5.8	-4.7
Secondary education	-4.2	-13.6	-17.8
High education	0.4	-0.6	-0.2
NIPU	0.9	-5.8	-4.8
Manager	0.7	-0.9	-0.2

Informal sector	1.3	2.2	3.6
Lambda Migration	4.7	-130.6	-125.9
Lambda Employment	-2.8	4.3	1.6
Subtotal	**10.1**	**-155.0**	**-144.9**

Summary decomposition results (as %)	
Amount attributable to shift coefficients (U)	157.7
Amount attributable to coefficients (C)	-155.0
Amount attributable to endowment (E)	10.1
Adjusted differential (D=C+U)	2.7
Raw differential (R=E+C+U)	12.8

Source : Estimation.

By comparing the output of the two regression equations, it appears that migrant workers have higher constants and this is reflected in the 157.7% advantage in U. As they get older, migrants have higher returns to experience and unobservable determining selection to the labor market, especially when they are male, single and informal sector workers. The contributions of these factors is not sufficient enough to offset others (age^2/100, education, NIPU, and the socio-professional group variable); leaving migrants with a net disadvantage in C of -155.0 percent. From the comparison of high-wage and the reference group, it is clear that differences in endowments between migrants and non-migrants are considerable; the most contributing variables being age, unobservable factors determining the migration decision, and to some extent sex. This group difference is reflected in the figure of E, which is 10.1%. All what precedes results in relative high difference between the raw differential (R=12.8%) and the adjusted differential (D=2.7%). In other words, 21.3% (D/R) of the difference between migrants and non-migrants workers is unexplained. This difference is made up of difference in the shift coefficient (U) and differences in how the endowments are rewarded (C).

Are these differences enough to determine the move decisions? The estimation of the structural equation of migration (see Appendix 2) highlight that, the net benefit of migration does not influence individual move decisions. This finding is compatible with the idea that incomplete information affects movers; the have no information about their potential wage either at the destination zone (as migrant) or at the location zone (as non-migrant). This distinctive characteristic of speculative migration is consistent with classical theory in which geographic mobility is an attempt to escape joblessness.

4. Conclusion

This study aimed at evaluating the interrelationships between migration status and wages in urban Cameroon. A bivariate probit estimation procedure with non-independent selectivity adjustments is employed to investigate the determinants of the joint labor force participation-migration decisions. The wage gap between migrants and non-migrant is decomposed using a variant of Oaxaca-Blinder method. The econometric results reveal that

individual and employment characteristics determine wage differentials between migrants and non-migrants. Unexplained difference accounts for 21.3 percent of the total raw differential between the two groups. However, these wage differentials have no influence the likeliness to move to urban area. While invalidating the regional wage difference gap determined hypothesis (Todaro, 1971; Borjas, 1994), this result confirms the speculative migration based hypothesis.

References

Adepoju, A., (1988). Migration et urbanisation en Afrique : problèmes et politiques. In Van de Walle, E., Sala-Diakanda, D., & P. Ohadike (eds), *L'état de la démographie africaine*, (pp. 123-138), Union Internationale pour l'Étude Scientifique de la Population, Liège (Belgique).

Blinder, A. S. (1973). Wage discrimination: reduced form and structural estimate. *Journal of Human Resources*, *8* (4), pp.436–455.

Bocquier, P., & LeGrand, T. (1998). L'accès à l'emploi dans le secteur modern. In Antoine P., Ouédraogo, D., & V. Piché (eds), *Trois générations de citadins au Sahel. Trente ans d'histoire sociale à Dakar et à Bamako* (pp.77-116). Paris, L'Harmattan.

Boehm, T. P., Herzog, H. W., & A. M. Schlottmann (1998). Does migration matter? Job search outcomes for the unemployed. *The Review of Regional Studies*, *28* (1), pp.3-12.

Borjas, G. J (1987). Self-selection and the earnings of immigrants. *American Economic review*, *77* (4), pp.531-553.

Borjas, G. J (1994). The economics of migration. *Journal of Economic Literature*, *32* (4), pp.1667-1717.

Chiswick, B. (1978). The effect of Americanization on the earnings of foreign-born men. *Journal of Political Economy*, *86* (5), pp.897-921.

Da Vanzo, J. (1983). Repeat migration in the United States: who moves back and who moves on? *Review of Economics and Statistics*, *65* (4), pp.552-559.

Détang-Dessendre, C. (1999). Reciprocal link between exit from unemployment and geographical mobility. *Environment and Planning A.*, *31*(8), pp.1417-1431.

Détang-Dessendre C., Drapier, C., & H. Jayet (2005). *The impact of migration on wages: empirical evidence from French youth*. Unpublished manuscript.

INS (2001). *Enquête Camerounaise auprès des Ménages*. Direction de la Statistique et de la Comptabilité Nationale, Ministère de l'Economie et de la Planification, Cameroun.

INS (2005). *Enquête Emploi dans le Secteur Informel : Phase I, enquête sur l'emploi : Premiers indicateurs*. Direction de la Statistique et de la Comptabilité Nationale, Ministère de l'Economie et de la Planification, Cameroun.

Goss, E. P., Paul, C., & Wilhite, A. (1994). Duration of unemployment: geographic mobility and selectivity bias. *Review of Regional Studies*, 24, pp.127-142.

Greene, W. (1993). *Econometric Analysis*, New-York, Macmillan Publisher Company.

Greenwood, M. J. (1975). Research on internal migration in the United States: a survey. *Journal of Economic Literature*, 13, pp.397-433.

Greenwood, M. J. (1985). Human migration, theory, models, and empirical studies. *Journal of Regional Science*, 25, pp.521-544.

Harris, J. R. & Todaro, M. P. (1970). Migration, unemployment and development: a two-sector analysis. *American Economic Review*, 60, pp.126-142.

Heckman, J. (1976,). The common structure of statistical models of truncation, sample selection and limited dependent variables and a simpler estimator for such models. *Annals of Economic and Social Measurement*, 5, pp.475-492.

Heckman, J. (1979). Sample selection bias as a specification error. *Econometrica*, 47, pp.153-161.

ILO (2004). *Towards a fair deal for migrant workers in the global economy*. Geneva, International Labor Organization.

IOM (2003). *World migration report*, Geneva, International Organization for Migration.

Kishimba, N. (2002). Générations et processus d'insertion sur le marché de l'emploi à Yaoundé. In Gendreau, F., Tabutin, D., & M. Poupard (eds), *Jeunesses, vieillesses, démographies et sociétés* (pp.197-218), Louvain-la-Neuve, Academia bruylant, L'Harmattan.

Konseiga, A. (2005). *New Patterns in the Human Migration in West Africa*. Unpublished manuscript, Center for Development Research, University of Bonn, Germany.

Kriaa, M., & Plassard, J. M. (1996). La mobilité géographique des diplômés de l'enseignement supérieur français : processus de double sélection et fonctions de gains. *Recherches économiques de Louvain*, *62* (1), pp.95-122.

Lucas, R. (1997). Internal migration in developing countries. In Rosenzweig, M. R., & Stark, O. (eds), *Handbook of Population and Family Economics*, Elsevier Science BV.

Margirier, G. (2006). Mobilité géographique et salaries à l'entrée sur le marché du travail. *Revue d'Economie Politique*, *116* (5), pp.657-679.

Mincer, J. (1974). *Schooling, experience and earnings*. Columbia University Press, New York.

Munshi, K. (2003). Networks in the modern economy: Mexican migrants in the US labor market. *Quarterly Journal of Economics*, *118* (2), pp.549-599.

Nakosteen, R. A., & Zimmer, M. (1980). Migration and income: The question of self-selection. *Southern Economic Review*, 46, pp.840-851.

Newbold, B. K. (1996). Income, self-selection and return and onward interprovincial migration in Canada. *Environment and Planning A.*, 28, pp.1019-1034.

Oaxaca, R. (1973). Male-female wage differential in urban labor markets. *International Economic Review*, *14* (3), pp.693-709.

Piché, V., & Gingras, L. (1998). Migrer un atout pour l'emploi?. In Antoine P., Ouédraogo, D., & Piché, V. (eds), *Trois générations de citadins au Sahel. Trente ans d'histoire sociale à Dakar et à Bamako* (pp.47-76), Paris, L'Harmattan.

Robinson, C., & Tomes, N. (1982). Self-selection and interprovincial migration in Canada. *Canadian Journal of Economics*, *15* (3), pp.474-502.

Rogaly, B. (2003). Who goes? Who stays back? Seasonal migration and staying put among rural manual workers in eastern India. *Journal of International Development*, 15, pp.1-10.

Shumway, J. M., & Hall, G. (1996). Self-selection, earnings and Chicano migration: differences between return and onward migrants. *International Migration Review*, *30*(4), pp.979-994.

Sjaastad, L. (1962). The costs and returns of human migration. *Journal of Political Economy*, 70, pp.80-93.

Stark, O. (1991). *The Migration of Labor*, Cambridge Massachusetts, Basil Blackwell.

Stark, O., & Levhari, D. (1982). On migration and risk in less developed countries. *Economic Development and Cultural Change*, *31* (1), pp.191-196.

Tienda, M., & Wilson, E. D. (1992). Migration and earnings of Hispanic mem. *American Sociological Review*, 57, pp.661-678.

Todaro, M. (1969). A model of labor migration and urban development in less developed countries. *American Economic Review*, 59, pp.138-148.

Todaro, M. (1971). Income expectations, rural-urban migration and employment in Africa. *International Labor Review*, 104, pp.387-413.

Traoré, S. (1997). L'insertion professionnelle en milieu urbain ouest-africain. In Rallu, J. L., Courbage, Y., & Piché, V. (éds), *Old and New Minorities/Anciennes et nouvelles minorités* (pp.251-268), Paris, John Libbey et INED.

Tsafack-Nanfosso, R. (2003), *The Chad Cameroon pipeline and employment: what lessons?* Yaoundé, Presses Universitaires d'Afrique.

Tunaly, J. (1986). A general structure for models of double selection and an application to a joint migration/earnings process with remigration. *Research in Labor Economics*, 8 (Part B), pp.235-282.

Van Dijk, J., Schlottman, A., Folmer, H., & Herzog, H. (1988). Efficiency of job matching mechanisms: A cross national comparison. *Papers of the Regional Science Association*, 64, pp.79-94.

Van Ommeren, J, Rietveld, P., & Nijkamp, P. (1996). Residence and workplace relocation: A bivariate duration model approach. *Geographical Analysis*, 28, pp.315-329.

Winters, P., de Janvry, A., & Sadoulet, E. (2001). Family and community networks in Mexico-US migration. *Journal of Human Resources*, *36* (1), pp.159-185.

Zax, J. S. (1991). The substitution between moves and quits. *The Economic Journal*, 101, pp.1510-1521.

Appendix

Appendix 1. Spatial distribution of population in Cameroon by migration status

	Population		Migrants		
Provinces	1976	1987	Out	In	Net Migration
Adamaoua	4.69	4.72	60,619	41,085	19,534
Centre	15.36	15.74	300,758	182,312	**118,446**
East	4.78	4.93	57,678	44,812	12,866
Far-North	18.21	17.68	34,056	146,702	- 112,646
Littoral	12.21	12.89	427,617	157,385	**270,233**
North	6.25	7.93	130,696	45,166	85,530
North-west	12.76	11.79	41,159	157,164	- 116,005
West	13.52	12.77	98,674	389,611	- 290,937
South	4.11	3.65	56,587	83,328	- 26,741
South-west	8.10	7.99	111,208	71,488	39,720
Cameroun	100,0	100.0	-	-	-

Source: National Demographic Survey, Vol. III, Tome 9

Appendix 2. Logit estimates of the structural migration equation

Variables	**Migration**
$\overline{\ln(W_{im})} - \overline{\ln(W_{in})}$	0,9851
	(1,17)
Age	0,0565***
	(9,51)
Female	0,3297**
	(2,50)
Presence of children	-0,0986
	(-0,69)
Female* Presence of children	-0,3353
	(-1,64)
Education	-0,8158
Primary	(-1,23)
	-1,1881*
Secondary	(-1,86)
	-1,2481*
High	(-1,91)

Religion	-0,0815
Christian	(-0,49)
	0,5276
Muslim	(1,59)
	0,2180**
NIPU	(2,20)
	0,2942
Constant	(0,39)

N=	3080
LR chi2(11) =	202,38
Prob > chi2 =	0,0000
Pseudo R^2=	0,0606

Note: **Dependant variable: Migration** t-student in parentheses. *No-education* and *Other religion* are reference categories for education and religion. *** (**)* Statistically significant at 1% (5%) and 10%.

Notes

1. United Nations report that in 2007 urban resident where 3.3 billions that is, about four times the number in 1950.

2. Most of the time, a labor force entrant stays at his place of origin when searching for a job on several labor markets; he migrates only if the first acceptable offer is not a local one.

3. The 2001 *Cameroon household survey* reports that 6, 217 058 individuals over 15, 472 557 inhabitants (that is 40.2% of total population), 12.3 percent of urban households, and 39.7 percent of rural ones lived below the poverty line (INS, 2001).

4. While only 1.8 percent (that is 3.6 of men and 0.1 of women) of workers in the informal agricultural sector are salaried, their counterpart in the non agricultural informal sector accounts for 22 (33.7 for men and 10.2 for women) percent (INS, 2005).

5. Migration of individuals some times depends upon the employment opportunities offered in the environment. This was observed during the pipeline Tchad-Cameroun construction; Tsafack-Nanfosso (2003) gives evidence on this.

6. These error terns are independent because the regimes they refer to are mutually exclusive. However, the correlation between these error terms and those of the bivariate probit model is taken into account in the selection term.

7. Most applications of the technique can be found in the labor market and discrimination literature

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8. The net benefit of migration is given by the difference $\overline{\ln(W_{im})} - \overline{\ln(W_{in})}$, were $\overline{\ln(W_{ij})}$ represent predicted log of wage.

9. In this setting, selection terms are considered as ordinary variables. The endowments (E) component of the decomposition is the sum of (the coefficient vector of the regressors of the high-wage group) times (the difference in group means between the high-wage and low-wage groups for the vector of regressors). The coefficients (C) component of the decomposition is the sum of the (group means of the low-wage group for the vector of regressors) times (the difference between the regression coefficients of the high-wage group and the low-wage group). The unexplained portion of the differential (U) is the difference in constants between the high-wage wage and the low-wage group.