



# Socio-Economic Issues in Cameroon

**Edited By  
Benjamin Yamb**

**Vol.2**



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# Socio-Economic Issues in Cameroon

Vol.2

**Editor**

**Benjamin Yamb**

University of Douala, Cameroon

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*Socio-Economic Issues in Cameroon, Vol.2*

Editor: *Benjamin Yamb*

University of Douala, Cameroon

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# Preface

**C**h.1) This chapter highlights the various corrupt practices between applicants and educational staff during examinations / competitive exams in order to succeed in the Cameroon educational system. An odds ratios Analysis from the supply side revealed that in most of the regions studied, the magnitude of the payment of bribes to school leaders for success (Director / Principal) as compared to that of their employees is about 2.62 times higher. In the same vein, our estimates show that in about 70.8% of cases, the leaders of these institutions are the most needed in recommending candidates for their success in various exams. We highlighted from the demand side the characteristics of examinees through a Bernoulli distribution; it appears that the non-poor, women, the youngest and workers are the categories of people who are most vulnerable to corrupt practices.

Ch.2) This chapter is a continuation of our previous works on the determinants of multiple jobs of lecturers in Cameroonian State universities. It lays particular emphasis on human resource management used in these universities. The methodology makes use of the logit analysis on survey data. The results obtained show that contrary to the theoretical and empirical literature, time constraint in the main job does not appear to be an important

explanatory factor for the multiple jobs phenomenon. However, gender, the universities' location, salary earned from secondary jobs and the holding of an administrative position in a university play a major role in explaining the phenomenon. This paper thus presents a certain interest linked to the specificity of these jobs (lack of monitoring, opportunism in behaviors, social pressures related to them) on the one hand, and the coaching of the human resource used on the other. Governmental incentive measures are proposed to limit this dual employment phenomenon which tends to deteriorate the quality of lectures provided.

(Ch.3) This chapter highlights initiatives taking in the act of corruption between applicants and schools authorities in the Cameroon educational system during students' registration. An odds ratios analysis for the entire country and by region showed that in about 66.67% of cases in this educational system, the initiative for corruption comes from the Heads of institutions, and it is led by some motives such as the limited seats, the school facilities, the poor quality of applications and the compulsory requirement to buy school items. However, despite the fact that the magnitude of the initiative for the corrupt action by the teaching staff is more important than that of applicants in all regions, we nevertheless highlighted their characteristics through a Poisson regression. In particular the empirical analysis revealed that urban and rich people take more initiative than rural and poor people as far as corrupt actions are concerned.

(Ch.4) This study seeks to identify the determinants of moonlighting among lecturers of Cameroonian state universities. To do this, we apply a log-linear model to data from a random sample survey of lecturers from Cameroonian state universities. The results show that in addition to the classical determinants of moonlighting (hours of work in the main job, pay in the primary job, pay in the secondary job) gender and the localization of the university also play major roles. Descriptive statistics also show that moonlighting lowers the quality of lectures. Incentives from the government are therefore proposed as a means of reducing the phenomenon of moonlighting in Cameroonian state universities.



(Ch.5) Using a method of funding is not accidental. It is based on factors of choosing a financing method. However, these factors do not all exert the same influence to lead to a type of financing, especially in the context of Small and Medium size Enterprises (SMEs) in a situation of bank credit rationing like those of Cameroon. Thus, the results obtained from a sample of 452 SMEs in Douala Cameroon, through a logistic regression model, revealed that factors such as the cost of financing, the power dilution and the financial flexibility are at least three times more likely to guide the SMEs to short-term financing than to the long and medium-term ones.

Editors

**B. Yamb**

October 10, 2019

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# 1

## The effects of corruption on public schools examinations in Cameroon

Benjamin YAMB<sup>a</sup> & Oscar BAYEMI<sup>b</sup>

### Introduction

Education is a fundamental human right and an engine of development, both personal, economic and social. It is seen in many countries in the world as essential to a better future, and provides the tools people need to ensure the sustainability of their livelihoods, live in dignity and contribute to social progress ([Transparency International, 2013](#)). Education is based on meritocracy. Also, it offers equal opportunity to all candidates for key positions in the company, selecting those that best meet the evaluation criteria.

Unfortunately, in many countries of the world, especially the poorest where corruption is a norm, the evaluation criteria are no

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Ch.1. The effects of corruption on public schools examinations in Cameroon  
longer taken into account, to the extent that individuals without merit are able to succeed dishonestly.

According to the World Report on Corruption in Education (2013), "Corruption is a disease that causes lasting damages to all members of the society; it is one of the most important hindrances to the achievement of the Millennium Development Goals (MDGs) and, therefore, should be strongly resisted." Gupta *et al.*, (2002) found that corruption always leads to higher costs and lower quality of education, including examinations.

To address this issue, several studies have been conducted over the past two decades by various institutions (Transparency International, World Bank, International Monetary Fund, universities). These researchers used the general analysis of corruption practices in the public sector, based on the popular definition that "corruption is the use of public resources for private purposes." In this context, some authors like Mauro (1997), Tanzi & Davoodi (1997) examined the practices of high corruption involving senior policy makers as well as huge financial amounts. For instance, Mauro (1997) found that corruption reduces expenditure on education, including those related to the organization of exams, because they do not easily give themselves in corrupt practices which are profitable to officials in charge of the allocation of the overall amount of the budget to the various sectors of the economy. Other authors such as Karim (2004) and Chaudury *et al.*, (2003) studied the practices of little corruption with small amounts that involve officials at all levels of the educational system. For example, in the case of Bangladesh, Karim (2004) found that more than 96% of students paid illegal fees in order to succeed in their first term examinations. These works are important because they have contributed in improving the strategies to fight against corruption. In particular, they have helped to know that by institutionalizing people's right to information on the activities of civil servants in the educational sector, they will be forced to improve their behaviors. But they are limited because of lack of knowledge related to factors behind this phenomenon, especially small corruption. If the theoretical literature offers a detailed reading grid (Mocan, 2004; Lui, 1985;



Kaufman & Wei, 1999) of specific situations, the empirical literature, nevertheless, remains limited.

An inquiry on corruption conducted by the National Institute of Statistics in Cameroon (INS) focused on households and individuals<sup>1</sup> (2007). The Institute used only the part on households to determine the regions of Cameroon where they pay non-regulatory fees or ask for the intervention of VIPs to pass exams (2011). This study is important because it shows that the percentage of people who wrote an exam during the last 12 months before the survey was 3.1%. Referring to the last examination successfully accomplished, 3.3% of candidates said they gave money or received the intervention of an authority to succeed. This practice is present in 50% of the 12 regions of the country. However, it is more declared in the Littoral (except Douala), the Far North and in Yaoundé, where the ratios are 16%, 9% and 6.4% respectively. The study also revealed that this practice affects only the rich. One of the shortcomings of this investigation is that it did not inform us, from the supply side, about the agents who receive non-regulatory fees. Are they school principals or their employees? Moreover, from the demand side, there is no information related to the characteristics of households that paid bribes. It is true we know they are not poor. But we would have also liked to know if they were women or men. This article aims to fill this gap, by exploring the micro-economic mechanisms at the origin of small corruption in the Cameroon educational sector. Contrary to the National Institute of Statistics

<sup>1</sup> The data used in this work are essentially those of the last two Cameroonian household surveys (ECAM2 of 2001 and ECAM3 of 2007), focused on the profile of poverty and living conditions of populations in Cameroon and PETS2 Education 2010 (*Survey on the monitoring of public expenditure and the level of beneficiary satisfaction in the Education and health sectors*), with sample sizes of about 12,000 households provided for ECAM3 and PETS2, and 4500 households for the specific section on corruption. Apart from the inquiry on households, ECAM3 and PETS2 also interviewed people on corrupt practices that have benefited from similar techniques. It's on individuals' sample that this study is carried out and not on households. Thus, compared to ECAM3, approximately 16,514 individuals were interviewed and almost 2,000 for PETS2.

(INS) who used part of the investigation on households, we will rather use the part relating to individuals. So, we will focus on individuals that collect non-regulatory fees for candidates to pass their exams in public schools. The theoretical literature distinguishes the public servant who enjoys a monopoly situation, and the one who does not (Shleifer & Vishny, 1993). In contrast to the latter, the former can easily collect bribes because he or she is unavoidable.

In Cameroon, the National Commission for the Fight against Corruption (CONAC) gave mitigated results as far the fight against corruption in official examinations and competitive exams is concerned. This is partly due to the fact that they ignore the identity of the actors behind this issue. The purpose of this study is twofold: first and foremost, it helps to identify people who, on the side of the educational institutions, receive more bribes for success during examinations or competitive exams. Secondly, it will seek to identify from the demand side, the characteristics of examinees that are most vulnerable to this phenomenon. In both cases, we will highlight areas where the phenomenon is most widely practiced.

The following part of this chapter is organized as follows: the second section provides a brief review of the literature on corruption in examinations. The third section presents how examinations/competitive exams are practiced in Cameroon, and factors that expose this practice to corruption. Section four models the behavior of those who receive bribes, as well as that of those who pay them. The presentation of data used and some descriptive statistics are presented in section five. Section six presents the results of estimates and discusses them. Section seven provides economic policy measures against corruption and section eight concludes.

## Literature review

According to the economic theory, an individual weighs the costs and benefits of acting dishonestly, and compared them with the costs and benefits of acting honestly, and then, chooses the path that maximizes his own interests (Jaen & Paravisini, 2007). Also, the economic agent chooses to corrupt when this act is

advantageous to him. The initiative for such an action can either come from the agent, the user or the both.

However, in the field of education, the ability of the agent to take initiative for corrupt action would be more important than that of the user in so far as the State agent simultaneously has the monopoly and discretion power on applicants and on decisions he takes, and less responsibility for results obtained (Klitgaard, 1989).

Monopoly creates opportunities for corruption by limiting the ability of citizens to choose other providers of educational services. If the government is the only provider of educational services, students and their parents may be forced to pay bribes for access.

Discretion refers to the autonomy enjoyed by a State official in decision making. Teachers or lecturers can abuse their power by selling information on examinations, soliciting bribes in exchange of good grades (Bettina Meier, 2013). Having a discretion power without adequate control can create opportunities for corruption.

Responsibility can be considered as the requirement that the educational system managers are accountable for the results they get, and failure to do it creates opportunities for corruption. Klitgaard's (1989) equation thus reinforces the idea that corruption would be passive (Dommel, 2003).

The close links between social and academic corruption can promote initiative taking. Companies whose meritocratic standards are low generally favor the practices of academic corruption. For example, in these societies, a person can obtain a diploma or a promotion simply because he /she belongs to a certain family without this causing any protest (Michelsen Institute, 2006): that's the case in Cameroon where the success in some competitive exams namely those related to the public service obeys at 90% to the intervention of an authority (INS, 2011). Good students who are not favored fail.

Cultural aspects can also favor the taking of initiative for corrupt actions. In fact, in many countries, parents and students make gifts for teachers as a token of their gratitude. This poses any problem as long as no benefit is expected in return. But this practice can turn into extortion and parents who are not rich may feel that their children do not receive proper education or fail their

Ch.1. The effects of corruption on public schools examinations in Cameroon exams because they cannot afford to make gifts or to pay bribes to teachers or lecturers (Bettina Meier, 2013, p.70).

Inadequate and irregular wages or accumulated debts often pushed teachers to seek additional income. The teacher can collect bribes to give a good grade because his salary alone does not allow him to make ends meet (Vian, 2006). Salary increase is often used as a strategy aim at reducing the financial pressure that leads to corruption (Ferrinho *et al.*, 2004). Unfortunately, it is not enough to increase salary to end corruption. Increase of wages reduces the attraction to bribes without deleting them. As a matter of fact, a high salary may lead to the cancellation or reduction of bribes requested by a teacher who was in need; however, greed could push the teacher to collect more (Rose Ackerman, 1998).

Corruption adversely affects the principles of merit, fairness and impartiality where education is grounded because some tax payers or consumers of educational services will receive preferential treatment. Those in power and owners of resources try to capture the benefits of education for themselves and their families. Elites tend to reproduce existing power relations through education, often using corrupt practices (Transparency International, 2013).

According to multiple equilibrium Models, the expected gain of an agent depends on the number of agents he believed to be corrupt. In other words, if all teachers are upright, it brings nothing to be corrupt. However, if all teachers are corrupt, honesty does not pay (Cartier Bresson, 1998).

In systems where rents seeking offers better opportunities, allocation of talents namely for well-trained individuals who have provided significant efforts to pass their exams, will experience an infection, and members of the elite will turn to non-productive activities, thus determining a reduction of social surplus and growth (Murphy, Shleifer & Vishny, 1991, 1993).

## Exam practice and corruption in Cameroon

Exam is a test or series of tests to determine the ability to enter a school, get a degree or title. When there is competition among various candidates examined, it is called competitive exam.

In Cameroon, several exams are held each year at the primary, secondary and tertiary level. In the first case, it is the First School Living Certificate (CEPE), in the second case, the GCE Ordinary Level (BEPC) and the GCE Advanced Level, and in the third case, the Higher National Diploma (BTS), the Bachelor's Degree, Master's and Doctorate. Competitive exams are primarily organized for entry into high institutions like the National School of Administration and Magistracy (ENAM), the Cameroon Military Academy (EMIA), the Higher National School of Education (ENS), just to name the few. The problem that arises is whether these exams are conducted to ensure meritocracy. To answer this question, we will first present the modes of conducting these exams, and their ability to promote meritocracy. Then, we will try to find out how these modes are applied.

### **How exams are conducted**

There are mainly three ways through which exams are conducted in Cameroun: the written, the oral and the study of candidates' credentials. Whatever the mode selected, the institution that organizes the examination requires that each candidate submits an application which includes among others, a photocopy of the birth certificate, a photocopy of the National Identity Card and transcripts obtained during the academic curriculum. These credentials reveal previous academic performances of the candidate. All these files must be legalized by the competent authorities. During examinations, examiners use these documents to make sure that the person competing is actually the real candidate.

The written exam is a series of tests that the candidate faces in texts. Candidates write exams on anonymous sheets. The anonymity system is such that the examiner that marks the scripts cannot identify candidates that are objectively graded.

The oral exam is a series of tests that the candidate addresses in front of the examiner. Therefore, the candidate is identified. The encounter between him and the candidate introduces a subjective dimension because the applicant may be graded not according to his or her performances, but to his or her identity.

The files review is to examine the main elements therein, and classify candidates according to their past performances. For example, based on the Bachelor's Degree transcripts, candidates can be classified according to grades obtained: very good, good, fair and average. Such a classification is based on merit. But, it's still quite biased because the examiner can identify the names of candidates. From that point, they can be classified not according to their performances, but their identity. The problem is how these modes are practiced in Cameroon?

## **Corruption forms and evolution of modes of examinations conduct**

Before the 1990s, oral and written examinations were the most practiced modes of exams in the Cameroon educational system. In those days, to pass an examination or competitive exam (ORDINARY LEVEL, ADVANCED LEVEL, BACHELOR'S DEGREE, MASTER'S, ENAM (National School of Administration and Magistracy), etc.), the candidate must first pass the written part and then the oral phase. Since the early 1990s, someone who simply succeeds in writing exam is declared to be definitely admitted (ORDINARY LEVEL, ADVANCED LEVEL and BACHELOR'S DEGREE). Oral no longer exists in ORDINARY LEVEL, ADVANCED LEVEL and BACHELOR'S DEGREE. As a matter of fact, in the early 1990s, successive corruption scandals in the form of bribes or recommendations that have marked recent examinations have prompted the governmental authorities to remove the oral part<sup>2</sup>. The removal of this phase in these exams calls at least for two reflections. First, we find that corruption also affects the written part. Indeed, in some recruitments, the phenomenon of recommendation or fathering of candidates (INS,

<sup>2</sup> However, the size of bribes is not the same everywhere. A distinction should be made between examinations or competitive exams that lead to training with guaranteed employment (ENAM (National School of Administration and Magistracy), EMIA (Cameroon Military Academy), ENS (High National School of Education), and those where such a guarantee does not exist (ESSEC (Advanced School of Economics and Commerce), IUT (University Institute of Technology), etc). In the first case, the amounts of bribes are higher than the second.

Ch.1. The effects of corruption on public schools examinations in Cameroon (2011) continues to be practiced. Examiners take into account these recommendations to publish the results. Also, the admitted are not always the best. The removal of the oral part of exams as a control measure against corruption has nevertheless reduced power abuses in the organization of some official exams namely at the secondary level (ORDINARY, ADVANCED), but without canceling them. At the university level, notably for admission into high schools and in some academic programs (MASTER'S 1, MASTER'S 2, PHD), recommendation practice continues to prevent access to the best. Secondly, by eliminating the oral, governmental authorities thought eradicating the phenomenon. However, there is no change. Cancelling it did not have the desired effects because corruption continues to be practiced in exams; Instead, an evaluation method was removed, which in the absence of corruption, gave to the system an added value. It is therefore necessary to look for the root causes of this phenomenon and address them.

## Methodology and modelisation for the corrupt control

We would like to tackle the taking of initiative for the corrupt action for success in the Cameroon educational system. This is to conceptualize the corrupt behavior of suppliers (Schools managers) and applicants (users). In other words, to propose an explanatory diagram of their behavior.

The taking of initiative for the corrupt act in terms of offer will be tackled through odds ratios but also, through the relative risk and differences in proportions. For each region, we built the contingency Table 2 x 2 as follows:

**Table 1.** *Joint and conditional distributions*

Official who perceived Bribes (P)	Payment Initiative (I)	
	No	Yes
Head master/Director	$\pi_{11}$	$\pi_{12}$
	$(\pi_{1 })$	$(\pi_{2 1})$
Colleague/Collaborator	$\pi_{21}$	$\pi_{22}$
	$(\pi_{1 2})$	$(\pi_{2 2})$

**Sources:** *Authors' conception*

Where  $\pi_{ij}$  represents the number of officials who received bribes and take the initiative or not for such payment,  $\pi_{i/j}$  the number of officials who received bribes given the initiative taken to payment.  $\pi_{ij}$  and  $\pi_{i/j}$  representing respectively the joint and conditional distributions used to calculate the following odds ratios :

$$\theta = \frac{\pi_{11} / \pi_{12}}{\pi_{21} / \pi_{22}} = \frac{\pi_{11}\pi_{22}}{\pi_{12}\pi_{21}} \quad (1)$$

The numerator and denominator of the first term of this equation represent the relative risk compared to the responses of the initiative for payment, that is, 'no' or 'yes'. Thus, when  $1 < \theta < \infty$ , we will say that the head of the school (Principal / Director) would tend not to take more initiatives concerning corrupt actions (or take less initiative) than his colleagues or collaborators. In this case, at the level of the numerator of the relative risk, we will have  $\pi_{1/1} > \pi_{1/2}$  that will be rather interpreted in terms of probability, that the proportion of schools leaders not taking initiative for corrupt actions would be  $\theta$  times higher than that of those who are not leaders. At the contrary, if  $0 < \theta < 1$ , one will have the opposite effect at the level of interpretations with  $\pi_{1/1} < \pi_{1/2}$ . It is worth turning now on the demand side to highlight the characteristics of users who initiate corrupt actions.

The payment of bribes by the applicant to succeed in his exam may be either a 'success' or a 'failure', provided that the act committed by the applicant  $i$  is independent to that committed by the applicant  $j$ . Thus, in noting these two possibilities by 1 or 0 respectively, the corrupt behavior of applicants can be captured by a Bernoulli distribution (random binary variables) that will allow us to easily identify the probabilities  $P(X=1) = \pi$  and  $P(X=0) = 1 - \pi$  of the two events for which  $\pi = E(X)$ .

So, 'the payments of bribes by applicants to succeed' are therefore seen to be random and independent of each other, the various occurrences of how events appear could be captured through a Bernoulli distribution. If the taking of initiative for the corrupt action is a choice of the economic agent (which can be



either a supplier or an applicant for service) being placed on the demand side, this initiative can be captured not only through the random component of a generalized linear model (GLM)<sup>3</sup>, this thanks to a Bernoulli distribution of the following probability density:

$$g(x_i; \pi_i) = \pi_i^{x_i} (1 - \pi_i)^{1-x_i} = (1 - \pi_i) \left[ \frac{\pi_i}{(1 - \pi_i)} \right]^{x_i} = (1 - \pi_i) \exp \left[ x_i \log \left( \frac{\pi_i}{1 - \pi_i} \right) \right]$$

The last expression of this equation is only the general expression of the probability distributions which belong to the family of the distributions of the exponential form for  $x_i = 0$  and 1.

The natural parameter  $w(\pi) = \log \left[ \frac{\pi}{(1 - \pi)} \right]$ , the log of odds of answer 1 (success or has paid for success) is simply the logit of  $\pi$ . The response variable (payment of bribes by applicants for success) here follows a Bernoulli distribution, the mean of the parameter  $\pi$  of the distribution being related to the linear predictor by the following equation used in our estimates:

$$w(\pi_i) = \sum_j \beta_j x_{ij} \quad (2)$$

$i = 1, \dots, N$

## Independent variables used and signs expected

The independent variables used in this study are mostly from the classic literature on the determinants of corruption in developing countries. These are variables on region, place of

<sup>3</sup> These components include: the linear component, the random component and the link describing the functional relationship between the above two components. The systematic or linear component, as in traditional linear models (*the traditional linear model* of the form  $y_i = x_i \beta + \varepsilon_i$  and the mathematical expectation of  $y_i$  noted  $E(y_i)$  is  $\mu_i = x_i \beta$ , specifies a linear function as predictor of the independent variables namely  $\eta_i = x_i \beta$ . The canonical link is a log link of the form  $\eta_i = \log(m_i)$ . (Agresti, 1990 pp.80-82)

Ch.1. The effects of corruption on public schools examinations in Cameroon residence, gender, standard of living, age and employment status. Thus, for each observation, we have the following relationship:

$$\log(m_i) = \beta_0 + \sum_j \text{region}_i(j) \beta_j + \sum_j \text{milieu}_i(j) \beta_j + \sum_j \text{gender}_i(j) \beta_j + \sum_j \text{level}_i(j) \beta_j + \sum_j \text{age}_i(j) \beta_j + \sum_j \text{activity}_i(j) \beta_j \quad (8)$$

Each of the above mentioned being associated with the  $j^{th}$  level of independent variables for the *observation i* namely:

$$x_i(j) = \begin{cases} 1 & \text{si } x = j \\ 0 & \text{si } x \neq j \end{cases}$$

Gender appears to be causing the behavior towards corruption. Numerous studies carried out at the individual level emphasize that women are less tolerant than men with regard to corruption (Dollar, Fisman & Gatti, 2001; Swamy & Alii, 2001). Also, at the macroeconomic level, Dollar, Fisman & Gatti (2001) showed that countries where women's representation in politics is high are also those having the lowest levels of corruption.

Age also appears to be a factor in reducing exposure to corruption (Hunt & Lazlo, 2005; Seligson, 2006). According to Seligson (2006), young people are more often victims of corruption as they have to settle in life and thus, be more in touch with the administration. Hunt (2004) believes that older people are less victims of corruption as they have had time to create a "trust network". Gradually as life progresses, reciprocal exchanges (social capital) would replace corruption.

Residential environment equally appears to be a factor that exposes people to corruption. For Seligson (2006), corruption is an urban phenomenon. Town people are more likely to seek services from State officials than rural people who have little contact with them.

The functionalist sees corruption as a way to lubricate a system confronting a pervasive bureaucracy and regulation stifling private initiative (Bhagwati, 1982). In such an environment, those in a waiting line having higher incomes and giving more value to a fast service, tend to take the initiative to pay bribes for a privileged

Ch.1. The effects of corruption on public schools examinations in Cameroon access. Corruption is an auction mechanism for a user to own something he values most ([Cartier Bresson, 1998](#)).

## Discussion

The results of the empirical analysis of payment of bribes to success in exams are presented in two stages: the supply side and the demand side. The corrupt act usually takes place between the corrupted and the corruptor. So, we will initially establish the relationship between the educational staff who request or not for non-regulatory fees for applicants to pass their exams, and the region in which the corrupt act takes place. Secondly, we will focus on the demand side (those who pay for success) to highlight some socio-demographic characteristics besides those of users who pay bribes to pass exams.

### **Why do some managers take more initiatives than others as far as corrupt acts are concerned?**

The table below shows the frequencies and proportions from which the various odds ratios were estimated. It establishes the relationship between the educational staff who receives bribes (Head of a school or someone else), the perception of bribes by the staff for success or not, and the region in which the corrupt act occurs. We have two independent variables namely the region and the type of manager who receives bribes. The dependent variable here is the acceptance or rejection of the examinee's bribes for success; we can then analyze the various corrupt behaviors between different actors (educational staff and examinees) from each region, the latter variable being also seen as a control variable. The table also shows for each cell the proportion of the category of personnel to whom the bribe is paid for success or not. The last column gives the magnitude of the difference in proportion of the payment of bribes for success or not between applicants and the educational staff. Our first results show that in 30% of cases, examinees pay bribes to the educational staff to pass their exams.

**Table 2.** *Relationship between (P) and (I) given (R)*

Region <sup>4</sup> (R)	Manager who has received bribe (P)	Perception of bribe for success (I)		Magnitude <sup>5</sup> difference (in%)
		Yes	No	
Douala	Head Master/Director	0,5 (50)	0,5 (50)	99,88
	Others	0,5 (0,03)	1616,5(99,97)	
Total		1 (0,06)	1617(99,94)	
Center	Head Master/Director	0,5 (0,04)	1360,5(99,96)	99,86
	Others	0,5 (50)	0,5(50)	
Total		1(0,07)	1361(99,93)	
East	Head Master/Director	0,5 (50)	0,5 (50)	99,3
	Others	0,5(0,18)	280,5(99,82)	
Total		1(0,35)	281(99,65)	
Far North	Head Master/Director	606,5(52,33)	552,5(47,67)	(5,64)*
	Others	0,5(50)	0,5(50)	
Total		607(53,32)	553(47,68)	
Littoral	Head Master/Director	378,5(99,87)	0,5(0,13)	(99,72)*
	Others	378,5(99,87)	0,5(0,13)	
Total		757(99,86)	1(0,14)	
North	Head Master/Director	0,5(0,02)	2457,5(99,98)	(99,92)
	Others	0,5(50)	0,5(50)	
Total		1(0,04)	2458(99,96)	
North West	Head Master/Director	207,5(99,76)	0,5(0,24)	(20)*
	Others	0,5(0,30)	163,5(99,70)	
Total		208(60)	164(40)	
West	Head Master/Director	0,5(50)	0,5(50)	99,38
	Others	0,5(0,16)	315,5(99,84)	
Total		1(0,31)	316(99,69)	
South	Head Master/Director	0,5(0,20)	254,5(99,80)	52
	Others	213,5(33,36)	426,5(66,64)	
Total		214(24)	681(76)	
South West	Head Master/Director	0,5(50)	0,5(50)	99,72
	Others	0,5(0,07)	709,5(99,93)	
Total		1(0,14)	710(99,86)	

**Source:** Our estimates based on ECAM3 Data

<sup>4</sup> Certainly, the National Institute for Statistics'(INS) inquiry covers twelve regions namely the Center, South, Littoral, North-West, South-West, West, Far North, North, East, Douala, Yaounde and Adamawa. However, we have only worked on the first ten regions; the survey didn't provide us with information about the last two regions compared to the study.

<sup>5</sup> A star means the greatest magnitude of the perception of the non-regulatory fees by the managers to give success to candidates during exams.

In view of this table, we find that in 50% of the regions studied, the extent of the payment of bribes to officials of institutions (Director or Principal) for success is greater. These are the Douala, East, Far North, North-West and West regions with a predominance in the North-West region where the payment of bribes for success is 99, 46 (99.76 - 0.30) times higher among Heads of schools (Principal or Director) than among the rest of the staff for a relative risk of about 327. In other words, the proportion of school directors to whom bribes are paid for success is about 327 times higher in this region than in that of the personnel of the school. 30% of the regions have situations where the magnitude of bribes paid to the staff of the institution to succeed in exams is greater: there are the Central, Southern and Northern regions. Two of the 10 regions studied namely the Littoral and the Far North have but situations where the extent of non-regulatory fees paid by applicants for success is virtually not different between the two categories of actors. The table below gives us the different relative risks by region. Thus, a relative risk superior to 1 indicates that the proportion of principals to whom bribes are paid is higher than that of the staff, and a relative risk inferior to 1 simply means the opposite. However, a relative risk of 1 just means that regardless of the type of personnel (Principal or someone else), bribes are paid by examinees for their success.

**Table 3.** *Payment of bribes for success in terms of relative risk by region*

Region (R)	Taking non-regulatory fees for success <sup>6</sup>	
	Relative risk	Sample
Douala	1617	1616
East	281	280
Far North	1.0466	1158
Littoral	1	756
North	0.0004*	2457
West	316	315
South	0.006*	893
Center	0.0007*	1360
North West	327.21	370
South West	710	709
Total		9914

**Source:** Our estimates based on data in table 2.

Table 4 below shows the odds ratios ( $\hat{\theta}_{PI/R}$ ) reflecting the relationship between the three variables. These odds ratios obtained from the data in Table 2 help to better define the extent of the corrupt act while highlighting previous analyzes: thus, a coast ratio  $\hat{\theta}_{PI/R} > 1$  will simply implies that for a given region in the educational staff, the probability to perceive bribes from the examinees for their success will be higher for principals than for their collaborators; and an odds ratio  $\hat{\theta}_{PI/R} < 1$  will have an opposite effect. Let's note that the more  $\hat{\theta}_{PI/R}$  will be closer to zero, the higher the magnitude of the perception of bribes by the personnel as compared to that of the principals.

**Table 4.** *Relationship between (P) and (I) given (R): an estimate by the conditional odds ratios ( $\hat{\theta}_{PI/R}$ )*

Odds Ratio ( $\hat{\theta}_{PI/R}$ ) and IC	
Odds Ratio ( $\hat{\theta}_{PI/R}$ )	95% Confidence interval of the odds ratio ( $\hat{\theta}_{PI/R}$ )
$\hat{\theta}_{PI/Douala}$ =3233	$\hat{\theta}_{PI/Douala}$ (26.57 ; 393299)

<sup>6</sup>Te presence of a star means that in the region concerned, the proportion of non-officials who take non-regulatory fees from students to make them succeed in exams is greater than that of officials (Director/ Head master) in schools.

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$\hat{\theta}_{PI / Center}$	$\hat{\theta}_{PI / Center}$
=0.0004	(0 ; 0.0447)
$\hat{\theta}_{PI / East}$	$\hat{\theta}_{PI / East}$
=561	(4.6 ; 68326.9)
$\hat{\theta}_{PI / Far North}$	$\hat{\theta}_{PI / Far North}$
=	(0.0217 ; 55.4163)
1.0977	
$\hat{\theta}_{PI / Littoral} =1$	$\hat{\theta}_{PI / Littoral}$ (0.02 ; 50.52)
$\hat{\theta}_{PI / North}$	$\hat{\theta}_{PI / North}$
=0.0002	(0 ; 0.0247)
$\hat{\theta}_{North West}$	$\hat{\theta}_{North West}$
=135705	(2678.35 ; 6875819)
$\hat{\theta}_{PI / West}$	$\hat{\theta}_{PI / West}$
=631	(5.18 ; 76840.37)
$\hat{\theta}_{PI / South}$	$\hat{\theta}_{PI / South}$
=0.004	(0.0002 ; 0.0632)
$\hat{\theta}_{PI / South West}$	$\hat{\theta}_{PI / South West}$
=1419	(11.66 ; 172678)

Source: Our estimates based on data in table 2

Thus, we can make from the table above a typology of bribes payment for success by region, according to the different categories of the teaching staff. We notice a first class of regions where chances of collecting bribes by Head masters are the greatest. Most importantly, these are the North-West, Douala, South-West, West and East regions. On the other side, we rather observe regions where chances of the staff are the highest; and most importantly, the North, Center and South. Two regions namely the Littoral and the Far North are of the third class where applicants, regardless of their socio-professional category, pay bribes to pass exams.

Table 5. Some basic statistics

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Statistics	Value	Probability
Cochran-Mantel-Haenszel	CMH = 17.87	<.0001
Mantel-Haenszel	$\hat{\theta}_{PI} = 2.62$	$\hat{\theta}_{PI} (0.70 ; 9.69)$
Breslow-Day	KHI- TWO = 2379.54	<.0001

**Source:** Our estimates based on data in table 2

The table above gives us through the Mantel-Haenszel statistic, a general estimate of the odds ratio of all observations. This ratio stipulates that in general, chances are about 2.62 times higher that applicants pay bribes to principals than to other people in the institution to pass exams, independently of the region. The Cochran-Mantel-Hansel’s statistics on its part is used to test the hypothesis that the payment of bribes by examinees for success and the type of staff (managers or others) who received bribes are conditionally independent given the region. Through the probability column (p-value <.0001), we reject the hypothesis of independence to conclude that whatever the region, these two variables are related. Finally, the Breslow-Day statistic that tests the hypothesis of homogeneity of the various conditional odds ratios has a probability (p-value) <.0001; odds ratios are therefore different from one region to another as evidenced our estimates on partial odds ratios per region.

**Characteristics of applicants who pay bribes to succeed**

The results in Table 6 below derived from data in Appendix 1 which conceptualizes the request of corrupt act by the applicants.

**Table 6.** Estimate of equation 8



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The GENMOD Procedure: Binomial Distribution, Logit Model (Dependent variable: have paid to succeed)						
<u>Analysis Of Parameter Estimates</u>						
Parameter		DF	Estimate	Standard Error	Wald 95% Confidence Limits	Chi-Square Pr > ChiSq
Intercept		1	-7.0175	0.5818	-8.1578 -5.8771	145.47
<.0001 region Far North		1	3.2687	0.0897	3.0928 3.4446	1326.77
<.0001 region Littoral		1	2.2676	0.0836	2.1038 2.4314	736.21
<.0001 milieu urban		1	0.0998	0.0671	-0.0316 0.2313	2.21
0.1367 sexe male		1	-5.9341	0.5066	-6.9271 -4.9411	137.18
<.0001 level non Poor		1	1.1998	0.0565	1.0890 1.3106	450.43
<.0001 age less than 39 years		1	2.3363	0.5848	1.1901 3.4824	15.96
<.0001 activity active		1	0.5553	0.0743	0.4097 0.7009	55.89
<.0001						
<u>Model Information</u>						
<u>LR Statistics For Type 3 Analysis</u>						
Source		DF	Chi-Square	Pr > ChiSq		
region		2	1909.97	<.0001		
milieu		1	2.22	0.1359		
sexe		1	1069.11	<.0001		
level		1	451.59	<.0001		
age		1	36.50	<.0001		
activity		1	57.77	<.0001		
<u>Criteria For Assessing Goodness Of Fit</u>						
Criterion		DF	Value	Value/DF		
Deviance		40	10656.5112	266.4128		
Scaled Deviance		40	10656.5112	266.4128		
Pearson Chi-Square		40	350407.0795	8760.1770		
Scaled Pearson X2		40	350407.0795	8760.1770		
Log Likelihood			-5328.2556			

Source: Our estimates based on Ecam3 data

This table gives us information on the reliability of the model, the importance of the main effects through likelihood maximum ratios statistics of type 3, and the coefficients of the model. Thus, the analysis of type 3 shows that with the exception of the variable milieu, all other main effects are highly significant in the acceptance or rejection of bribes for success by the staff of institutions. At the applicants' level, we have only considered the areas where the magnitude of the taking of bribes by the educational staff for success is more important than the perception (see Table 2), namely the Far North, Littoral and North-West, this to highlight some of their features.

Indeed, we find that socio-demographic characteristics play an important role on the payment of bribes or not by examinees in order to succeed. Thus, in the regions, whether in the Far North or Littoral, signs assigned to the coefficients are all positive, reflecting the high magnitude of the payment of bribes by applicants to different staffs of the institutions of the two regions to pass exams, the reference region being the North-West. Despite the non-

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significance of the main effect milieu, we still find that the theory is true for this variable, given that the estimated parameter presents a positive sign for the urban partial effect, reflecting the fact that those who reside in agglomerations tend to pay more bribes to pass exams than those living in rural areas. In other words, the chances would be about 10% higher for those living in urban areas to pay bribes to succeed than the rural people ( $e^{(0,0998)} = 1,10$ ), despite the non-significance of this difference. The theory is also verified here for the non-poor, the younger and the workers whose coefficients are all positive, just showing enthusiasm for corruption for these socio-demographic categories.

### Bribe as unique channel for success? Discussion

During the investigation on corruption in the educational system, parents were asked if they have benefited from the support of a high authority for their children to succeed.

**Table 7.** *The percentage of beneficiaries who receive assistance from an authority to succeed.*

Answers	Frequene of respondants
Yes	26966 (4,67%)
No	549574 (95,37%)
Total	576560 (100%)

**Source:** Our estimates based on Ecam3 data

Students’ parents’ answers to this question show that 4.67% of them have benefited, which equals to 26966 parents. Therefore, bribe is not the only corruption channel through which candidates pass to succeed in examinations and competitive exams.

The recommendation of candidates is the second channel. The problem that arises is to identify the actor, whom from the supply side, most intervenes in this latter channel. If we share them into two groups namely the institutional leaders and the staff of these institutions, the following table indicates, from the supply side, the most important actor through the frequency of supports.

**Table 8.** *Authority who has given his/her support for success.*

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Type of personality	Frequency
Officer of the institution organizing the competitive exam/recruitment	867 (70,8%)
Personnel of the institution organizing the competitive exam/recruitment	357(29,2)
Total	1224 (100%)

**Source:** Our estimates from Ecam3 data.

This table shows that the personnel acts less than the leaders. As a matter of fact, according to the survey, officers intervene in 70.8% of cases and employees in 29.2%. This result is close to what we found with respect to bribes channel. Generally, it appeared that chances are about 2.62 times higher for applicants to pay bribes to schools authorities and not to other people in the institution to pass their exams, irrespective of the region.

It is true the amount of bribe paid is not known. However, it is likely that it depends on the type of competitive exam or examination. In this respect, one can first consider the most popular competitive exams. They are those which allow candidates not only to be admitted into a school, but in addition, to automatically get a job at the end of their training. For instance, we can mention the competitive exams into ENAM (National School of Administration and Magistracy), EMIA (Cameroon Military Academy) and ENS (Higher National School of Education). Then, there are the less attractive competitive exams that offer training, but do not guarantee employment. For example, the admission into IUT (University Institute of Technology), ESSEC (Advanced School of Economics and Commerce), just to name the few. Here, the student himself seeks for a job opportunity at the end of his training. In the first case, bribes are higher than in the second. Despite this, parents agreed to invest to acquire a position in competitive exams which guarantee employment. They know that after training and once appointed to a position of responsibility, the graduate will have multiple opportunities to collect bribes that eventually will help 'capitalize' the former investment. The promoted could also at the appointed time intervene to favor his relatives in their success to exams, thereby perpetuating the system. Therefore, access to an employment position through corruption perpetuates corrupt practices.

Of course, turning to invest through bribes is not sure, given that corruption contracts are without any guarantee.

Consequently, many corruptors pay bribes to succeed but to no avail.

However, the assurance for success that the parent may have after paying bribes depends on the position held by the corrupt and therefore to his discretion power. The directors of institutions have more discretion power than their employees. Table 8 above shows that success in competitive exams through the recommendation channel is done at 70.8% thanks to officials of the organizing institutions, and at 29.2% through the staff of these institutions. Therefore, to ensure success to exams through the recommendation channel, it is better to get the support of the head of the institution that organizes the competitive exam.

## Conclusion

The purpose of this study was to identify individuals who receive bribes to allow candidates to pass examinations (or competitive exams) as well as the characteristics of applicants who pay them. The empirical analysis reveals that from the supply side, in 50% of the regions studied, the magnitude of the payment of bribes to heads of institutions (Director or Principal) for success is greater. These regions are Douala, East, Far North, North-West and West. This phenomenon is prevalent in the North-West where the payment of bribes for success is 99.46 (99.76 to 0.30) times higher among Heads of schools (Principal or Director) than among the other staff, for a relative risk of about 327. In other words, the proportion of schools authorities to whom bribes are paid for success is about 327 times higher in this region than that of the school staff. 30% of regions namely the Center, the South and the North have situations where the magnitude of bribes paid to the staff of the institution to pass exams is greater. Two of the 10 regions studied namely the Littoral and the Far North show but situations where the magnitude of non-regulatory fees paid by applicants for success is not virtually different between the two socio-personal categories.

From the demand side, we have only considered regions where the magnitude of the perception of bribes for success is greater than that of the non-perception (see Table 2), namely the Far North, Littoral and North-West. In each of these regions, it appears

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that socio-demographic characteristics play an important role on the payment of bribes or not by applicants for success. In particular, those living in urban areas tend to pay more bribes to pass exams than those living in rural areas. Similarly, young people are more likely to pay bribes for success than the old, and for the same cause, the rich than the poor, and the workers than the jobless.

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# 2

## Multiple jobs holding and management of lecturers in Cameroonian state universities

Benjamin YAMB<sup>a</sup> & Maxime BIKOUE<sup>b</sup>

### Introduction

**M**ultiple job-holding<sup>1</sup> is a major characteristic of the labour markets of contemporary economies. It refers to a situation where an individual holds a main job, along with one or more secondary ones. This phenomenon has also been termed moonlighting in the literature. The study of moonlighting is important since it captures the behaviour of rational economic agents that aim to improve their material welfare or develop

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<sup>1</sup> This notion is better known in the university of Douala as the theory of 'souzism' according to which lecturers of State Universities should improve their living standards by seeking for secondary sources of income through income generating activities like teaching in private institutions of Higher Education

survival strategies. Since the pioneer work of Shishko & Rostker (1976), economic literature considers the hours of work in the main job as the major determinant of moonlighting (O'Connell, 1979; Krishnan, 1990; Conway & Kimmel, 1995; 1998; Theizen, 2005). To this major determinant, other determining factors such as the pay in the main job and in the secondary job can be added. This study is in line with these pioneering works but however goes beyond the classical determinants to consider, in the case of dual job-holding of lecturers of State universities in Cameroon, other explanatory variables such as gender, localisation, administrative function occupied, highest certificate, rank, speciality, age, marital status and child burden.

During the 80s and 90s, Cameroon went through an economic crisis that touched all sectors of activity. Until 1990, the state ensured the growth of the budget of higher education that reached 2.1% of the state budget in 1990. Thereafter, the university system could not be protected from the effects of this crisis; drastic reductions in the working budget plunged the system into a deep crisis. Within a period of five years, the higher education budget was divided by eight. The 1994 devaluation of the CFA franc came to worsen the situation. It is therefore not a surprise that the university can no longer perform its duty of training and research, in this context where lectures are demotivated (suppression of benefits, drastic salary cuts, deplorable working conditions). It is in this difficult context that the law of 1993 which restructured higher education and opened new university structures and is still being enforced today was adopted. Despite the growth in their budget allocation observed since 1998, the budget remains at a low level and does not enable a proper functioning of these institutions ; moreover, the growth in enrolment in universities between 2000 and 2004 remains higher than that of the university budgets. The working budget of higher education represented only 0.8% of the state budget in 1999, as against 2.1% in 1990 (Yamb, & Bikoue, 2016).

These difficult living and working conditions of lecturers of State universities<sup>2</sup> pushed them to explore and perform other

<sup>2</sup> There are eight State Universities in Cameroon: Yaoundé 1, Yaoundé 2, Douala, Dschang, N'Gaoundéré, Buea, Maroua, Bamenda.

activities out of these universities. These lecturers, because of their numerous activities tend to give less time and interest to their primary job, a phenomenon that still exists today and is increasing in spite of a relative increase in the salary level in the civil service<sup>3</sup> and a special quarterly research benefit granted by the head of state to lecturers of State universities (Yamb, & Bikoue, 2016).

This study makes use of a logistic regression model to analyse and explain the moonlighting phenomenon. Our model predicts the effect of one or more explanatory variables on a qualitative choice variable with two responses using a logit model. This model enables us to determine the probability of an event given the values of a set of quantitative and/or qualitative variables. In other words, we seek to predict the probability that a lecturer participates or not in moonlighting as a function of explanatory variables like the pay in the primary job, the pay in the secondary job, gender, the situation of the university, the administrative function occupied, the highest certificate, the rank, the domain of specialisation, the number of working hours in the principal job (average number of teaching hours per week and/or average number of courses taught per week), age, matrimonial status and the child burden. The main objective of this study is therefore to analyse and explain the moonlighting phenomenon by lecturers of State universities in Cameroon and establish the relationship between moonlighting and a number of variables that affect it. The case of two modalities is explored in this study. In fact, the use of a logistic regression model enabled us to model the probability of the occurrence of an event given a set of quantitative and/or qualitative variables. To our knowledge in Africa, studies on moonlighting in the educational sector and higher education in particular are few. This is really surprising given the importance of the sector.

The second section of this study presents a brief review of the literature on the determinants of moonlighting in general and in the higher education sector in particular. The survey data as well as some descriptive statistics are presented in the third section. The

<sup>3</sup> In April 2008, there was a riot against hunger in Cameroon. This pushed the government to increase the level of salaries in the civil service by about 20%.

econometric estimation and the results obtained are analysed and discussed in section four. Section five discusses and highlights the managerial aspects in Cameroonian State universities, while advocating recommendations for better use of the human resource employed. Section six concludes the study and proposes some managerial actions that could help the State reduce the level of this phenomenon that could have negative effects on the quality of teaching.

## **Theoretical foundations and literature review**

This section first presents the theoretical foundations of moonlighting followed by a brief literature review on the phenomenon.

### **Definitions and theoretical foundations**

Moonlighting can be defined as the holding of one or more jobs by an individual besides his main job. Two types of secondary jobs can be identified (Foley, 1997): formal secondary jobs and informal secondary jobs (for example if an individual is engaged in an individual economic activity (self employment)). The formal economic activity is considered as a main job. This is generally the case when lecturers of State universities who besides their activity of lecturing in their main university also lecture in other private universities. A third type of secondary activity can be considered when an individual besides his main job engages himself in agricultural income generating or domestic consumption activities. Given that moonlighting is generally a short run phenomenon, the proportion of workers who exercise moonlighting at a given moment of their working life is high. Many studies on moonlighting do not highlight the characteristics of moonlighters and ignore the reasons for and effects of moonlighting. The majority of studies on moonlighting (Shisko & Roster, 1976; O'Connell, 1979; Krishnan, 1990; Paxson & Sicherman, 1996) note the existence of many reasons for moonlighting, the main one being work hour constraints in the main job that not only limits the possibilities of secondary income but also generates income instability. Another possibility according to Kimmel & Conway (2001) is that exercising a secondary job may have a non-monetary

benefit that is absent in the main job. The main job may therefore give many credentials to the worker to have a higher income in the secondary job: this is the case when a law lecturer works as a consultant in a law firm, or someone who lectures in the daytime and sings in a cabaret at night. The secondary job can therefore offer the worker a satisfaction he can't get from the main job.

Kimmel & Conway (2001) identify two categories of moonlighters with different labour supply characteristics: the first group is made up of workers who exercise different activities or have heterogeneous job motives while the second is consists of workers who exercise the same activity in the secondary job (job packaging motive). It should be noted that the reasons for the practice of any of these activities are different. Heterogeneous activities in the secondary job are specific in that they are conditioned by the work hour constraints in the main job. This has as effect a lower income in the secondary job relative to the main job for shorter periods than in homogeneous activities. This is explained by the fact that time constraints in the supply of labour are generally perceived as a short run phenomenon that can have different effects depending on the type of secondary job. Thus, a lecturer can have different types of secondary activities (consultancy, management of production or sales companies, senior employee in a ministry, provider of varied services, farmer, etc...), or the same secondary activities in line with the main job (lecturer or researcher in another private or state university).

According to Kimmel & Conway (2001), the majority of moonlighters are into services and sales but also occupy technical and professional positions. In 37% of cases, the positions occupied by moonlighters are the same as those in the main job. The study by Foley (1997) on moonlighting in Russia during the economic transition period shows that about 87% of moonlighters have secondary jobs that are different from their main job unlike in the United States where these percentages are 83% and 77% respectively for men and women (Paxson & Sicherman, 1996). The same study shows that secondary jobs in the health, education, sales and mines are more likely to be the same as the main job. The most practiced secondary jobs are in the domains of teaching, petit trading and services like cleaning.

According to Foley (1997), the reasons for exercising a secondary job in a sector different from that of the main job lie in the fact that workers can plan to change their profession without necessarily quitting their main job and that a secondary job is some sort of insurance against fluctuations in income in the main job. Also, work hour constraints in the main job can incite workers to seek for secondary jobs that give them the possibility of working in the evenings or during week-ends. The majority of secondary jobs are informal, suggesting that an easy accessibility and the control of the time worked are factors that affect the choice of the individual.

The determinants of moonlighting differ according to the sector considered. However, the literature identifies on the one hand the common socioeconomic determinants that don't depend on the sector studied. These determinants are age, sex, matrimonial status, number of children at the care of the worker, level of education, professional qualifications or dexterity, etc... on the one hand and budgetary determinants, particularly salary and non salary incomes and work hour constraints on the main job on the other. Some of these determinants are discussed in the rest of the study.

## Literature review

Pioneers research on moonlighting recognised the possible existence of many reasons, but empirical studies make the hypothesis that all moonlighters have hour constraints in their principal job (Shishko & Rostker, 1976; O'Connell, 1979; Krishnan, 1990, 1993). The literature before the study by Shishko & Rostker (1976) treated moonlighting following a demand and supply approach. Certain supply based studies (Moses, 1962 and Perlman, 1969) explain the individual labour supply of a moonlighter while others based on demand (Guthrie, 1965, 1969; Grossman, 1974; Hamel, 1967) highlight the demographic characteristics of a typical moonlighter. Shishko & Rostker (1976) have the merit of combining these two approaches to estimate the supply curve of a moonlighter thanks to the tobit model.

However, more recent studies highlight the reasons of moonlighting and answer questions on the implications of these

reasons for economic moonlighting models. As example, Conway & Kimmel (1994) estimate a moonlighter labour supply model for men in their youth using data from the Income and Programme Participation survey (ERPP). In their model, they identify many reasons for moonlighting. They particularly find that the number of hours spent in the principal job become endogenous if the labourer is moonlighting for reasons other than hour constraints in the principal job.

In line with these studies, Conway & Kimmel (1995) use ERPP data to estimate a duration model of moonlighting. They make the hypothesis that the moonlighter with a work hour constraint in the principal job will hold many jobs for a lesser period than those who exercise moonlighting because both jobs are heterogeneous. Levenson (1995) provides an indirect proof of moonlighting. He notes that during the 25 years preceding his study, moonlighting led to salary and employment benefits by men but that the participation of women in moonlighting is increasing faster than that of men. This may be an indication that female participation in moonlighting is for non-economic reasons. However, Levenson does not test this hypothesis formally. Paxson & Sicherman (1994) study the dynamics of moonlighting in the United States by jointly using data from the current population survey (ECP) and the Panel Dynamic Income Survey (EPRD). They find that moonlighting is a dynamic process – most workers surveyed practiced moonlighting during their working life. The EPRD data reveals that between 1979 and 1989, almost 65% of men and 43% of women had a second job. They also note that traditional moonlighting models suppose that workers practice moonlighting because of hour constraints in the main job, ignoring the fact that with time, workers can evade these hour constraints and look for new jobs. The focus of their study is on the reasons why workers join or quit secondary jobs. They specify and estimate a joint decision: to look for a secondary job or to quit the primary one for another that has no hour constraints. Abdukadir (1992) examines the possibilities of moonlighting being the outcome of short run financial constraints.

Ehrlich (1973), Shishko & Rostker (1976); Conway & Kimmel (1998) explain moonlighting using the salary differential between the formal and informal sector, the latter giving more profit

opportunities for a given level of risk. Krishnan (1990), Paxson & Sicherman (1996), Ahn & Rica (1997) analyse moonlighting as the result of the degree of under-employment or hour constraints in the main job. From this last point of view, these authors adhere to the views of the empirical works of other economists on the same reasons (O'Connell, 1979; Krishnan, 1990, 1993; Shishko & Rostker, 1976).

Rose (1994), Kim (2005), Desai & Idson (2000), Braithwaite (1994), Foley (1997) and Kolev (1998) show that moonlighting is for two main reasons: survival and the spirit of enterprise, especially in transition economies, reference being made here to Eastern Europe. Guariglia & Kim (2004) note that the probability of moonlighting increases with the level of training. Commander & Tolstopiatenko (1997) explain moonlighting by individuals using the demand for factors, especially labour. According to them, firms have a choice between informal part time jobs (black market labour) and informal<sup>4</sup> fulltime ones. In the teaching field, the causes and consequences of moonlighting by lecturers have been highlighted by many authors. These causes and consequences of the phenomenon have led some authors to bring out a typical moonlighter profile, financial need (Parham & Gordon, 2011; Winans, 2005) being one of the main reasons why lecturers engage in moonlighting and use it as to explore other career options (Winans, 2005). A study carried out in the state of Texas in the United States (TSTA, 2006) reveals that 67% of lecturers questioned on the phenomenon are of the opinion that moonlighting has had a negative impact on their professional life and performance. Henderson, Darby & Maddux, (1982); McGinley, (1979); Wisniewski & Kleine (1984) show that moonlighting not only reduces the performance of lecturers but is also a threat to the professional status of this job.

Parham & Gordon (2011) analyse the negative effects of moonlighting on lecturers through the hour constraints in the secondary job. For these authors, moonlighting does not only affect the professional life of lecturers, but also their family life and their health. However, in the light of growing financial needs, lecturers

<sup>4</sup> Any activity that is not controlled by the state is classified under the informal sector (The black labour-market for example)



cannot give up moonlighting in spite of its negative effects. These same authors hold that one of the causes of moonlighting by lecturers also lies in the fact that these lecturers have for some time developed a complex towards their profession, considering it as a profession at different degrees of their status of lecturer. Is it for this reason that lecturers have began engaging in moonlighting, or do they do this simply for economic survival?

Carolyn, *et al.*, (1994) rather lay emphasis on socio demographic characteristics of moonlighters in higher education (gender, highest certificate, wage, age, etc...) to bring out the profile of a typical moonlighter (young, mostly of male sex, and with many certificates). These lecturers are it appears not satisfied with their pay in the principal job. These authors finally reach the conclusion that these lecturers differ only slightly from their colleagues who are reticent as concerns moonlighting in the majority of factors associated to work (job satisfaction, quota and work hour constraint, stress at work) and attitudes (towards the job of lecturer, of students, of parents and the administration). Also, the moonlighter does not seem unsatisfied with his job.

However, although recent research has began studying moonlighting more rigorously, little is known on the reasons underlying this behaviour in Africa in general and Cameroon in particular. Nevertheless, Yamb & Bikoue (2016) used a log linear model to highlight the factors that explain the moonlight phenomenon among lecturers in Cameroonian State universities. This study is important because it shows, in addition to moonlighting classical determinants, (hours of work in the main job, pay in the primary job, pay in the secondary job) that gender and the university localization also play major roles. The present study that uses a logistic model can therefore be seen as a continuation of their work, by stressing on the phenomenon's managerial implications, as well as on the State universities' managers on the one hand, and on lecturers on the other.

## Data and descriptive statistics

### Sample characteristics and description of study variables

This study analyzes the multiple job-holding phenomenon of lecturers of State universities in Cameroon by using data on two of the eight State universities in the country; an urban university (University of Douala) and a semi-urban university (University of Dschang) were selected for the study. The reasons of the choice of the universities of Douala and Dschang<sup>5</sup> lie in the fact that the first is representative of large metropolitan universities (universities of Yaoundé 1 and Yaoundé 2) whereas the second is representative of small metropolitan universities (universities of Buea, Bamenda, Ngaoundéré and Maroua). In fact, the economic and demographic characteristics of the large metropolis are almost similar, just as are those of the small metropolis (Yamb, & Bikoue, 2016).

In each university, a survey was carried out and a random sample stratified by zone, gender, income and hour constraint was constituted on the basis of approximately 240 administered questionnaires of which 169 were returned, giving a rate of return of almost 70%. On the 169 received questionnaires, 138 were administered on men and 31 on women, 94 respondents being of Douala and 75 of Dschang. The Table 1 in the appendix section summarises the distribution of the lecturers questioned by gender, rank and university of origin.

The first column of this table represents the variables rank and university of origin; the second column which represents gender is divided into two columns namely male and female; the last column presents the total number of lecturers surveyed by rank and this according to the university of origin and gender; the figures below the frequencies represent the corresponding proportions; for example, we will say that the sample comprises 52 senior lecturers (which accounts for approximately 30,8% of the total of the sample) distributed in an equitable way in the two universities (50% in each institution) that is to say 18 men (69,2%)

<sup>5</sup> The limited financial means was also one of the reasons for choosing two universities only. We however will gradually extend the study to the other state universities.

Ch.2. Multiple jobs holding and management of lecturers in Cameroonian...  
and 8 women (30,8%) senior lecturers in Douala and 25 men (96,2%) and a woman (3,8%) senior lecturers in Dschang.

## Dependent and independent variables

The explanatory variables used within the framework of this study are those resulting from the traditional literature on moonlighting. The majority of them enable us to capture the socio-economic characteristics of the lecturers and to simplify the analysis were each classified in two categories: the current wage condition (adequate, inadequate) taken as a proxy for the wages in principal employment, the weekly workload of courses (less than 10 hours, greater than 10 hours) taken as proxy for time constraint in principal employment, the income earned in the secondary employment (consistent, inconsistent), the gender (male, female), the zone of localisation of the University (Douala, Dschang), the occupation of an administrative office (yes, no), the highest diploma (no doctorate, doctorate and more), the rank (master, non master), the speciality (social/human sciences, sciences/technology), age (42 years and below, more than 42 years), the matrimonial status (married, single), the child burden (less than five, five and more). Lastly, for the explained variable we asked the surveyed a question to which it was necessary to answer by yes or no: *Do you exercise other activities apart from your activities of teaching and research at the university?* This was retained as a proxy of the variable multiple job-holding.

## Some descriptive statistics

Firstly, when we ask the university lecturers surveyed their point of view concerning their present wage situation, whatever their gender or university of origin, a high proportion answers that it is *inadequate* (see tables 2 and 3 in the appendix section).

From table 2, we see that among the 169 surveyed lecturers, 102 find their current wage situation is inadequate, giving approximately 60% of the sample size and of the 138 questioned men, 90 are of the same opinion, giving a percentage of approximately 65%. 38,7% of the 31 women are of the same opinion. However, we note that a rather considerable percentage (nearly 22% of the sample) of surveyed had no opinion about the

question. When we set aside this percentage in our estimates and even when we incorporate the first two columns, we note a high increase in the proportion of the people who believe that their current wage condition is inadequate at the global level (approximately 77%) and at the level of the gender (approximately 78% of the men and 70% of the women). This same reasoning holds when we consider table 3 as far as the university localisation's zone is concerned. In fact, by ignoring the last column and incorporating the first two, 77% of lecturers surveyed find their current wage situation inadequate and at the level of the universities, we obtain the same result for almost 70% of the lecturers of the University of Dschang and 83% for those of Douala. From these statistics, can one conclude that wages in main employment are one of the key factors in the explanation of multiple job-holding by lecturers of state universities in Cameroon?

## Econometric estimation of the determinants of multiple job-holding: analysis of results and discussion

### Econometric model

To highlight the moonlighting phenomenon of lecturers of state universities in Cameroon, we make the hypothesis that each lecturer can be confronted or not to multiple job-holding and that the propensity to be confronted with multiple job-holding is related to the characteristics of the individual and the administration. The dependent variable here is multiple job-holding, measured by a nominal variable. This enables us to capture the characteristics of the individuals and the administration through a logistic regression model of the form:

$$\text{Moonlighting} = \mu + \sum \beta_k X_i + \sum \theta_n Z_j + \varepsilon_{i,j} = 1$$

$$\text{If Moonlighting} = 0 \text{ Otherwise} \quad (1)$$

With:

$X_i$ : a vector of K characteristics of the individual i (age, gender, matrimonial status, child burden, highest diploma, speciality, rank, wages resulting from the secondary employment)

$Z_j$ : a vector of N characteristics of the administration (function occupied by the individual i, wage in the principal job, hour constraints in the principal job, localisation of the university)

$\varepsilon_{i,j}$ : a random error term which follows a white noise

Table 4 in the appendix section presents the variables used and their coding. Likelihood ratio tests are also performed on the variables to determine those that have a significant effect on moonlighting (see table 5 in the appendix section).

## Analysis of results and discussion

Table 6 in the appendix section presents estimates of a non parsimonious version of equation 1 for the set of variables above and information on the quality of the adjustment of the model which show that the model retained for the analysis is correctly specified. This is confirmed by the likelihood ratio test on the chi-square statistic.

Work hour constraints in the main job appear in the literature as the main determinant of moonlighting. It is captured in this study by the variables number of lecture hours and number of courses taught per week. The coefficients of these variables are negative and non significant showing that work hour constraints are not determinants of moonlighting. The odd ratios obtained for the two variables are less than 1, showing that lecturers with a lower work load (a lower working hour constraint) are more prepared to practice moonlighting than those with a higher work load (a higher working hour constraint) in the main job. However, the literature holds that the main reason for the search of a secondary job is the lower working hour constraint in the main job. University lecturers generally have many possibilities of exercising a secondary job because of their time tables. They therefore view secondary jobs as a means of gaining income during their spare time offered them by their main employer, the state. Another justification of the result obtained lies in the fact that work hour constraints are almost absent in the case of lecturers of state

universities since they have a fixed salary that does not depend on the number of hours lectured. They are not paid per hour as supposed by the work hour constraint hypothesis. The income in the main job is not conditioned by the number of hours worked. It is instead in the secondary job that the hypothesis of work hour constraint is strong since the lecturer is paid according to the number of hours worked. Given the salary conditions in the main job, we see that unlike the predictions of most studies in the literature, the variable work hour constraint in the main job does not determine multiple job holding. The hypothesis of work hour constraint does not therefore hold in the case of lecturers of state universities in Cameroon.

According to Kimmel & Conway (2001), budgetary factors impact on the holding of a second job. In fact, when salary and non-salary incomes are high, the probability of holding a second job reduces, a result that is in line with work hour constraint in the main job hypothesis (Shisko & Rostker, 1976). Our results, although being non-significant rather show that lecturers who declare having an adequate salary income have 19% more chances of holding a secondary job than those who declare their income is inadequate, thus contradicting theory. In fact, the odd ratio here is 1.19 is not significantly different from 1 and an odd ratio of 1 would imply that whatever the level of income in the main job, the probability of holding a secondary job remains the same. This is justified by the low levels of salaries and difficult working conditions faced by these lecturers daily. The income from a secondary job is therefore perceived as an additional income to improve their living conditions since without this secondary job, their level of poverty will be higher (Kimmel & Conway, 2001).

The traditional literature on multiple job holding considers socio-demographic variables like age, education, child burden and domain of specialisation as important determinants of moonlighting through the use of discrete choice models (Kimmel & Conway, 2001). These variables significantly affect the choice of an individual to take a second job or not. Why does this study contradict some of these results? The answer lies in the fact that we are working in a different environment and on a 'homogeneous' population-that of university lecturers. The 'heterogeneous' nature

of the population in previous studies is the main reason behind these different results. In fact, in this 'homogeneous' population made up of lecturers of state universities, all the individuals have a high level of education. Is this high level of education a determinant of multiple jobs holding as suggested by the literature? At first sight yes. But given the current state of university lecturers in Cameroon, this is not the case. Given that the level of education is measured using the certificates obtained (Masters, Ph.D., Post Doctorate degrees) and the rank (ATER, assistant lecturer, senior lecturer, associate professor and professor), each showing a minimum of 17 years of study for the different categories. According to the literature those with a higher level of education are more inclined to holding multiple jobs than those with a lower level. Our results show that the estimates of these two variables are not significant, showing that the level of education is not a significant determinant in the search and exercise of a secondary job. In fact, the certificate and/or grade does not affect the holding of a secondary job. This can be explained by the fact that the activities performed at the level of the main job (lecturing) are the same or almost the same in the secondary job. Another reason is the shortage of lecturers in higher education, given the ever growing number of state (08) and private universities (close to 200). However, despite the non significance of the variable level of education measured using the certificate and grade, we obtain negative coefficients and odd ratios less than 1 which is in line with certain theoretical contributions according to which lecturers with a higher level of education are more inclined to moonlighting than the others. (Guariglia & Kim 2004; Kimmel & Conway, 2001; Foley, 1997). Still in line with these authors, a higher level of education (in this case measured by the grade) leads to a higher hourly wage in the secondary job. For example, a professor will have a higher hourly wage than an assistant lecturer, thus confirming the result according to which a professor has about 2.71 times more chances than the assistant lecturer. But this does not mean that the professor or assistant lecturer will be more inclined to hold a secondary job given the non significant nature of the variable grade. In line with Foley (1997), our results show that age does not significantly influence moonlighting on the one hand,

and that age is negatively correlated with moonlighting in line with Kimmel & Conway (2001) on the other (for the latter, age is a significant factor, unlike for the former). According to our estimates, younger lecturers have about 66% more chances of holding a secondary job than older ones. In fact, the youngest lecturers (considered the most energetic) have a propensity to better cope with moonlighting. Older lecturers will also moonlight, but to a lesser extent in view of ensuring a better retirement for themselves. In fact, as suggested by Kimmel & Conway (2001) through their model on the duration of moonlighting, moonlighting is an inter-temporal phenomenon that reduces or even disappears with time and whose income has a significant impact on the level of poverty.

The majority of studies on multiple job holding attach a certain importance to the speciality of individual and the sector activity in the exercise of a secondary employment. The technical and professional sectors are often the most requested. Foley (1997), Kimmel & Conway (2001) hold that not only are these sectors among the most requested for *Moonlighting*, but also that the majority of those that find themselves in these sectors undertake the same activity in the main job. They conclude that the probability of exercising a secondary employment when one has a technical/professional qualification is higher. Our estimates, in spite of their non significance confirm these results. In fact, the lecturers of the technical or technological fields have approximately 28% more chances of exercising a secondary employment than those of other sectors. This is explained by the fact that the state universities and institutes private higher education establishments put more and more emphasis on the creation and management of technical and technological trainings than tertiary ones. Since lecturers of the technological fields are fewer, they are more demanded than the others (social and human sciences) who constitute a large share of lecturers and thus have more chances of exercising one or more jobs in addition to their main employment.

In the literature, having children has an ambiguous effect on moonlighting: thus, a high number of children increases the probability of having a secondary employment whereas to having



children of a very tender age (corresponding to the nursery school children) reduces this probability (Kimmel & Conway, 2001). Our estimates show that the number of children does not affect the moonlighting. However, the positive coefficient of the variable number of children and its odd ratio close to 1 simply shows that people with a higher number of children have the same propensity to moonlight as those with a lower number. This can be explained on the one hand by the relatively low level of wages compared to other lecturers in countries at the same level of development (Ivory Coast, Senegal, Congo, Kenya...) and on the other hand by the low difference in wages between the various ranks of the teaching corps. The non significance of the majority of our estimates compared to results in the empirical literature on multiple job holding is due to the homogeneous nature of the population on which we work as previously indicated. However, in spite of this non significance, the signs of the majority as of these coefficients are in line with the majority of studies in the empirical literature on the relationship between moonlighting and its determinants.

The results of the estimation of the parsimonious model are presented in table 7. At the level of the characteristics of the individual, we find that only two variables explain moonlighting to a significant level: These are the income resulting from the secondary employment and gender. Two variables are also significant at the level of the characteristics of the administration: These are the variables University of origin and the holding of an administrative office. The parsimonious model is thus given on the basis of these four variables.

In the light of these results, we see that *lecturers of university of Douala, lecturers who have an administrative office, lecturers whose incomes resulting from the secondary employment are not consistent and male lecturers* have a greater tendency to practice moonlighting.

According to Foley (1997), men and those who reside in urban environments are more inclined to multiple job holding, thus confirming our results: multiple job holding is therefore more justified in Douala than in Dschang since Douala is the economic capital of Cameroon and has more private university institutions (more than 40% of the private university institutions of the country are found in Douala) and more companies. Approximately 80% of

the economic activity of the country is concentrated in this city. According to our estimates, a lecturer in Douala has approximately 4,95 times more chances ( $e^{1.6} = 4,95$ )<sup>6</sup> than his counterpart of Dschang to exercise one or more jobs in addition to his main employment.

For Levenson (1995), women practice moonlighting more than men. Our results rather show the contrary and are in line with those of Carolyn *et al.*, (1994) and Foley (1997) on the "Typical Moonlighter" as concerns gender: in fact, the socio-cultural context makes of the woman the manager of domestic activities and the education of the children. This reduces the time she can devote to auxiliary activities, apart from the main job, thus confirming our results on gender which show that men have approximately 2.86 times more chances to devote themselves to auxiliary activities than women.

The holding of an administrative office, according to our estimates has a positive effect on moonlighting. The holding of an administrative office in the university by a lecturer does not eliminate his aversion for risk. The administrative position can get him functional allowances whose payment is random. The lecturer will thus prefer a sure income resulting from another employment to the hope of an uncertain income which the administrative office procures him, even if the incomes resulting from these allowances are higher than those from the secondary employment. This secondary employment allows him, as the theory of the implicit contracts (Azariadis & Stiglitz, 1983) suggests, to absorb uncertainty. The estimate of the characteristic administrative office consolidates this theory of contracts since we find that the lecturers who occupy an administrative office have approximately 3 times more chances to find themselves in moonlighting than those who do not occupy such offices.

When the incomes resulting from the secondary employment are not consistent, the tendency to exercise other jobs is higher than when these incomes are consistent. In fact, in State universities,

<sup>6</sup> We use odd ratios to facilitate the interpretation of the results by taking just the exponential of the coefficient of each variable of the model i.e.

$$e^{\beta_j}$$

lecturers generally enjoy a particular status. They benefit from an ensured employment which generally makes difficult their dismissal. This employment insurance gives them an appreciable margin of freedom to undertake secondary activities besides their job in the state universities. This state of mind is more reinforced when the incomes resulting from the secondary activities are not consistent. Thus, lecturers finding themselves in this situation will have a higher tendency hold multiple jobs in order to reach the levels of income considered as consistent. The results on the variable income from the secondary job show that those whose incomes resulting from the secondary activities are not consistent have approximately 5,17 times more chances to continue to exercise more secondary jobs than those whose incomes resulting from the secondary employment are considered to be consistent.

We finally note that the majority of the results obtained on the variables retained for this study confirm the hypothesis according to which financial need is the main reason why lecturers of State universities of Douala and Dschang to exercise multiple job holding (Parham & Gordon, 2011; Winan, 2005). This is due particularly to the strong social or Community pressures which are exerted on the university lecturer in the African context. The lecturer is generally perceived as a person having important material and financial means that should be put at the disposal of the community. To meet these requirements from the community, the lecturer is obliged to exercise moonlighting (Yamb & Bikoue 2016).

After applying the logit approach to a sample of 169 lecturers from two state universities, the results show that *the localization of the university, the holding of an administrative office, incomes resulting from the secondary employment, and gender are the significant factors of moonlighting by lecturers of the state universities of Douala and Dschang.*

## Management of lecturers in state universities

Lecturers' management in Cameroonian State universities has certain shortcomings, at least at three levels: first, in the control of teachers' behavior, secondly in the setting up of an efficiency wage

or remuneration per hour of work, and finally at the level of the mobilization of the human resource employed.

### **On the control of the behavior of lecturers**

If a payment system has as aim to influence the behaviour of the employee, the particular goal is to encourage him to work, or to dissuade him from "cheating", i.e. from adopting an "immoral" behaviour (Stankiewicz, & Lene, 2011). Summarily, it is a question for a company of controlling not only the risk or the moral risk (moral hazard) but also the risk of adverse selection. In fact, it is desirable that the management device serves to attract and preserve the best elements (Lazear, 2004). Obviously, the system of remuneration set up by the State does not seem to play this role. This system does not encourage the lecturers to give best of themselves in their main employment or dissuade them from cheating or developing opportunistic or free rider behaviours. The control of the allocation of lecturing periods by rank is far from systematic. Some State lecturers suffer under the weight of a workload high work load in the universities whereas others don't do their job. This situation opens the way to *moonlighting* for the latter category of lecturers.

### **The implementation of efficiency wages or remuneration per hour of work**

It is a question of knowing if there is a level of wages that allows the lecturers to concentrate only on their main employment? We can partially say yes. We would then qualify these wages as efficiency wages ( $w^*$ ) i.e. wages higher than the income the lecturers could obtain elsewhere (a). In other words, it is a question of granting the lecturer a rent equal to ( $w^* - a$ ). The wage  $w^*$  is described as "efficient" because it is that which generates the highest productivity (effort per FCFA spent): it is thus the most "mobilizing" level of wages as termed by Stankiewicz & Léné (2011). However the payment of efficiency wages to the lecturer does not guarantee his non participation in secondary activities. In fact, since a lecturer normally offers his annual time allocation of lectures in addition to the time devoted to research, the remaining time can be allocated to income generating activities.

An hourly remuneration of the lecturers in the State universities at a substantial rate followed by an effective monitoring (for example setting-up a biometric check of the hours lectured) would reduce the propensity to exercise a secondary employment. The time constraint would then fully play its role and would better explain the tendency for the latter in to engage in *Moonlighting*

### **Problem of the mobilisation of human resources**

In the management of human resources, managers of State Universities should show a particular interest on points such as the mobilization, organisation and training of the human resources employed from the point of view of action and the understanding of the operation of the university system as a whole. Not only should the lecturers have aptitudes and abilities, still it is necessary for them to use these well and apply them for the benefit of the universities. This is only possible by motivating them and/or by involving them in the operation and the management of the university institutions and in decision-making at all levels.

### **Conclusion and future research avenues**

The main objective of this study is to analyse and explain the moonlighting phenomenon by lecturers of State Universities in Cameroon by highlighting the managerial aspects in these universities, for a better use of the human resource employed. We used a logistic regression model which enabled us to predict the probability that a lecturer engages himself or not into moonlighting. Our analysis shows that the localisation of the university, the holding of an administrative office, incomes resulting from the secondary activities and gender better explain the moonlighting phenomenon of lecturers of State universities in Cameroon. The study data shows that multiple jobs holding by lecturers of State universities deteriorate the quality of the lessons delivered (Henderson, Darby & Maddux, 1982; Mc Ginley, 1979; Wisniewski & Kleine, 1984), this because of the absence of efficiency wages i.e. wages higher than the income the lecturer could obtain elsewhere.

To try to reduce the size of this phenomenon, the State should set up a system of incentives centred on three main points: firstly,

create a working environment that allows the lecturers to largely devote themselves to their activities of teaching and research. In fact, in the majority of the Cameroonian State Universities, only a minority of lecturers having administrative responsibilities have offices in the university campus. The consequence is that most of the lecturers are bored in the campus at the end of a course or between two courses, and tend to go to sell their know-how elsewhere in the private sector. Secondly, the government should revise the hourly remuneration rates dating from the beginning of the 70s or more than four decades. The rates currently used do not take account of the trend of the cost of living, certain goods of first necessity having seen their prices multiplied by ten in four decades. It is therefore urgent to adapt this rate to the current cost of the life. Lastly, a substantial revalorisation of the basic wages of the lecturers which could be brought closer to those of other African countries of a comparable level of development.

This study opens new prospects for research: the study should be extended to all State Universities in Cameroon to confirm or reject some of the results obtained in the traditional literature on multiple jobs holding. It will be also question of highlighting the duration of the phenomenon by lecturers of State Universities and factors which affect this duration. This will require the construction of a duration model of moonlighting like those of Paxson & Sicherman (1996) or of Kimmel & Conway (2001).

## Appendix

**Table 1.** Gender and rank according to the University of Origin

University of origin	Rank	Gender		Total
		Male	Female	
Douala	Ater <sup>1</sup>	2 (40%)	3 (60%)	5 (33,33%)
	Assistant lecturer	52 (88%)	7 (12%)	59 (65,56%)
	Senior lecturer	18 (69,2%)	8 (30,8%)	26 (50%)
	Associate professor	4 (100%)	0	4 (36,36%)
	Professor	0	0	0
	Sub Total 1	76 (80,85%)	18 (19,15%)	94 (55%)
Dschang	Ater	6 (60%)	4 (40%)	10 (63,67%)
	Assistant lecturer	24 (77,4%)	7 (22,6%)	31 (35,44%)
	Senior lecturer	25 (96,2%)	1 (3,8%)	26 (50%)
	Associate professor	6 (85,7%)	1 (14,3%)	7 (63,64%)
	Professor	1 (100%)	0	1 (100%)
	Sub Total 2	62 (82,6%)	13 (17,4%)	75 (45%)
TOTAL		138 (81,65%)	31 (19,35%)	169 (100%)

Source: adapted from Yamb & Bikoue (2016).

**Table 2.** Current wage condition according to gender

			Your current wage condition seems to you			Total
			Adequate	Inadequate	Without opinion	
Gender	Male	frequency	25	90	23	138
			18,1%	65,2%	16,7%	81,65%
	Female	frequency	5	12	14	31
			16,1%	38,7%	45,2%	19,35%
Total		married	102	37	169	
			60,4%	21,9%	100,0%	

Source: Adapted from Yamb & Bikoue (2016).

**Table 3.** Current wage condition according to University of Origin

			Your current wage condition seems			
			Adequate	Inadequate	Without opinion	Total
University of origin	Douala	frequency	13	63	18	94
			13,8%	67,0%	19,1%	55,62%
	Dschang	frequency	17	39	19	75
			22,7%	52,0%	25,3%	54,38%
Total			30	102	37	169
			17,8%	60,4%	21,9%	100,0%

Source: Adapted from Yamb & Bikoue (2016).

**Table 4.** *Summary of the variables and their coding*

		N	Pourcentage marginal
Do you regularly practice other activities besides lecturing and research in the university (Dependent variable (q7))	Yes (1)	68	40,2%
	No (0)	101	59,8%
University of origin (q1)	Douala (1)	94	55,6%
	Dschang (0)	75	44,4%
Administrative function (q3)	Yes (1)	30	17,8%
	No (0)	139	82,2%
sex (q32)	male (1)	138	81,7%
	Female (0)	31	18,3%
Your pay for activities out of the university is (q30)	not consistent (1)	27	16,0%
	Consistent (0)	142	84,0%
Highest university qualification (q6)	Les than Ph.D.(1)	107	63,3%
	Ph.D. or more (0)	62	36,7%
Grade (q7)	non magistral (1)	157	92,9%
	Magistral (0)	12	7,1%
Field of the certificate (q10)	social/human sciences (1)	125	74,0%
	sciences/technology (0)	44	26,0%
Your current salary condition is (q12)	Inadequate (1)	139	82,2%
	Adequate (0)	30	17,8%
Your weekly lecture load (number of hours) is: (q20)	6h or less (1)	40	23,7%
	More than 6h (0)	129	76,3%
Number of courses taught per week (q21)	less than 3 (1)	83	49,1%
	3 or more (0)	86	50,9%
Age (q31)	42 years or less (1)	102	60,4%
	More than 42 years (0)	67	39,6%
matrimonial status q(33)	Single (1)	68	40,2%
	married (0)	101	59,8%
Number of children taken care of (q34)	Less than 5 (1)	134	79,3%
	5 or more (0)	35	20,7%
Valid		169	100,0%
missing		0	
Total		169	
Sub-sample		125 <sup>a</sup>	

**Source :** obtained from survey data results.

**Notes:** a.The dependent variable has only the observed value in 114 (91,2%) sub-populations.



**Table 5.** *Likelihood ratio tests on the variables*

Effect	Criteria of adjustment		Likelihood ratio tests		
	of the model		degrees of		
	-2 log-likelihood ratio	Khi-	squared	freedom	Signif.
	of the reduced model				
Constant	158,323 <sup>A</sup>	,000	0		.
Q1= University	171,083	12,760	1		,000
q3= administrative function	162,097	3,774	1		,052
q6=diploma	158,516	,193	1		,660
q7=rank	160,050	1,727	1		,189
q10=speciality	159,111	,789	1		,375
q12=wage in the principal job	158,452	,129	1		,719
q20 = weekly teaching hours	158,828	,506	1		,477
q21 = weekly course load	159,924	1,601	1		,206
q30=wage in secondary employment	168,241	9,918	1		,002
q31=age	159,489	1,166	1		,280
q32=gender	161,257	2,934	1		,087
q33= matrimonial status	158,836	,514	1		,474
q34- child burden	158,346	,023	1		,880

**Notes:** The Khi-squared statistic is the difference between 2 log-likelihoods- the final model and a reduced model. The reduced model is formed by omitting a variable of the final model. The hypothesis is zero if all the parameters of this effect are equal to zero; a. The reduced model is equivalent to the final model because the omission of an effect does not increase the degrees of freedom.

**Table 6.** *Estimation of the parameters of the non parsimonious model*

Do you regularly perform other activities apart from your activities of lecturing and research at the university						95% Confidence interval for Exp(B)			
		B	std. error	Wald	Degrees of freedom	Signif.	Exp(B)	Upper boundary	Lower boundary
dsion0	Yes	Constante	-1,895	1,129	2,819	1	,093		
		[q1=1,00]	1,521	,445	11,656	1	,001	4,575	1,911
		[q3=1,00]	1,179	,622	3,590	1	,058	3,251	,960
		[q32=1,00]	,901	,547	2,712	1	,100	2,463	,842
		[q30=,00]	1,599	,533	8,988	1	,003	4,946	1,739
		[q6=,00]	-,185	,421	,194	1	,660	,831	,364
		[q7=,00]	-,996	,766	1,692	1	,193	,369	,082
		[q10=,00]	,428	,485	,779	1	,378	1,535	,593
		[q12=,00]	,177	,493	,128	1	,720	1,193	,454
		[q20=,00]	-,338	,476	,502	1	,479	,713	,280
		[q21=,00]	-,557	,441	1,596	1	,207	,573	,242
		[q31=,00]	,507	,474	1,142	1	,285	1,660	,655
		[q33=,00]	-,320	,446	,514	1	,473	,726	,303
		[q34=,00]	,088	,578	,023	1	,880	1,091	,352
		b	.	.	0	.	.	.	.

**Notes:** a. The reference modality is No; b. This parameter is set to zero because it is superfluous.

**Table 7.** *Estimates of the parameters of the parsimonious model*

Do you regularly perform other activities apart from your activities of lecturing and research at the university		B	Std error.	Wald	degrees of freedom	Signif.	Exp(B)	Confidence interval 95% for Exp(B)	
								Lower boundary	Upper boundary
dimensi on0	<sup>a</sup> Yes								
	Constant	-2,707	,584	21,495	1	,000			
	Douala University	1,600	,387	17,049	1	,000	4,953	2,318	10,585
	Administrative office	1,110	,468	5,616	1	,018	3,033	1,212	7,592
	Secondary income not consistent	1,643	,520	9,971	1	,002	5,172	1,865	14,343
	Male gender	1,051	,525	4,001	1	,045	2,860	1,021	8,008

**Source:** Results obtained from the data

**Notes:** a. The reference modality is No

**Table 8.** *Information on the adjustment of the model*

Model	Model adjustment			
	criteria	Likelihood ratio tests		
	-2 log likelihood	Chi-square	Degrees of freedom	Signif.
Constant	207,579			
Final	158,323	49,257	13	,000

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# 3

## Corruption and registration in public educational institutions: Who takes the initiative? An analysis of microeconomic data of the Cameroonian regions

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### Introduction

**E**ducation is considered by Becker (1964) as the main investment in human capital, as it may develop a better productivity of the Work force and therefore its remuneration. Education is not only a mode of transmission of knowledge; it is also a way of transferring moral habits and behaviors. Unfortunately in many countries of the world, especially the poorest where corruption is a norm in elementary school, high school and university, education can no longer fulfill its function of transmitting moral values and behaviors.

According to the report of the conference of the World Education Forum held in Dakar in 2000 (UNESCO, 2000),

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"Corruption is a major economic burden that drains resources from education and therefore should be strongly resisted." Gupta *et al.* (2002) found that the desertion rates in schools are five times higher in countries where corruption is higher than in those where it is low. Francis Huang (2008) found by studying a sample of 50 countries, that the higher the rate of perceiving corruption in a country, the poorer the school outcomes.

To address this issue, several studies have been conducted over the past two decades by the World Bank, Transparency International and various universities. The authors of these works based themselves on the popular definition of corruption, namely. "The use of public resources for private purposes." In this context, some (Mauro, 1998; Das *et al.* 2004; Arcidiacano, 2005) examined the practices of high corruption involving large amounts of money and State summits - for example, the embezzlement of funds for major public projects like the building of schools. Others (Karim, 2004; Chaudury *et al.*, 2003) studied the practices of little corruption which concerns small civil servants and lesser amounts - for example, the collection of illegal registration fees by schools officials. These works helped to make progress in the fight against corruption. In particular, they have contributed to know that by institutionalizing people's right to information on the activities of civil servants, they will be forced to improve their behavior. But these works are limited especially because of the ignorance of factors behind this phenomenon, particularly small corruption. If the theoretical literature offers a detailed reading grid (Mocan, 2004; Lui, 1885, Kaufman & Wei, 1999) of specific situations, the empirical literature, nevertheless, remains limited.

It is true that Lavallée *et al.* (2010) used the Afro barometer survey to determine the factors that are responsible for the practices of small corruption in health and educational services in 18 African countries. This study is important because it confirms a particular behavior of women as far as corruption is concerned, according to the number of previous studies on this issue (Dollar, Fisman, & Gatti, 2001; Swamy *et al.*, 2001). Indeed, women are less willing to make undue payments in case of a potential problem with the administration. However, this study cripples the functionalist argument that corruption is a way to



grease a "system" facing an invasive bureaucracy and a regulation stifling a private initiative (Cartier Bresson, 1998). One limitation of this study is that it does not take into account the case of Cameroon which during the last 20 years, is one of the few countries that were ranked for two consecutive years at the forefront of the most corrupt countries in the world according to Transparency International.

This chapter therefore aims to fill this gap by finding out who initiates the corrupt act in public schools of this country. Theoretically speaking, the initiative can either emanate from school authorities (passive corruption) or from applicants (active corruption) (Dommel, 2003). Empirically speaking, the distinction between these two types of corruption is rarely made. Many surveys on households reported the perception that they pay non-regulatory fees. Unfortunately, the resulting data provide no information on the initiative of taking corrupt actions. In contrast, the survey that the National Institute of Statistics conducted in 2007 in the twelve Cameroonian regions help to analyze this important topic in the educational field.

However, in Cameroonian public schools, it is not enough to simply know that the taking of initiative for the corrupt act comes from school officials; the most important is to identify the agent from whom it truly emanates; is it from the school Director or his collaborators? This question helps to test through theoretical models (Shleifer & Vishny, 1993; Rose Ackerman, 1978), if civil servants in a monopoly situation, notably Heads of institutions, are more likely to collect bribes.

We will also seek to determine the characteristics of users who initiate the corrupt act, even if the popular definition of corruption less adapts the idea of active corruption. But byso doing, we will at the same time emphasize on the characteristics of some of the users who pay non-regulatory fees. Indeed, the question related to the payment of these fees helps to know, as suggested by the theoretical models (Kaufman & Wei, 1999; Lui, 1985), whether civil servants target their victims based on their ability to pay. Such an argument implies that the richest people, those who have a job or those who have the highest tolerance to corruption should be those that are asked bribes the most.

In Cameroon, the National Commission against Corruption (CONAC) obtained mitigated results in the fight against this scourge in education as a whole, and especially during students' registration in public schools, partly because they ignore the actors' identity. The purpose of this study is twofold.

First of all, it will help to identify people who, on the side of school institutions, receive more bribes during registration. Then, it will seek to highlight from the demand side, the characteristics of applicants who are most vulnerable to this phenomenon. In both cases, we will highlight areas where the phenomenon is most widely practiced.

Secondly, this study will propose appropriate measures against this scourge because education is seen in every country in the world not only as a key to a better future, but also as a way to transfer moral habits and behaviors; actually, to fight against corruption in education implies to fight against this scourge in all sectors of active life.

The second section proposes a review of the literature on the mechanisms and factors causing corruption in the educational sector. Section 3 presents how school registrations are conducted in Cameroon and factors that expose this practice to corruption. Section 4 highlights on the conceptual model as well as the implemented methodology. Statistical estimates obtained are discussed in section 5. Section 6 concludes the study and discusses the recommendations on the fight against this phenomenon.

## Literature review

In the economic analysis of crime, the individual weighs the costs and benefits of a loyal act, and compare them to those of a disloyal act, and then chooses the one that maximizes his own interests (Becker, 1968). According to this analysis, an agent will be corrupt when in his mind; the advantages he hopes to gain from such behavior are above the expected costs. Similarly, a user will not engage in bribery or other forms of illegal behavior if for him the benefits outweigh the potential costs (Klitgaard 1989). In this perspective, it is likely that the economic agent chooses to engage in a corrupt action when it is advantageous to him. The initiative of this act can come from

either the agent or the user or even the both.

However, the ability of the State Agent to take initiative for the corrupt act would be more important than that of the user if we refer to Klitgaard's equation (1989) which states that corruption is equal to monopoly plus discretion power minus responsibility.

Indeed, the monopoly creates opportunities for corruption by limiting the ability of students and parents to choose other providers of educational services. For example, in the only government school of the village, the parent may be forced to pay bribes to register his child because there is no other alternative.

Discretion refers to the autonomy of power that can be enjoyed by agents of the educational system in decision making, regarding for instance the choice of allowance methods of resources to schools. Das *et al.* (2004) showed that in Zambia, the fixed allowance reached more primary schools than the discretionary subsidy to schools by local authorities (90% against less than 20%). A high level of discretion power without adequate control creates opportunities for corruption.

Responsibility can be considered as the requirement that educational managers are accountable for the results they get. Lack of accountability creates opportunities for corruption. Ultimately, Klitgaard's equation (1989) reinforces the idea that corruption is essentially passive (Dommel, 2003).

For other authors, the corrupt act comes essentially from social facts (Bissessar, 2009; Andvig & Moene, 1990) and not from the agent or the user. These facts therefore instigate them to take initiative for corrupt acts. So, Andvig & Moene (1990) suggest that the more there is corruption, the less it is costly for the briber and the civil servant to initiate corrupt relationships, and this for two reasons. First and foremost, it is conceivable that the guilt engendered by corruption decreases as the practice is being spread. Secondly, the spread of corruption would reduce the initiation costs of the corrupt relationship. Indeed, as the number of corrupt bureaucrats grows, it is easier for an individual to find a corrupt civil servant (Lavallée *et al.*, 2010). The increase in the number of civil servants reduced the entry cost (loss of reputation or risk of punishment) of new entrants (as well

as the amount of the bribe), and leads to a contagion of the entire administration (Andvig, 1991). In this logic, if all civil servants are upright, it brings nothing to be corrupt; if all civil servants are corrupt, honesty does not pay (Cartier Bresson, 1998). Gatti, Paternostro & Rigolini (2003) show on a sample of 35 countries that these social effects play an important role in determining individual attitudes towards corruption.

Besides that, companies which social norms are not based on meritocracy often face academic corruption (Meier, 2004). In comparative studies of different models of formulas for allowing resources to schools, Levacic & Downes (2004) showed that a very readable formula or having "negative incitations" for those who implement it, or misunderstood by the general public, was likely to encourage the development of fraud practices—insofar as only a few specialists can verify that the funds have been allocated properly.

According to Meier (2004), there is clear relationship between corruption and economic factors such as inadequate wages. These factors can push agents to initiate corrupt acts. Indeed, the low wages in the Public Service, including in the educational system, largely explains the trivialization of small corruption (Klitgaard 1989; Beley & McLaren, 1993). The more the level of salaries in the Public service is less than those of the private sector, the greater the temptation of illegal cash up will be powerful (Cartier Bresson, 1998).

## Registrations practice in the Cameroon educational system and the actors' behavior

The registration of a student in a school is an administrative act by which the Head of that institution gives him permission to attend classes. In each institution, students who repeat or pass to the next level are allowed to register for the following year. However, new students from other institutions may register only if they meet the admission requirements. The problem that arises is what are the requirements for registration for new students? What are the actions that parents and school leaders take for the promotion of students' registrations in institutions? To answer these questions, we will present recruitment modes prevailing

in Cameroon, parents “and Heads of Institutions” tasks respectively, and then highlight the different actors’ behaviors in the registration process.

### **Registrations practice and recruitment modes**

The Cameroon educational system is generally divided into four modes of recruitment namely the competitive exam, the transfer, the study of credentials and finally the 'negotiation'. The survey that the National Institute of Statistics has carried out in 2010 in the twelve regions of the country on the monitoring of public expenditures for education (INS, 2010) reveals that the recruitment based on the candidate status or on the study of files is the most used mode because 68.6% of recruitments are done through this channel. Competition mode ranks second, negotiation and transfer third and fourth respectively. However, this classification is constant when we go from one region to another. So, whatever the chosen method of recruitment, the registration process requires that the parties involved including parents and school leaders have the necessary resources for the implementation not only of registration, but also for the running of schools.

To promote registrations, students and public authorities represented by parents and school leaders respectively must assume some responsibilities.

Parents have to bear legal fees and sometimes illegal ones (rightly or wrongly) required by heads of institutions or their employees. Fees that parents must legally pay to the school include school and registration fees. However, it sometimes happens that they pay non-regulatory fees. According to (INS, 2010), the phenomenon of non-regulatory fees is most practiced in the public sector than in the private sector, and the Yaoundé and South regions are those where the practice is the highest. The North-West and the Far North are regions where the phenomenon is less common. But it is unclear whether the initiative comes from parents or school principals.

Students’ registration assumes that the school principal has a minimum of material and human resources to accommodate them. Lack of resources can be the source of

corruption. Thus, investigations of INS 2004 and 2010 give us an overview of the status of available and non-available resources in the Cameroonian primary and secondary schools. The survey shows that there is lack of seating places in secondary schools and that each school in Cameroon would have an average of 885 seats for about 930 students. On average, there are fewer places than students in schools. This deficit is increased in the survey areas of Yaounde, Douala and in the Far North. However, in the Adamawa, Center, East, West and North-West, it's rather noted the existence of a potential of unexploited seats in the greatest number of schools. This finding is generally valid for rural areas of the survey zones except for the West and the North-West where it's generalized to all environments. In urban areas, the regions of Yaounde, Douala, Center and Littoral present the most exceeded carrying capacities.

Since the introduction of free public education and therefore the removal of school fees in primary education, the State has established the "minimum package" to alleviate the teaching material needs in primary schools. This is actually a providing teaching materials corresponding to the minimum needs of each school, and which is sent to the school at the beginning of the school year. In 2008/2009, despite the efforts of the authorities for the minimum packet to reach its destination, 4.5% of public primary schools across the country say they have not received it, including 5.6% in urban areas against 3.4% in rural areas. The survey also allows having an idea of the main difficulties encountered to remove the minimum package in a given region.

The first obstacle to the distribution of the minimum package is landlocked regions. 61.2% of school principals complain about that obstacle. The second obstacle is the delay in the arrival of the minimum package and the fact that it is sometimes incomplete; 52.2% of the principals took note of it. The third obstacle is the lack of ferry fees to send it. 3.3% of principals complain that authorities who distribute the minimum package require bribes. All these obstacles act in such a way that school principals do not have the minimum allocation for the teaching materials corresponding to the minimum needs of each institution at the beginning of the school year. It is therefore possible that they

ask parents wrongly or rightly to participate in the provision of this material for their children to be enrolled.

### **The actors' behavior**

This is to describe the corrupt behavior of suppliers (School leaders) and applicants (users). In other words, to highlight a diagram explaining their corrupt behavior. If the taking of initiative for the corrupt act comes from the suppliers, it is important to know from whom it actually emanates. From the Principal or his collaborators? Given a model consists of three actors namely students (or their parents), the director / principal (Boss) assisted by a colleague or employee (agent) in the provision of educational services like the recruitment of children in a school. After being provided with the required formal application for registration, the parent is, at first, received by the collaborator. The latter identifies the characteristics of the student's file, age, medical certificate, transcripts of the previous year, etc. Secondly, with the consent of the agent, the parent is received by the principal. Because of the asymmetric information and the difference of interests between the director and his collaborator, the initiative for corruption can come either from the first or the second, or from the both.

In the first case, unbeknownst to the boss, the colleague may require that the parent provides a bribe for privileged access (market corruption). But if the parent is a close relationship to the colleague, he/her can offer him/her privileged access without receiving bribe. In this case, Medard (1998) talks of social exchange corruption. In the second case, after identifying the characteristics of the file, the colleague authorizes the encounter between the parent and the principal. He can receive the parent and may also first and foremost require the payment of a bribe. It can also be an agreement between the director / principal (Boss) and his collaborator (agent). In this case, the latter collects bribes from the parent and gives them to the boss for share. In all these cases, the problem that arises is who between the colleague and the principal takes most the initiative for the corrupt act?

The initiative for the corrupt act may also come from the

applicant insofar as they are generally many outside the office of principal / directors because the supply of services is almost always much lower than the demand. They must therefore be aligned to be received, each person waiting for his turn. However, the applicant who waits for his turn in the waiting line totally ignores the behavior of the applicant who has already being received by the principal. In fact, some parents do not hesitate to propose bribes to the teaching staff to enroll their children, especially in case of a delay to submit the application at the registration period (parents went about it too late) or because of a poor quality of the application of their offspring.

### **Motives for the initiative taking for the corrupt act: A theoretical discussion**

The ECAM3 survey on parents reveals five reasons that are behind the initiative of corruption. These motives can be classified according to the malfunctions related to the supply or the demand. In the first case, it is about limited seats in classrooms, scarcity of benches and tables and the compulsory purchase of school items from schools. In the second case, it is about the delay at the time to apply for registration (the household went about it too late), and the poor quality of the application (see appendix A, table A1).

In general, the "limited seats", according to most respondents are 38.82% the most important reason (this element was quoted 28,278 times by parents as a reason). Indeed, the scarcity of public facilities (seats in classrooms) generates waiting lines. The more they are significant and the greater they are indispensable; the better parents are willing to pay a premium for privileged access (Bresson, 1998).

However, when we go from one region to another, the reason for taking this initiative may change. Thus, in the Yaounde, Adamawa and Center regions, the most prominent reason is the limited seats, while in the Douala, Far North, Littoral, West, North-West regions, the most prominent reason is the inadequacy of school facilities and especially the benches (see appendix A, table A1) two scenarios are possible, a real lack of equipment and an artificial shortage. In the first case, the



requirement of irregular payments by the heads of institutions to purchase benches can be understood, but is not justified insofar as this role falls to the public authorities. Actually, these authorities send allocations to schools for their running, which unfortunately can be achieved with a delay or not at all (see appendix B, table B1), what could justify the requirement of such payments by school leaders. In the second case where the shortage does not exist (benches are available), some principals artificially create scarcity and push parents to pay them bribes. In fact, for the student's parent, the payment is actually to buy a bench; yet, it has nothing to do with it insofar as that payment goes into the pockets of the principal.

Another alternative in this case can appear namely the availability of benches in classrooms according to the standard set by public authorities (for example, 50 students per classroom). However, School leaders do not respect the standard set by the government and go beyond it by requiring payments from parents for surplus of benches (which is illegal) for their children. In fact, if the standard set by public authorities is 50 students per classroom, the school leader can go beyond that standard and recruit more students, thus justifying the requirement for additional payments. Once again, public authorities do not fully play their role. Control missions which should occasionally inspect school facilities and ensure compliance with standards are absent. Even though some of these missions are present, they are sometimes corrupt by the school authorities (see appendix B, table B1, and corruption among civil servants).

In the South, South-West and East regions, the poor quality of applications is the most prominent reason. Indeed, a parent whose child has been expelled from school for bad results can renegotiate his/her place to the leaders of the same school or another one for him/her to be readmitted or admitted. He will then pay bribe in exchange of a re-registration or a registration. One of the reasons that instigate parents to do so is the high school fee in private schools which are alternatives to public schools. By re-registering or registering a student expelled from school in the same school or in another school, the parent avoids

paying high school fees in the private. In one case as in the other, the national decision taken by the governing board for poor performance is harmed. The school management is no longer based on the cult of merit, but rather on 'the power of money'.

Finally, in the western region, the most prominent reason and for which the initiative for corruption is taken is the compulsory purchase of school items (reams of paper, notebooks and sportswear) within these institutions at significantly higher prices than those on the market: in fact, the sales function of school items namely sports clothing is not meant for the institutions, but rather for approved structures.

## Methodology and modelization of the taking of initiative for

The initiative taking for the corrupt act in terms of supply will be tackled through odds ratios but also, through the relative risk and differences in proportions. For each region, we built the contingency table 2 x 2 as follows:

**Table 1.** *Joint and Conditional Distributions*

<i>Official Who Perceived Bribes (P)</i>	No	Yes
Head Master/Director	$\pi_{11}$ $(\pi_{11})$	$\pi_{12}$ $(\pi_{2/1})$
Colleague/Collaborator	$\pi_{21}$ $\pi(1/2)$	$\pi_{22}$ $\pi(2/2)$

**Sources:** Authors' Conception

Where  $\pi_{ij}$  represents the number of officials who received bribes and take the initiative or not for such payment,  $\pi_{i/j}$  the number of officials who received bribes given the initiative taken to payment.  $\pi_{ij}$  and  $\pi_{i/j}$  representing respectively the joint and conditional distributions used to calculate the following odds ratios.

$$\theta = \frac{\pi_{11} / \pi_{12}}{\pi_{21} / \pi_{22}} = \frac{\pi_{11} \pi_{22}}{\pi_{12} \pi_{21}}. \tag{1}$$

The numerator and denominator of the first term of this equation represent respectively the relative risk compared to the responses of the payment initiative, that is, 'no' or 'yes'. When

$1 < \theta < \infty$ , we will say that the Head of the school (Principal / Director) would tend not to take more initiatives concerning corrupt actions (or take less initiative) than his colleagues or collaborators. In this case, at the level of the numerator of the relative risk of the first term, we will have  $\pi_{1/1} > \pi_{1/2}$  that will be rather interpreted in terms of probability, that the proportion of schools leaders not taking initiative for corrupt actions would be  $x$  times higher than that of those who are not leaders. At the contrary, if  $0 < \theta < 1$ , one will have the opposite effect at the level of interpretations with  $\pi_{1/1} < \pi_{1/2}$ . It is worth turning now on the demand side to highlight the characteristics of users who initiate corrupt actions.

We can tackle the initiative taking for the corrupt act by applicants through a Poisson distribution, given that the behavior of the latter is materialized by long waiting lines in front of the Principal's office as formerly described in the previous section. In fact, the applicant  $i$  who waits for his turn completely ignores the behavior of the applicant  $j$  who was already received by the Principal/Headmaster. In view of the above, we can consider the initiatives for the corrupt act taken by users as being random and independent from each other in time and space, the different occurrences of events apparition in a contingency table being often identified as independent random variables that follow a Poisson distribution. The taking of initiative for the corrupt act being the choice of the applicant, it may be captured through the various components of a generalized linear model (GLM), this thanks to a Poisson distribution of the following form.

$$f(n_i m_i) = \frac{e^{-m_i} m_i^{n_i}}{n_i} \quad (2)$$

Where  $n_i$  represent the frequency of the occurrence of the event 'initiative taking for the corrupt act by users', considered as independent random variables constituting the contingency table cells, and  $m = E(n_i)$  being the corresponding expected

frequencies. This distribution can also be rewritten as.

$$f(n_i, m_i) = \exp[n_i \log(m_i) - m_i - \log(n!)] \quad (3)$$

$$= \exp[n_i \theta_i - \exp(\theta_i) - \log(n!)] \quad (4)$$

$$f(n_i; m_i) = \exp(-m_i) \left(\frac{1}{n_i!}\right) \exp[n_i \log(m)] \quad (5)$$

This last expression is but the general expression of the probability distributions belonging to the family of exponential distributions. Using the various transformations and existing functional links between the GLM components, the last expression above leads directly to the log-linear model used below in our estimates through contingency tables.

$$\log m = X\beta \quad (6)$$

X is the matrix of the model containing the values of the independent variables for N observations and  $\beta$  the vector of the model parameters.

The response variable (the frequency of the occurrence of the event taking initiative by users) here follows a Poisson's distribution and the function of the chosen link being the log, the average parameter  $m$  of the Poisson distribution will be therefore linked to the linear predictor through the following relationship,

$$\log(m_i) = \sum_j \beta_j x_{ij} \quad i = 1, \dots, N \quad (7)$$

### Independent variables used and signs expected

The independent variables used in this study are mostly from the classic literature on the determinants of corruption in developing countries. These are the region, place of residence, gender, standard of living, age and activity status variables. Thus, for each observation  $i$  we have the following relationship.

$$\log(m_i) = \theta_0 + \sum_j \text{region}_i(j) \beta_j + \sum_j \text{milieu}_i(j) \beta_j + \sum_j \text{gender}_i(j) \beta_j + \sum_j \text{level}_i(j) \beta_j + \sum_j \text{age}_i(j) \beta_j + \sum_j \text{activity}_i(j) \beta_j$$

Each of the above mentioned variables being associated with the level of independent variables for the observation  $i$  namely.

$$x_{ij} = \begin{cases} 1 & \text{If } x = j \\ 0 & \text{If } x \neq j \end{cases}$$

Gender appears to be causing the behavior towards corruption. Numerous studies carried out at the individual level emphasize that women are less tolerant than men with regard to corruption (Dollar, Fisman & Gatti, 2001; Swamy *et al*, 2001). Also, at the macroeconomic level, Dollar, Fisman & Gatti (2001) showed that countries where women's representation in politics is high are also those having the lowest levels of corruption.

Age also appears to be a factor in reducing exposure to corruption (Hunt, 2004; Seligson, 2006). According to Seligson (2006), young people are more often victims of corruption as they have to settle in life and thus, be more in touch with the administration. Hunt (2004) believes that older people are less victims of corruption as they have had time to create a "trust network". Gradually as life progresses, reciprocal exchanges (social capital) would replace corruption.

Residential environment equally appears to be a factor that exposes people to corruption. For Seligson (2006), corruption is an urban phenomenon. Urban people are more likely to seek services from State officials than rural people who have little contact with them.

The functionalist sees corruption as a way to lubricate a system confronting a pervasive bureaucracy and regulation stifling private initiative (Bhagwati, 1982). In such an environment, those in a waiting line, having higher incomes and giving more value to a fast service, tend to take the initiative to pay bribes for a privileged access. Corruption is an auction mechanism for a user to own something he values most (Cartier Bresson, 1998).

## **Statistical estimate and empirical discussion**

### **Why do some managers take more initiatives than others as far as corrupt acts are concerned? An odds ratio approach estimation**

Table 2 below shows that school leaders are those who at the forefront, initiate acts of corruption in 50% of the Cameroonian regions (Douala, Adamawa, Center, North, North- West and South-West). Other school officials rank second because they initiate corruption acts in 33.33% of the regions (Yaounde, Far North, West and South). Our results do not allow us to talk in favor of the first or the second in 16.66% of the regions (East and Littoral).

Two reasons help to explain why school leaders rank first. Firstly, within an institution, there is a single leader. Other officials namely, supervisors, censors, teachers are subordinated to him. For example, a parent cannot enroll his child in a school without the consent of the Principal. Monopoly creates opportunities for corruption enjoyed by the boss by limiting the ability of parents to contact other officials. The State being the only provider of educational services, a student's parents can be forced to pay bribes. However, the private sector also offers similar services. But they are more expensive and therefore inaccessible to most parents. Secondly, school leaders are holders of a discretion power insofar as they have considerable autonomy in decision-making. Certainly, there is a statutory text in secondary education that establishes a committee for students' enrollment chaired by the Principal. This committee consists of the censor, the general superintendent, a representative of the mayor and a sub-divisional officer. Yet, such a committee is expected to control the discretion power of the leader.

Two reasons help to explain why other officials rank second in the taking of initiative for the corrupt actions in four areas: Yaounde, Far North, West and South. Firstly, in these regions, other officials are involved in the students Registration Committee. They decide for the quality and quantity of students to enroll. Their presence in the Registration Committee grants to other officials a certain discretion power. Precisely, a strong discretion

power without adequate control creates opportunities for corruption. These managers can use this discretion power to enroll students in exchange of a bribe. Secondly, in many schools, the leaders give each teacher the possibility to register a number of students. Some teachers use this delegation of responsibility to enroll students in exchange of bribes.

**Table 2.** *Relationship between managers who received non-regulatory fees (P) and the payment initiative (I) given the region (R)*

Region (R)	Manager who received bridge (P)	Payment initiative (I)		Magnitude difference (%)
		The applicant	The official	
Douala	Head Master/Director	729.5 (4.63)	15036(95.37)	72.4
	Other Officials	3302.5 (24.5)	10162 (75.5)	
	Total	4032 (13.8)	25197 (86.2)	
Yaounde	Head Master/Director	784.5 (4.74)	15754 (95.26)	94.96
	Other Officials	0.5 (0.00)	14551 (100)	
	Total	785 (2.52)	30304 (97.48)	
Adamaoua	Head Master/Director	210.5 (13.42)	1358.5 (86.58)	29.74
	Other Officials	525.5 (99.90)	0.5 (0.10)	
	Total	736 (35.13)	1359(64.87)	
Center	Head Master/Director	1249.5 (21.3)	4609.5 (78.7)	41.1
	Other Officials	674.5 (99.93)	0.5 (0.07)	
	Total	1924 (29.45)	4610 (70.55)	
East	Head Master/Director	0.5 (0.02)	2117.5 (99.98)	99.94
	Other Officials	0.5 (0.04)	1261.5 (99.96)	
	Total	1 (0.03)	3379 (99.97)	
Far North	Head Master/Director	304.5 (6.0)	4738.5 (94)	92.24
	Other Officials	0.5 (0.02)	2804.5 (99.98)	
	Total	305 (3.88)	7543 (96.12)	
Littoral	Head Master/Director	0.5 (0.01)	5213.5 (99.99)	99.95
	Other Officials	0.5 (0.02)	2414.5 (99.98)	
	Total	1 (0.013)	7628 (99.97)	

**Sources:** Authors' calculations based on survey data of ECAM3 2007

The above table sets out the relationship between the Head of the institution who collects non-regulatory fees, the payment initiative that can come either from the applicant or an authority of this school (the Principal or someone else), and the region in which the corrupt act takes place. We have two independent variables namely the region (R) and the type of

manager who collects non-regulatory fees (P). The dependent variable here is the origin of the payment initiative (I) either from the applicant or from an authority of the institution; This allows us to analyze the various corrupt behaviors between the different actors (Principals and applicants) in each region, this latter variable also being seen as a control variable.

The table shows the proportions (figures in parentheses) of those who initiate the payment, that is to say, that of the corrupt act; it is clear that whatever the region, the proportion of school officials responsible for the corrupt act, that is, who ask the applicant to pay bribes to be served, is significantly greater than that of the users who take more initiative to do so; we say for example that in the Douala region and its surroundings, the payment initiative (or the corrupt act) is usually about 72% (86.2% - 13.8%) higher among Heads of institutions (The school leader or someone else) than among applicants requesting for service. This table (see in column „magnitude of the difference in %) therefore traces the extent of the corrupt act of schools managers as compared to applicants for each region.

The magnitude of the corrupt act being greater among school leaders than among applicants, we will once again from the table above determine which category of school authorities (Principal or other) is more at the origin of the corrupt act; This will help us to make a typology of the different categories of the most corrupt leaders and this by region, since this magnitude varies from one category to another as the data of the table indicate. In Douala for instance, estimates of the table show that among schools managers, the payment initiative is usually about 20% (95.37% - 75.5%) higher among leaders (High school Principal or Primary school Director) than among other officials, this with a relative risk of about 1.26 (95.37 / 75.5). In other words, the proportion of officials subject to corrupt act is about 1.26 times higher (26% or higher) for Heads of schools than for other officials. The same patterns with different magnitudes and relative risks are found in the Adamawa, Center, North, North-West and South-West regions.

However, some regions in this table show opposite tendencies to those observed earlier. As a matter of fact, the magnitude of the



taking of initiative for the corrupt act is rather lower with the Head of the school than with his collaborators in these regions. It is the Yaounde region and its surroundings (a payment initiative higher for about 5% for other officials for a relative risk of almost near 1.05), the Far North, West and South regions.

Finally, we observe two regions, namely the East and Littoral where the magnitude of the taking of initiative for the corrupt act between school leaders and their colleagues is almost the same, the relative risk in both case being equal to 1. Table 3 below thus shows for each region, the magnitude of the taking of initiative for the corrupt act by different categories of leaders.

**Table 3.** *Identity of those who take initiatives for the corrupt act in a given region*

Regions in which the initiative taken by the Head of the Institution is the highest as compared to others		
Region (R)	Taking initiative for the corrupt act	
	Relative Risk	Magnitude (in %)
Douala	1.26	20
Adamaoua	910	86,5
Center	1062	79
North	1.26	15
North-West	1.07	7
South-West	1.33	25

  

Regions in which the initiative taken by others is the highest as compared to that of the Head of the Institutions		
Region (R)	Taking initiative for the corrupt act	
	Relative Risk	Magnitude (in %)
Yaounde	1.05	5
Far-North	1.06	6
West	1.14	10

  

Regions where the magnitude of the initiative taken by the two groups is essentially the same		
Region (R)	Taking initiative for the corrupt act	
	Relative Risk	Magnitude (in %)
East	1	0.02
Littoral	1	60.01

**Sources:** Authors' calculations based on survey data of ECAM3 2007

The table below shows the estimated odds ratios reflecting the relationship between the three variables; these odds ratios were obtained from the data in Table 2; these odds ratios will allow us to

better understand the extent of the corrupt act by highlighting previous analyzes. Thus, an odds ratio of  $\theta_{PI/R} < 1$  will simply imply that in the teaching staff of a given region, the opportunities of taking initiative for the corrupt act will be higher for school leaders than for others, and an odds ratio of  $\theta_{PI/R} > 1$  will have the opposite effect. Let's note that the more  $\theta_{PI/R}$  will be closer to zero, the magnitude of the initiative taken by Heads of institutions will be higher than that of their colleagues.

**Table 4 (Part-I).** *Typology of corrupt Regions and Relationship between (P) and (I) given (R) in the Cameroon Educational System.*

<i>Region</i>	<i>Odds Ratio (<math>\hat{\theta}_{PI/R}</math>)</i>	<i>Confidence interval of 95% of the odds ratio (<math>\hat{\theta}_{PI/R}</math>)</i>	<i>Rang</i>
Douala	$\hat{\theta}_{PI/Douala} = 0.15$	$\hat{\theta}_{PI/Douala}$ (0.1373, 0.1624)	6
Yaounde	$\hat{\theta}_{PI/Yaounde} = 1449.18$	$\hat{\theta}_{PI/Yaounde}$ (90.55, 23191.44)	3
Adamaoua	$\hat{\theta}_{PI/Adamaoua} = 0.0001$	$\hat{\theta}_{PI/Adamaoua}$ (0.000, 0.0024)	1
Center	$\hat{\theta}_{PI/Center} = 0.0002$	$\hat{\theta}_{PI/Center}$ (0.0000, 0.0032)	2
East	$\hat{\theta}_{PI/East} = 0.5957$	$\hat{\theta}_{PI/East}$ (0.0118, 30.0425)	11
Far North	$\hat{\theta}_{PI/Far\ North} = 360.4391$	$\hat{\theta}_{PI/Far\ North}$ (22.4, 5777.9)	5
Littoral	$\hat{\theta}_{PI/Littoral} = 0.4631$	$\hat{\theta}_{PI/Littoral}$ (0.0092, 23.3469)	9
North	$\hat{\theta}_{PI/North} = 0.5045$	$\hat{\theta}_{PI/North}$ (0.4490, 0.5670)	10
North-West	$\hat{\theta}_{PI/North\ West} = 0.3667$	$\hat{\theta}_{PI/North\ West}$ (0.3073, 0.4375)	8
West	$\hat{\theta}_{PI/West} = 1.6131$	$\hat{\theta}_{PI/West}$ (1.4994, 1.7354)	12

Sources: Authors' calculations based on survey data of ECAM3 2007

**Table 4 (Part-II).** *Typology of corrupt Regions and Relationship between (P) and (I) given (R) in the Cameroon Educational System*

<i>Region</i>	<i>Odds Ratio (<math>\hat{\theta}_{PI/R}</math>)</i>	<i>Confidence interval of 95% of the odds ratio (<math>\hat{\theta}_{PI/R}</math>)</i>	<i>Rang</i>
South	$\hat{\theta}_{PI/South} = 3.0625$	$\hat{\theta}_{PI/South}$ (2.7139, 3.4560)	7
South-West	$\hat{\theta}_{PI/South\ West} = 0.0008$	$\hat{\theta}_{PI/South\ West}$ (0.000, 0.0124)	4

Thus, in the Adamawa region, there are 10,000 times more chances that the corrupt act being initiated by the Head of the school than by his colleagues; the chance is 5000 times higher in the Central region and 1,250 times higher in the South-West. In other regions, the extent of this initiative is much lower for about 6.67, 2.77, 2.17, 2 and 1.67 for the Douala, North- West, Littoral, North, and East regions respectively. Let's note however that in the calculation of the relative risks, there was virtually no difference between the East and Littoral regions for the taking of initiative for the corrupt act by the different categories of the teaching staff. The odds ratios which allow us to highlight this difference (in favor of school leaders) quite show that in these regions, the chances are 2.17 times higher in the Littoral where as they are only 1.67 more higher in the East whether the corrupt act being initiated by the Head of the school or by his colleagues. At the contrary, in the Yaounde, Far North, South and West regions, the corrupt act is more initiated by colleagues with odds ratios of 1449.8, 360.43, 3, and 1.61 respectively.

The table below shows some basic statistics; the Mantel-Haenszel statistics shows the marginal odds ratio which in its estimate ignores the control variable which is the region. It provides a general estimate of the odds ratio of all observations. This ratio stipulates that in general, the corrupt act is more initiated by the educational staff than by applicants (which corroborates with the analysis of the conditional odds ratios); however, as some conditional odds ratios have revealed, the initiative for the corrupt act is higher (1.78 times) for school leaders than for their colleagues. The Cochran-Mantel-Haenszel statistics on its part is used to test the hypothesis that the taking of initiative for the corrupt act and the leader who received the non-regulatory fees are conditionally independent given the region. Through the probability column (p-value <.0001), we reject the hypothesis of independence to conclude that whatever the region, these two variables are related. Finally, the Breslow-Day statistics that tests the hypothesis of homogeneity of the various conditional odds ratios has a probability (p-value) <.0001; thus, odds ratios are different from one region to another.

**Table 5.** *Basic statistics on the general odds ratios estimate*

Statistics	Value	Probability / IC
Cochran-Mantel-Haenszel	CMH = 1120.9635	<.0001
Mantel-Haenszel	$\hat{\theta}_H = 0.5659$	$\hat{\theta}_H (0.5462, 0.5862)$
Breslow-Day	CHISQUARE = 6664.4448	<.0001

**The taking of initiative by applicants**

The table below conceptualizes the initiative taken for the corrupt act by applicants.

**Table 6.** *Explanatory Factors for the taking of initiative for the corrupt act by applicants*

										Payment of These Fees is a Proper Initiative	
										Yes	No
Place of residence	Urban	Gender of household Head	Male	Living standard	Poor	Age of household Head	Less than 39 years	Have paid non- regulatory fees during registration	Yes	616	6172
								Total		616	6172
								Have paid non- regulatory fees	Yes		703
		Non poor	Age of household Head	Less than 39 years	Have paid non- regulatory fees	Yes	10024	66217	10024	66217	
	Rural	Gender of household Head	Male	Living standard	Poor	Age of household Head	Less than 39 years	Have paid non- regulatory fees	Yes	848	2319
								Total		848	2319
		Non poor	Age of household Head	Less than 39 years	Have paid non- regulatory fees	Yes	10024	66217	10024	66217	
		Female	Living standard	Poor	Age of household Head	Less than 39 years	Have paid non- regulatory fees	Yes	293	293	1418
	Rural	Non poor	Age of household Head	Less than 39 years	Have paid non- regulatory fees	Yes	3252	15173	3252	15173	
		Female	Living standard	Poor	Age of household Head	Less than 39 years	Have paid non- regulatory fees	Yes	219	552	4622
	Rural	Non poor	Age of household Head	Less than 39 years	Have paid non- regulatory fees	Yes	439	4622	439	4622	
		Female	Living standard	Poor	Age of household Head	Less than 39 years	Have paid non- regulatory fees	Yes	591	591	

It is based on this table that equation 8 was estimated and which results are presented in the table below.

Table 7. Estimate results of equation

<u>The GENMOD Procedure: Poisson Regression</u> (Response Variable: Initiative taking)						
<u>Model Information</u>						
<u>Criteria For Assessing Goodness Of Fit</u>						
Criterion	DF	Value	Value/DF			
Deviance	30	75735.5171	2524.5172			
Scaled Deviance	30	75735.5171	2524.5172			
Pearson Chi-Square	30	119749.0295	3991.6343			
Scaled Pearson X2	30	119749.0295	3991.6343			
Log Likelihood		-57139.7585				
<u>LR Statistics For Type 3 Analysis</u>						
Source	DF	Chi-Square	Pr > ChiSq			
milieu	1	22.39	<.0001			
sex	1	35.60	<.0001			
level	1	48.57	<.0001			
age	1	306.63	<.0001			
activity	1	0.95	0.3289			
<u>Analysis Of Parameter Estimates</u>						
Parameter	DF	Estimate	Standard Error	Wald 95% Confidence Limits	Chi-Square	Pr > ChiSq
Intercept	1	-1.6342	0.0288	-1.6907 -1.5778	3216.79	<.0001
milieu urban	1	0.1081	0.0230	0.0630 0.1531	22.12	<.0001
sex male	1	-0.1046	0.0174	-0.1387 -0.0705	36.17	<.0001
level poor	1	-0.1714	0.0249	-0.2202 -0.1226	47.39	<.0001
age less than 39 years	1	-0.3829	0.0214	-0.4247 -0.3410	321.32	<.0001
activity inactive	1	0.0208	0.0213	-0.0209 0.0625	0.96	0.3277

Sources: Authors' calculations based on data in Table No. 6

This table gives us information on the reliability of the model, the importance of the main effects through likelihood maximum ratios statistics of type 3, and the coefficients of the model. The analysis of type 3 shows that accept the main effect activity which is not significant, all other variables is highly significant. In other words, the place of residence of the individual, his sex, his living standard and age play an important role in the taking of initiative for the corrupt act. Thus, the estimated parameters of the model reveal that the taking of initiative for the corrupt act is more pronounced in urban than rural areas, weaker for men than for women, also weaker among the poor than among the non-poor as well as among the younger people.

Socio-demographic characteristics play an important role in the taking of initiative for corrupt acts. Indeed, our results show that urban people are 1.114 times (approximately 11%) more likely to initiate corrupt acts than rural people, and the Poor 0.682 times more likely than the Rich (that is, the rich are about 1.46 times more likely to initiate the corrupt act than the Poor). These two results confirm the theoretical analyses. In the first case, city dwellers are more likely to pay bribes because they are more in touch with the administration than the rural people, and in the second case, a person is even more faced to corruption when he is rich because not only he has income to pay bribes, but in addition, he may for this reason be chosen by the official. In contrast, there are two results: the fact that young people are less likely to take initiative for the corrupt act than the old and men less than women, reject the theoretical analyzes. But, they are explained by the fact that comparing to young people and women, leaders and other school Principals take more initiative for corrupt acts than when they faced with the old and men. We cannot conclude as indicated by the theory that workers are more corrupt than the jobless because the former have almost the same opportunities to initiate corrupt acts than the second.

## Conclusion and recommendations

The purpose of this study was to identify the persons who take the initiative for corrupt acts during students „registrations in public institutions of the twelve Cameroonian regions and why? We started from the idea that among suppliers, the behavior of the initiative taken can be understood through odds ratios, but also through the relative risk and differences in proportions and that, among applicants, it can be understood by a Poisson distribution through a log-linear model.

The empirical analysis revealed that across the country, school leaders are those who take the initiative for more corrupt acts than applicants. But the category of these leaders is not the same from one region to another. In fact, school leaders take more initiative for corrupt acts in six of the twelve regions namely Douala, Adamawa, Center, South, North, North-West and South-West. In Douala for example, estimates show that among school authorities,

the initiative for corrupt acts is about 20% higher among Principals than among their collaborators. Although providers are usually the first to take the initiative, it happens that applicants take too. In particular, it happens that the poor take less initiative than the rich as far as corrupt acts are concerned. The reasons given indirectly by the providers to justify the requirement of improper payments include; the lack of benches in classrooms, the late arrival of the "minimum package" (provision of didactic materials), the limited number of seats. To overcome these shortcomings, school leaders require that parents fulfill irregular payments. The empirical analysis reveals that the above-mentioned shortages are often artificial because even in areas where such deficits are absent (Center, Adamawa, East, North-West and West), school officials collect bribes from students' parents.

To deal with corruption during students' registration, it is imperative that control measures are taken both by the providers of registration services and by the applicants (Rose Ackerman, 1998). In fact, these measures aim at reducing the discretionary and monopoly powers enjoyed by schools Principals as well as information asymmetries that allows others leaders to abuse students' parents. From the supply side, one of the measures would be the multiplication of public schools by the State: in fact, the proliferation of these institutions might have some bearing patterns concerning the taking of initiative for corrupt actions such as the increase of classrooms and therefore benches, or the decrease of the number of students per classroom. The ability to choose between several institutions may also reduce the monopoly power of school leaders. But this measure can be limited by budgetary constraints.

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Because of the lack of financial resources, it would be difficult to create and build other public institutions. In the absence of public schools, profit-making private schools may be an alternative for parents. But these schools are expensive and are usually beyond the reach of some less wealthy parents. On the contrary, although few in number, private religious schools often offer more affordable prices. Public authorities should encourage the multiplication of these schools so that they are alternatives to public schools. From the demand side, parents and students should be sensitized about the evils of corruption in the educational field. But this awareness should primarily target the users who often take the initiative to pay bribes. It is important to go beyond this awareness in some cases by taking repressive measures for actors who initiate corrupt actions.

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# 4

## The determinants of moonlighting among lecturers of state universities in Cameroon: An evidence from a log-linear model

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### Introduction

**M**oonlighting is a major characteristic of the labour markets of contemporary economies. It refers to a situation where an individual holds a main job alongside one or more secondary ones. The study of moonlighting is important since it captures the behaviour of rational economic agents who seek to improve their material welfare or to develop survival strategies.

Since the pioneer work of Shishko & Rostker (1976), economic literature considers the hours of work in the main job as the major determinant of moonlighting (O'connell, 1979,

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Krishnan 1990, Conway & Kimmel 1995, 1998, Theizen 2005). To this major determinant, other determining factors such as the pay in the main job and in the secondary job can be added. This study is in line with these pioneering works but however goes beyond the classical determinants to consider, in the case of moonlighting by lecturers of state universities in Cameroon, other explanatory variables like gender and localisation.

During the 80s and 90s, Cameroon witnessed an economic crisis that touched all sectors of activity. Before 1990, the state had maintained a steady growth in the budget of higher education that reached 2.1% of the state budget in 1990. Thereafter, the university system could not be protected from the effects of this crisis; drastic reductions in the working budget plunged the system into a deep crisis. Within a period of five years, the higher education budget was divided by eight. The 1994 devaluation of the CFA franc came to worsen the situation. It is therefore not a surprise that the university can no longer perform its duty of training and research, in a context where lecturers are not motivated because of the suppression of benefits, drastic salary cuts and poor working conditions. It is in this difficult context that the law of 1993 which restructured higher education and opened new university structures and is still being enforced today was adopted. Despite the growth in their budget allocation observed since 1998, the budget remains at a low level and does not enable a proper functioning of these institutions ; moreover, the growth in enrolment in universities between 2000 and 2004 remains higher than that of the university budgets. The working budget of higher education represented only 0.8% of the state budget in 1999, as against 2.1% in 1990.

These difficult living and working conditions of lecturers of state universities (Note 1) pushed them to explore and perform other activities out of these universities. These lecturers, because of their numerous activities tend to give less time and interest to their primary job, a phenomenon that still exists today and is increasing in spite of a relative increase in the salary level in the civil service (Note 2) and a special quarterly research benefits

granted by the head of state to lecturers of state universities.

Contrary to the majority of studies in the literature that use linear constrained optimisation models (Shishko & Rostker, 1976) or classical discrete choice models of the tobit, logit or probit (Shishko & Rostker, 1976, Foley, 1997, Kimmel & Conway, 2001) forms to analyse the determinants of moonlighting, this study uses a specific log-linear model to do this analysis. Compared to the other approaches, this model has the advantage of determining the relationship between two or more categorical variables (used in this study) without having to identify the dependent and independent variables beforehand. It is therefore a model of association and not only of regression. Also, the log-linear models used in this study explain the logarithms of the expected frequencies using the corresponding level of factors and interactions between these levels. This is not possible with the traditional models cited above.

The main objective of this study is therefore to identify the factors that explain moonlighting by lecturers of state universities in Cameroon, and with the help of a statistical model, establish the relationship between moonlighting and a number of variables that affect it. Applied to a sample of 169 lecturers of two state universities, a log-linear analysis reveals that *the hourly constraints in the principal job, the income from secondary employment, and the income from the principal job appear as the main determinants of moonlighting when we control for variables like gender and the localisation of the university.*

To our knowledge, few studies have been carried out on moonlighting in the education sector and more precisely higher education in Africa and the rest of the world. This is quite surprising given the importance of a sector like education or higher education and training. Many studies on moonlighting highlight the effect of work hour constraints in the main job as a major determinant of moonlighting- Does this hold for lecturers of state universities in Cameroon? Does the number of work hours as suggested by the theoretical and empirical literature appear as a major determinant in the quest for a secondary job by lecturers of state universities? Although recent studies have are more rigorous in the study of moonlighting, little is known on



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the reasons underlying moonlighting in Africa in general and Cameroon in particular. This study therefore seeks to fill this void in the Cameroonian context, particularly in the case of lecturers of the universities of Douala and Dschang.

The second section of this study presents a brief review of the literature on the determinants of moonlighting in general and in the higher education sector in particular. The justification of the log-linear approach used as well as a theoretical presentation of the different forms of the model is done in section three. In section four, we present the econometric estimation of the different log-linear models and the results of the descriptive analysis before concluding the study.

## Literature review

Pioneer research on moonlighting recognised the possible existence of many reasons, but empirical studies make the hypothesis that all moonlighters have work hour constraints in their principal job (Shishko & Rostker, 1976; O'Connell, 1979; Krishnan, 1990; 1993). The literature before the study by Shishko & Rostker (1976) treated moonlighting following a demand and supply approach. Certain supply based studies (Moses, 1962; Perlman, 1969) explain the individual labour supply of a moonlighter while others based on demand (Guthrie, 1965; 1969; Grossman, 1974; Hamel, 1967) highlight the demographic characteristics of a typical moonlighter. Shishko & Rostker (1976) have the merit of combining these two approaches to estimate the supply curve of a moonlighter thanks to the TOBIT model.

However, more recent studies highlight the reasons of moonlighting and answer questions on the implications of these reasons for economic moonlighting models. As example, Conway & Kimmel (1994) estimate a moonlighter labour supply model for men in their youth using data from the Income and Programme Participation survey (ERPP). In their model, they identify many reasons for moonlighting. They particularly find that the number of hours spent in the principal job become endogenous if the labourer is moonlighting for reasons other than work hour constraints in the principal job.

In line with these studies, Conway & Kimmel (1995) use ERPP

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data to estimate a duration model of moonlighting. They make the hypothesis that the moonlighter with a work hour constraint in the principal job will hold many jobs for a lesser period than those who exercise moonlighting because both jobs are heterogeneous. Levenson (1995) provides an indirect proof of moonlighting. He notes that during the 25 years preceding his study, moonlighting led to salary and employment benefits by men but that the participation of women in moonlighting is increasing faster than that of men. This may be an indication that female participation in moonlighting is for non-economic reasons. However, Levenson does not test this hypothesis formally.

Paxson & Sicherman (1994) study the dynamics of moonlighting in the United States by jointly using data from the current population survey (ECP) and the Panel Dynamic Income Survey (EPRD). They find that moonlighting is a dynamic process—most workers surveyed practiced moonlighting during their working life. The EPRD data reveals that between 1979 and 1989, almost 65% of men and 43% of women had a second job. They also note that traditional moonlighting models suppose that workers practice moonlighting because of work hour constraints in the main job, ignoring the fact that with time, workers can evade these hour constraints and look for new jobs. The focus of their study is on the reasons why workers join or quit secondary jobs. They specify and estimate a joint decision: to look for a secondary job or to quit the primary one for another that has no hour constraints. Abdukadir (1992) examines the possibilities of moonlighting being the outcome of short run financial constraints.

Ehrlich (1973), Shishko & Rostker (1976), Conway & Kimmel (1998) explain moonlighting using the salary differential between the formal and informal sector, the latter giving more profit opportunities for a given level of risk. Krishnan (1990), Paxson & Sicherman (1996), Ahn & Rica (1997) analyse moonlighting as the result of the degree of under-employment or hour constraints in the main job. From this last point of view, these authors adhere to the views of the empirical works of other economists on the same reasons (O'Connell, 1979; Krishnan, 1990; 1993;

Shishko & Rostker, 1976).

Rose (1994), Kim (2005), Desai & Idson (2000), Braithwaite (1994), Foley (1997) and Kolev (1998) show that moonlighting is for two main reasons: survival and the spirit of enterprise, especially in transition economies, reference being made here to Eastern Europe. Guariglia & Kim (2004) note that the probability of moonlighting increases with the level of training. Commander & Tolstopiatenko (1997) explain moonlighting by individuals using the demand for factors, especially labour. According to them, firms have a choice between informal part time jobs (black market labour) and informal full time ones.

Mudabbir (2014) reveals geographical differences in multiple job holding rates in USA. He finds that the rates in some regions of the country are substantially higher than in other regions, and these differences have been persistent over time. He examines correlates of these labor market differences in multiple job holding.

Renna *et al.*, (2013) develop a unified model of dual and unitary job holding based on a Stone-Geary utility function that incorporates both constrained and unconstrained labor supply. Using Panel data methods from the British Household Survey (1991- 2008) they find that the income and wage elasticities are much larger for labor supply in the second than in the main employment.

Martinez *et al.*, (2014), examine the relationship between income mobility and non-standard employment using multiple job holding as a case study based on Indonesia family life survey (IFLS). Using an empirical analysis, they show that multiple job holding is a prominent feature of Indonesia's labour market. However, for a significant bulk of the pluriactive workers, multiple job holding seems to be a necessary labour supply behaviour to make ends meet. Moreover, the data do not provide sufficient evidence that pluriactivity in the country is strongly correlated with long-term income mobility. This seems to be in contrast to findings from developed countries indicating that multiple job holding can be used to improve one's mobility prospects. The study concludes that further investigation is needed to determine whether multiple job holding in Indonesia is correlated with other dimensions of social mobility.

Hirsch *et al.*, (2016) try to explain why multiple job holding rates differ substantially across U.S. regions, states and metropolitan areas. For the authors, in explaining variation in multiple job holding are worker characteristics, commute times, local labor markets (MSA) ancestry shares, and, to a lesser extent, labor market churn. City size accounts for little of the variation once they condition on commute times.

In the teaching field, the causes and consequences of moonlighting by lecturers have been highlighted by many authors. These causes and consequences of the phenomenon have led some authors to bring out a typical moonlighter profile, financial need (Parham & Gordon, 2011; Winans, 2005) being one of the main reasons why lecturers engage in moonlighting and use it as to explore other career options (Winans, 2005).

A study carried out in the State of Texas in the United States (TSTA, 2006) reveals that 67% of lecturers questioned on the phenomenon are of the opinion that moonlighting has had a negative impact on their professional life and performance. Henderson, Darby & Maddux, (1982); McGinley, (1979); Wisniewski & Kleine (1984) show that moonlighting not only reduces the performance of lecturers but is also a threat to the professional status of this job.

Parham & Gordon (2011) analyse the negative effects of moonlighting on lecturers through the hour constraints in the secondary job. For these authors, moonlighting does not only affect the professional life of lecturers, but also their family life and their health. However, in the light of growing financial needs, lecturers cannot give up moonlighting in spite of its negative effects. These same authors hold that one of the causes of moonlighting by lecturers also lies in the fact that these lecturers have for some time developed a complex towards their profession, considering it as a profession at different degrees of their status of lecturer. Is it for this reason that lecturers have began engaging in moonlighting, or do they do this simply for economic survival?

Pearson, Carroll & Hall (1994) rather lay emphasis on socio demographic characteristics of moonlighters in higher education (gender, highest certificate, wage, age, etc...) to bring out the profile of a typical moonlighter (young, mostly of male sex, and

with many certificates). These lecturers are it appears not satisfied with their pay in the principal job. These authors finally reach the conclusion that these lecturers differ only slightly from their colleagues who are reticent as concerns moonlighting in the majority of factors associated to work (job satisfaction, quota and work hour constraint, stress at work) and attitudes (towards the job of lecturer, of students, of parents and the administration). Also, the moonlighter does not seem unsatisfied with his job.

However, although recent research has began studying moonlighting more rigorously, little is known on the reasons underlying this behaviour in Africa in general and Cameroon in particular. This study seeks to fill this literature gap in the Cameroonian context in general and particularly the lecturers of the universities of Douala and Dschang.

## Methodology and theoretical justification of the model

### Sample characteristics and description of study variables

In order to identify the determinants of moonlighting by lecturers of state universities in Cameroon, we use six contingency tables of dimension ( $I^* J^* K$ ); these six contingency tables are derived from the variables retained for analysis in section 4.1 by a cross analysis of the variables  $X$ ,  $Y$  and  $Z$ . The definition of parameters is done by bringing out the principal effects (simple index) and interactive effects (double and triple indices). The general log-linear model for each of the six contingency tables obtained by cross tabulation of the three categorical variables is of the form:

$$\log(\mu_{ijk}) = \lambda + \lambda_i^X + \lambda_j^Y + \lambda_k^Z + \lambda_{ij}^{XY} + \lambda_{ik}^{XZ} + \lambda_{jk}^{YZ} + \lambda_{ijk}^{XYZ} \quad (1)$$

This model is referred to as the saturated or three factor interactive model. We then bring out the sub-models by setting certain parameters equal to zero corresponding to particular independence structures. A classical way of naming such models consists in giving only the most complex interactions considered.

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The others, as well as the principal effects are contained in the hierarchical structure of the model. If we make the hypothesis of a Poisson or multinomial distribution, only the total number of observations is fixed; necessitating only the presence of a constant  $\lambda$ . In this case, the terms  $\lambda_{ijk}^{XYZ}$  are all null and only interactions of second order are present. This is the second order partial association model that contains interactions of second order used in this study and is presented as follows:

$$\log(\mu_{ijk}) = \lambda + \lambda_i^X + \lambda_j^Y + \lambda_k^Z + \lambda_{ij}^{XY} + \lambda_{ik}^{XZ} + \lambda_{jk}^{YZ} \quad (2)$$

In this precise case,  $\mu_{ijk}$  represent the expected frequencies of the relationship between two variables when we control for the third variable; this relationship is generally viewed in the form of a triple entry table from which the different odds ratios are calculated. We are therefore in the presence of multiple entry contingency tables and the log-linear model enables us to analyze the different relationships between the variables by modeling the cells of a multiple entry contingency table in the form of an association between the different variables and bring out the interactive effects, whence the specificity of the model with regards to classical approaches generally used in the study of moonlighting (logit, probit or tobit). Another specificity of our model lies in the fact that it doesn't distinguish between dependent and independent variables in the interpretation of its parameters. This is even more important since the addition of variables to the model may completely change the direction of the relationship between the different variables.

## Presentation of results and discussion

### Characteristics of the sample and description of study variables

This study analysis the determinants of moonlighting by lecturers of Cameroonian state universities by using data on two of the eight state universities in the country; an urban university (university of Douala) and a semi-urban university (university of Dschang). The reasons of the choice of the universities of Douala and Dschang (Note 3) lie in the fact that the

first is representative of large metropolitan universities (universities of Yaoundé 1 and Yaoundé 2) where as the second is representative of small metropolitan universities (universities of Buea, Bamenda, Ngaoundéré and Maroua). In fact, the economic and demographic characteristics of the large metropolis are almost similar, just as are those of the small metropolis.

In each university, a survey was carried out and a random sample stratified by zone, gender, income and hour constraint was constituted on the basis of approximately 240 administered questionnaires of which 169 were returned, giving a rate of return of almost 70%. On the 169 received questionnaires, 138 were administered on men and 31 on women, 94 respondents being of Douala and 75 of Dschang. The Table below summarises the distribution of the lecturers questioned by gender, rank and university of origin.

**Table 1.** *Gender and Academic Rank According to the University of Origin (n=169)*

University of origine	Academic rank	Gender		Total
		Male	Female	
Douala	ATER(Note 4)	2 (40%)	3 (60%)	5 (33.33%)
	Assistant Lecturer	52 (88%)	7 (12%)	59 (65.56%)
	Senior Lecturer	18 (69.2%)	8 (30.8%)	26 (50%)
	Associate Professor	4 (100%)	0	4 (36.36%)
	Professor	0	0	0
	Sub Total 1	76 (80.85%)	18 (19.15%)	94 (55%)
Dschang	ATER	6 (60%)	4 (40%)	10 (63.67%)
	Assistant Lecturer	24 (77.4%)	7 (22.6%)	31 (35.44%)
	Senior Lecturer	25 (96.2%)	1 (3.8%)	26 (50%)
	Associate Professor	6 (85.7%)	1 (14.3%)	7 (63.64%)
	Professor	1 (100%)	0	1 (100%)
	Sub Total 2	62 (82,6%)	13 (17,4%)	75 (45%)
Total		138 (81,65%)	31 (19,35%)	169 (100%)

**Source:** Authors' estimates using the survey data

The first column of the table represents the variables rank and university of origin; the second column which represents gender is divided into two columns namely male and female; the last column presents the total number of lecturers surveyed by rank and this according to the university of origin and gender; the

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figures below the frequencies represent the corresponding proportions; for example, we will say that the sample comprises 52 senior lecturers (which accounts for approximately 30,8% of the total of the sample) distributed in an equitable way in the two universities (50% in each institution) that is to say 18 men (69,2%) and 8 women (30,8%) senior lecturers in Douala and 25 men (96,2%) and a woman (3,8%) senior lecturers in Dschang.

The explanatory variables used within the framework of this study are those resulting from the traditional literature on moonlighting. The majority of them enable us to capture the socio-economic characteristics of the lecturers and to simplify the analysis were each classified in two categories: the current wage condition (CSA) with two modalities (adequate, inadequate) taken as a proxy for the wages in principal employment, the weekly workload of courses (CHC) with two modalities (less than 10 hours, greater than 10 hours) taken as proxy for time constraint in principal employment, the income earned in the secondary employment (RDU) with two modalities (consistent, inconsistent), the sex (male, female), the zone of localisation of the University (UO) with two modalities (Douala, Dschang). Lastly, for the explained variable we asked the surveyed a question to which it was necessary to answer by yes or no: Do you exercise other activities apart from your activities of teaching and research at the university? This was retained as a proxy of the variable moonlighting (pluri).

### Some descriptive statistics

Firstly, when we ask the university lecturers surveyed their point of view concerning their present wage situation, whatever their gender or university of origin, a high proportion answers that it is *inadequate* (see tables below).



**Table 2.** *Current Wage Condition According to Gender (n=169)*

			How do you appreciate your current wage condition			
			Adequate	Inadequate	Without opinion	Total
Gender	Male	Frequency	25	90	23	138
			18,1%	65,2%	16,7%	81,65%
	Female	Frequency	5	12	14	31
			16,1%	38,7%	45,2%	19,35%
	Total	Frequency	30	102	37	169
			17,8%	60,4%	21,9%	100,0%

**Source:** Authors' estimates using survey data

From this table, we see that on the 169 surveyed lecturers, 102 find their current wage situation is inadequate, giving approximately 60% of the sample size and of the 138 questioned men, 90 are of the same opinion, giving a percentage of approximately 65%. 38. 7% of the 31 women are of the same opinion. However, we note that a rather considerable percentage (nearly 22% of the sample) of surveyed had no opinion about the question. When we set aside this percentage in our estimates and even when we incorporate the first two columns, we note a high increase in the proportion of the people who believe that their current wage condition is inadequate at the global level (approximately 77%) and at the level of the gender (approximately 78% of the men and 70% of the women). This same reasoning holds when we consider the table below on the zone of localisation of the university.

**Table 3.** *Current Wage Condition According to University of Origin (n=169)*

			Your current wage condition seems			
			Adequate	Inadequate	Without opinion	Total
University of origin	Douala	Frequency	13	63	18	94
			13,8%	67,0%	19,1%	55,62%
	Dschang	Frequency	17	39	19	75
			22,7%	52,0%	25,3%	54,38%
	Total	Frequency	30	102	37	169
			17,8%	60,4%	21,9%	100,0%

**Source:** Authors' estimates using survey data

In fact, by ignoring the last column and by incorporating the first two, 77% of lecturers surveyed find their current wage situation inadequate and at the level of the universities, we obtain the same result for almost 70% of the lecturers of the

University of Dschang and 83% for those of Douala.

Having in mind these statistics, can one conclude that the wages in principal employment are one of the key factors in the explanation of multiple job-holding of lecturers of state universities in Cameroon? The survey data in the following tables present a more or less unclear view on the issue: this is revealed in the fact that these tables give us a descriptive variation of the labour supply after a secondary employment as a function of the work hour constraints in the main employment, the wage in the main employment and the income from the secondary employment (Shishko & Rostker 1976).

**Table 4.** *Current Wage Situation and Moonlighting (n=169)*

			Your current wage situation is			
			Adequate	Inadequate	Without opinion	Total
University of origin	Douala	Frequency	13	63	18	94
			13,8%	67,0%	19,1%	55,62%
	Dschang	Frequency	17	39	19	75
			22,7%	52,0%	25,3%	54,38%
	Total	Frequency	30	102	37	169
			17,8%	60,4%	21,9%	100,0%

**Source:** Authors' estimates using survey data

In fact, of the 169 people surveyed, 101 (60%) do not exercise moonlighting. More than half of the 60% (53.5%) find their wage situation unsatisfactory; this table studies the direction of variation of labour supply in the secondary employment in terms of the wage situation in the main employment. According to Shishko & Rostker (1976), the supply of labour in the secondary employment reduces with a wage increase in the main employment: we read from this table that when the wage situation is satisfactory (increase in wages in the main employment), the ratio of lecturers who don't hold a secondary job is larger than those that hold a secondary job, thus confirming economic theory. When we consider only those that effectively answered the questionnaire in our calculations, this ratio increases and we find that a reduction in the level of wages in the principal employment increases the proportion of those who hold a secondary employment.

**Table 5.** *Hours Constraints and Moonlighting (n=169)*

	Your average weekly lecture hours are equal to			Total
	No answer	< 10 Hours	> 10 Hours	
Do you regularly exercise different activities besides your teaching and research in the university?	5	17	46	68
	7,4%	25,0%	67,6%	40,23%
	13	38	50	101
	12,9%	37,6%	49,5%	59,77%
Total	18	55	96	169
	10,7%	32,5%	56,8%	100,0%

**Source:** Authors' estimates using survey data

According to the theoretical framework exposed in section 2, the supply of labour in the secondary employment varies inversely with the work hour constraints in the main employment. Table five above shows that if we consider only those that answered the question on whether they practiced other activities, about 57% of the respondents with weekly lecturing hours greater than 10 hours said no; numerous weekly hours are therefore a deterrent to the exercise of other activities. However, for those who said yes, 73% have a weekly lecturing time greater than ten hours.

**Table 6.** *Hour Constraints and Academic Rank (n=169)*

		Your weekly number of lecturing hours is			Total
		None	No answer	<10 Hours	>10 Hours
Academic Rank	Graduate assistant (ATER)		1		1
			100,0%		0,59%
	Assistant lecturer	3	7	4	14
		21,4%	50,0%	28,6%	8,28%
	Senior lecturer	9	29	52	90
		10,0%	32,2%	57,8%	53,25%
	Associate professor	2	16	32	52
		18,2%	30,8%	61,5%	30,76%
	Professor		2	7	11
			18,2%	63,6%	6,5%
				1	1
	Total			100,0%	0,59%
		18	55	96	169
		10,7%	32,5%	56,8%	100,0%

What could explain this contrast given that the number of hours on the principal employment should decrease with the exercise of a secondary employment? The table below shows that whatever the rank of the lecturer, the general average number of lecturing hours is high.

The table above shows that in the case of university lecturers in Cameroon, the supply of labour in a secondary employment (moonlighting) varies with the income from this secondary employment and the weekly hour constraint in the main employment.

**Table 7.** *Secondary Income, Income from the Main Employment and Hour Constraints (n=169)*

Wages for your activities out of the university are			Your weekly lecture hours are			Total
			No answer	<10 Hours	>10 Hours	
Consistent	Your present wage condition is	Adequate		1 (33%)	2 (66%)	3 (1,77%)
		Inadequate	1 (10%)	4 (40%)	5 (50%)	10 (5,91%)
		No opinion		1 (33%)	2(66%)	3 (1,77%)
	Total		1 (6,25%)	6 (37,5%)	9 (56,25%)	16 (9,46%)
Average	Your present wage condition is	Adequate		4 (50%)	4 (50%)	8 (4,73%)
		Inadequate	1 (3,33%)	5 (16,67%)	24 (80%)	30 (17,75%)
		No opinion	1 (25%)	1 (25%)	2 (50%)	4 (2,36%)
	Total		2 (4,76%)	10 (23,8%)	30(71,4%)	42 (24,85%)
Insufficient	Your present wage condition is	Adequate		3 (60%)	2 (40%)	5 (2,95%)
		Inadequate	1 (5,26%)	4 (21,05%)	14 (73,7%)	19 (11,24%)
		No opinion		2 (66%)	1 (33%)	3 (1,77%)
	Total		1 (3,70%)	9 (33,33%)	17 (63%)	27 (16%)
No opinion	Your present wage condition is	Adequate		4 (28,57%)	10 (71,4%)	14 (8,28%)
		Inadequate	5 (11,62%)	18 (41,8%)	20 (46,5%)	43 (25,44%)
		No opinion	9 (33%)	8 (29,62%)	10(37%)	27 (16%)
	Total			14 (16,6%)	30 (37,7%)	40 (47,6%)
		Total	18(10,65%)	55(32,54%)	96 (56,8%)	169 (100%)

**Source:** Authors' estimates using survey data. The numbers in brackets represent percentages.

The table above explains the contrast previously noticed: in fact, wages from the second employment is a determining factor at the level of variations in the quantity of labour hours supplied (second employment); as such, when the wages from the second employment is consistent, lecturers are attracted to the

second employment no matter the workload in the hour constraints in the main one. This means that lecturers in Cameroonian state universities spend more time on the second employment at the detriment of their activities in the main job. The table below clearly shows that, labour hours supply in the main job increases with the level of wages in the second employment. As such, when the wages in the second employment is consistent, the proportion of lecturers practicing moonlighting is higher than that of those who do not, no matter the hour constraint (about 67% for weekly hour constraints < 10h and 56% for weekly hour constraints > 10h)

**Table 8.** *Secondary Income, Secondary Employment and Hour Constraint in the Principal Job (n=169)*

Wages for your activities out of the university are	Do you regularly carry out other activities apart from those of teaching and research at the university?		Total
	Yes	No	
What is your average weekly workload (no of hours)?	No answer	1 (100%)	1 (0.59%)
	<10 Hours	4 (66.67%)	2 (33.33%)
	>10 Hours	5 (55.55%)	4 (44.45%)
Total	10(55.56%)	6 (44.44%)	18 (10.65%)
What is your average weekly workload (no of hours)?	No answer	2 (100%)	2 (1.18%)
	<10 Hours	6 (60%)	4 (40%)
	>10 Hours	25(83.33%)	5 (16.67%)
Total	33(78.57%)	9 (21.43%)	42(24.85%)
What is your average weekly workload (no of hours)?	No answer	1 (100%)	1 (0.59%)
	<10 Hours	7 (77.78%)	2 (22.28%)
	>10 Hours	13(76.47%)	4 (23.53%)
Total	20 (74%)	7 (26%)	27(15.97%)
What is your average weekly workload (no of hours)?	No answer	2 (14.28%)	12 (85.72%)
	<10 Hours	30 (100%)	30(17.75%)
	>10 Hours	3 (7,5%)	37 (92.5%)
Total	5 (6%)	79 (94%)	84 (49.7%)
Total	68(40.23%)	101 (59.77%)	169 (100%)

**Source:** Authors' estimates using survey data. The numbers in brackets represent percentages.

Many determinants of moonlighting were retained in this study. The six tables below that result from the different cross tabulations each has eight models by crossing the variables. The

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preferred models retained are those that present non-significant probabilities (p-values) with the smallest likelihood ( $G^2$ ) ratios. The different simulations with the SAS software show that the homogeneous association models are the best (see appendices).

### **Presentation and empirical justification of the retained models: Analysis of variance tables**

The analysis of variance (ANOVA) tables below are drawn from the different homogeneous association models. These ANOVA tables, through the tests on partial effects give us the significant interactions.

**Table 9.** *Model (csa\*sex, csa\*pluri, uo\*pluri)*

Source	DF	Chi- Square	Pr >ChiSq
Csa	2	17,52	0.0002
sex	1	52,23	<.0001
pluri	1	15,38	<.0001
(csa)*(sex)	2	8,47	0.0145
(csa)*(pluri)	2	3,66	0.1601
(sex)*(pluri)	1	4,85	0.0277
Likelihood Ratio	2	1 ,54	0,46

We find that the significant interactions are  $(csa)*(sex)$  and  $(sex)*(pluri)$ . In fact, the tests on the partial effects show a large interdependence between gender and the wage category of lecturers on the one hand and between gender and moonlighting on the other. However, this interdependence disappears between the salary condition and moonlighting. In other words, moonlighting does not depend on the salary category of the lecturer.

**Table 10.** *Model (csa\*uo, csa\*pluri, uo\*pluri)*

Source	DF	Chi- Square	Pr >ChiSq
Csa	2	51.05	<.0001
Uo	1	1.79	0.1810
Pluri	1	12.23	0.0005
(csa)*(uo)	2	2.45	0.2933
(csa)*(pluri)	2	4.60	0.1004
(uo)*(pluri)	1	16.22	<.0001
Likelihood Ratio	2	2 ,06	0,35

When we control for the salary category (*csa*), only the effect  $(uo)*(pluri)$  is highly significant, showing that moonlighting largely depends on the localisation of the university of origin of moonlighters. The universities being state universities, the partial effect  $(csa)*(uo)$  cannot be significant since whatever the university in which we teach, the salary treatment remains the same. The partial effect  $(csa)*(pluri)$  less significant but shows that moonlighting also depends on the salary condition of the lecturers.

**Table 11.** *Model ( $rdu*uo$ ,  $rdu*pluri$ ,  $uo*pluri$ )*

Source	DF	Chi- Square	Pr >ChiSq
Rdu	3	9.50	0.0233
Uo	1	0.41	0.5240
Pluri	1	4.00	0.0454
$(rdu)*(uo)$	3	5.67	0.1286
$(rdu)*(pluri)$	3	66.75	<.0001
$(uo)*(pluri)$	1	16.90	<.0001
Likelihood Ratio	3	1,33	0,72

When we control for the variable income received from moonlighting, we find that the interaction between the variables  $(uo)*(pluri)$  and  $(rdu)*(pluri)$  are highly significant for the homogeneous association model  $(rdu*uo$ ,  $rdu*pluri$ ,  $uo*pluri$ ). In fact and according to the interactions, moonlighting highly depends on the income from the different jobs ( $(rdu)*(pluri)$  effect) and also of the localization of the university ( $(uo)*(pluri)$  effect). However, lecturers' income from secondary employments do not depend on the region of localization of the university ( $(rdu)*(uo)$  effect).

**Table 12.** *Model ( $rdu*sex$ ,  $rdu*pluri$ ,  $sex*pluri$ )*

Source	DF	Chi- Square	Pr >ChiSq
Rdu	2	12.50	0.0019
Sex	1	47.50	<.0001
Pluri	1	0.24	0.6242
$(rdu)*(sex)$	2	2.21	0.3305
$(rdu)*(pluri)$	2	39.95	<.0001
$(sex)*(pluri)$	1	3.48	0.0622
Likelihood Ratio	2	1,74	0,41

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In this model, only the  $(rdu)*(pluri)$  effect is highly significant as in the former  $((rdu*uo, rdu*pluri, uo*pluri))$  model. There is therefore a high association between moonlighting and the income from secondary incomes. The interaction between the  $(sex)*(pluri)$  effect is also significant and shows the association between gender and moonlighting. We however note the insignificance of the  $(rdu)*(sex)$  effect in this model showing that income from secondary jobs do not depend on the gender of the lecturer.

**Table 13.** *Model (chc\*sex, chc\*pluri, sex\*pluri)*

Source	DF	Chi- Square	Pr >ChiSq
Chc	2	30.07	<.0001
Sex	1	29.68	<.0001
Pluri	1	5.40	0.0201
(chc)*(sex)	2	5.21	0.0738
(chc)*(pluri)	1	1.64	0.2001
(sex)*(pluri)	1	1.87	0.1711
Likelihood Ratio	2	2,46	0,29

The homogeneous association model  $(chc*sex, chcpluri, sex*pluri)$  has only one significant effect  $((chc)*(sex))$  which is at the limit when the variable hour constraint in the main employment is controlled for. In fact, the hour constraint in the main job, here represented by the average number of lecture hours a week is used differently, depending on the gender of the lecturer. However, whatever the number of work hours a week on the main job, lecturers will always have the tendency to practice moonlighting leading to the non significance of the  $(chc)*(pluri)$  and  $(sex)*(pluri)$  effects, the latter showing no interaction between moonlighting and gender.

**Table 14.** *Model (chc\*uo, chc\*pluri, uo\*pluri)*

Source	DF	Chi- Square	Pr >ChiSq
chc	2	62.42	<.0001
uo	1	7.12	0.0076
pluri	1	16.41	<.0001
(chc)*(uo)	2	1.40	0.4957
(chc)*(pluri)	2	8.85	0.0120
(uo)*(pluri)	1	23.06	<.0001
Likelihood Ratio	1	0,01	0,91



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Two interactive effects are significant in the  $(chc*uo, chc*pluri, uo*pluri)$  model. These are the  $(chc)*(pluri)$  and  $(uo)*(pluri)$  effects. In fact, following these effects, the model shows that moonlighting highly depends on the weekly work load in the state universities and  $((chc)*(pluri))$  and also on the localization of the university  $((uo)(pluri))$ . However, the weekly work load does not depend on the region or localization of the university.

### Log-linear model and discussion

The table below summarizes the estimated parameters of all the homogeneous association models of the form:

$$\log(\mu_{ijk}) = \lambda + \lambda_i + \lambda_j + \lambda_k + \lambda_{ij} + \lambda_{ik} + \lambda_{jk} \tag{3}$$

**Table 15.** *Homogeneous association models*

Model	Model of type: $\mu_{ijk} = \lambda + \lambda_i + \lambda_j + \lambda_k + \lambda_{ij} + \lambda_{ik} + \lambda_{jk}$		
	Parameter	value	Pr > ChiSq
Model 1 ( $csa*sex, csa*pluri, sex*pluri$ )	$\lambda_{11} + (csa)(sex)$	1.0349	0.0872
	$\lambda_{21} + (csa)(sex)$	1.3520	0.0038
	$\lambda_{11} + (csa)(pluri)$	0.4094	0.4583
	$\lambda_{21} + (csa)(pluri)$	0.8027	0.0721
	$\lambda_{11} + (csa)(pluri)$	1.0366	0.0377
Model 2 ( $csa*uo, csa*pluri, uo*pluri$ )	$\lambda_{11} + (csa)(pluri)$	0.7234	0.2018
	$\lambda_{21} + (csa)(pluri)$	0.9333	0.0381
	$\lambda_{11} + (csa)(pluri)$	1.3624	0.0001
	$\lambda_{11} + (csa)(uo)$	-0.4139	0.4273
	$\lambda_{21} + (csa)(uo)$	0.2677	0.5122
Model 3 ( $rdu*uo, rdu*pluri, uo*pluri$ )	$\lambda_{11} + (rdu)(uo)$	-1.0492	0.0842
	$\lambda_{21} + (rdu)(uo)$	0.3625	0.4357
	$\lambda_{31} + (rdu)(pluri)$	-0.1078	0.8313
	$\lambda_{11} + (csa)(pluri)$	3.1903	0.0001
	$\lambda_{21} + (csa)(pluri)$	3.4372	0.0001
	$\lambda_{31} + (csa)(pluri)$	3.3380	0.0001
	$\lambda_{11} + (csa)(pluri)$	1.6806	0.0001
Model 4 ( $rdu*sex, rdu*pluri, sex*pluri$ )	$\lambda_{11} + (rdu)(sexe)$	-0.2164	0.7492
	$\lambda_{21} + (rdu)(sexe)$	0.8797	0.2042
	$\lambda_{11} + (rdu)(pluri)$	1.6845	0.0028
	$\lambda_{21} + (rdu)(pluri)$	2.4285	0.0001
	$\lambda_{11} + (sexe)(pluri)$	0.9274	0.0751
Model 5 ( $chc*sex, chc*pluri, sex*pluri$ )	$\lambda_{11} + (chc)(sexe)$	0.4702	0.5165
	$\lambda_{21} + (chc)(sexe)$	1.2024	0.0358
	$\lambda_{21} + (chc)(pluri)$	0.7214	0.2125
	$\lambda_{11} + (sexe)(pluri)$	0.7191	0.1817

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Model 6	$\lambda_{11} + (chc) (uo)$	0.1111	0.8489
(chc*uo, chc*pluri, uo*pluri)	$\lambda_{21} + (chc) (uo)$	-0.3248	0.5593
	$\lambda_{11} + (chc) (pluri)$	-0.0829	0.8982
	$\lambda_{21} + (chc) (pluri)$	0.9951	0.0985
	$\lambda_{11} + (uo) (pluri)$	1.6920	0.0001

The table only presents the parameters from the various interaction effects between the variables in order to illustrate the different associations between these variables and the variable moonlighting after controlling for some of the variables. For example, for the association model of the form (csa\*sex, csa\*pluri, sex\*pluri), the positive value of  $\lambda_{11} + (sexe) (pluri)$  which is 1.0366 simply shows that if the variables sex and moonlighting had been independent, a male lecturer would always be more willing to practice moonlighting given the present wage situation.

*Estimated conditional odds ratios and interactions*

In order to better illustrate the interaction effects, we use the conditional (or partial) odds ratios obtained from the estimated parameters in the table above. The table below presents the estimated probabilities of the different homogenous association models:

**Table 16.** *Partial odds ratios*

Model	Model of type: $\mu_{ijk} = \lambda + \lambda_i + \lambda_j + \lambda_k + \lambda_{ij} + \lambda_{ik} + \lambda_{jk}$		
(csa*sex, csa*pluri, sex*pluri)	(csa)(sex)	(csa)(pluri)	(sex)(pluri)
	0.72	0.67	2.81
(csa*uo, csa*pluri, uo*pluri)	(csa)(uo)	(csa)(pluri)	(uo)(pluri)
	0.50	0.81	3.90
(rdu*uo, rdu*pluri, uo*pluri)	(rdu)(uo)	(rdu)(pluri)	(uo)(pluri)
	0.27	0.027	5.36
(rdu*sex, rdu*pluri, sex*pluri)	(rdu)(sex)	(rdu)(pluri)	(sex)(pluri)
	0.23	0.47	2.52
(chc*sex, chc*pluri, sex*pluri)	(chc)(sex)	(chc)(pluri)	(sex)(pluri)
	0.48	0.48	2.05
(chc*uo, chc*pluri, uo*pluri)	(chc)(uo)	(chc)(pluri)	(uo)(pluri)
	1.54	0.34	5.43
Columns	1	2	3

From the table, we see for example for the model (csa\*sex, csa\*pluri, sex\*pluri), the odd ratio of the (sexe)(pluri) effect given the wage condition is:

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$$e^{(\lambda_{11}(\text{sexe})(\text{pluri}) + \lambda_{22}(\text{sexe})(\text{pluri}) - \lambda_{12}(\text{sexe})(\text{pluri}) + \lambda_{21}(\text{sexe})(\text{pluri}))} = e^{\lambda_{ik}(\text{sexe})(\text{pluri})} = e^{(1.0366)} = 2.081$$

In other words, male lecturers have about 2.081 times more chances of practicing moonlighting than their female counterparts, whatever the current wage situation in their main job. We also notice that whatever the wage situation in the main job, lecturers of the University of Douala have about 3.90 times more chances of practicing moonlighting than those of Dschang. The homogenous association model (*csa\*sex*, *csa\*pluri*, *sex\*pluri*) therefore reveals two very important components in the understanding of the moonlighting of lecturers of Cameroonian state universities which are gender and the region of localization of the university when we control for wages in the main job. These results are in line with those of Foley (1997) according to which men and residents of urban areas are more likely to practice moonlighting. In fact, moonlighting is more justified in Douala than in Dschang because Douala is the economic capital of Cameroon where we find the highest number of private university institutions (more than 40% of private universities are found in the town of Douala alone) and the highest number of companies: about 80% of the country's economic activities are found in this town.

However, according to Levenson (1995), women practice moonlighting more than men. Our results show the contrary and confirm those of Pearson, Carroll & Hall (1994), and Foley (1997) on the typical moonlighter according to gender. In fact, the socio-economic context makes the woman the manager of the domestic activities and educator of the children. This reduces the time she can give to secondary activities besides her main job, confirming the result that men have 2.81 times more chances of moonlighting more than women.

A specificity of homogenous association models lies in the fact that the estimated odds ratios are the same at all levels of the control variable.

When we control for the variables income from secondary activities [*models (rdu\*uo, rdu\*pluri, sex\*pluri)* and (*rdu\*uo, rdu\*pluri, uo\*pluri*)], we still find that whatever the income of lecturers, gender and the region of localization of the university remain the main determinants of moonlighting with respective

odds ratios of 2.52 and 5.36. In other words, independently of the income from secondary activities, male lecturers have about 2.52 times more chances of moonlighting more than their female counterparts on the one hand and on the other, lecturers of the university of Douala have about 5,36 times more chances of moonlighting than those from the university of Dschang, thus confirming the previous results. The interaction effects (sex)(pluri) and (uo)(pluri) being significant (see tables 11 and 12 of the analysis of variance), we can conclude that whatever the level of income from secondary activities, the region of localization and gender of the lecturer are the main determinants of moonlighting.

Lastly, when we control with respect to work hour constraints on the main job, [*model (chc\*sex, chc\*pluri, sex\*pluri)* and (*chc\*uo, chc\*pluri, uo\*pluri*)], we still find a strong propensity for men and lecturers in Douala to practice moonlighting compared to women and lecturers from the university of Dschang. Note that the interaction effect (genre)(pluri) in the (*chc\*sex, chc\*pluri, sex\*pluri*) model is not significant. In other words, when we control for the variable hour constraints on the main job, moonlighting is no longer determined by gender but instead by the localization of the university (see tables 13 and 14 on the analysis of variance). With respect to gender, this effect is this is all the more relevant that the annual work load independently of the sex is distributed as follows:

**Table 17.** *Annual Lecturing Hours by Rank*

Rank	Annual lecturing hours	Activities
Assistant lecturer	200	Tutorials
Senior lecturer	180	Tutorials and lectures
Associate professor	150	Lectures
Professor	80	lectures

We see from this table that the annual lecturing hours reduces as the rank of the lecturer increases. Thus, the assistant lecturer whose status is uncertain (with a short term contract renewable twice) is also the one with the highest number of lecturing hours and this could be harmful to his change of rank.

Column 2 shows the relationship between moonlighting and certain determinants used as control variables in column 3 when we control for gender and the localisation of the university. The results in this column will enable us to test some of the hypotheses on the determinants of moonlighting formulated by Shishko & Rostker (1976) in the case of lecturers of state universities in Cameroon. These hypotheses are made on the variables *work hour constraints on the main job*, *wages in the main job* and *income from secondary jobs*. Thus, for the (*chc\*sex*, *chc\*pluri*, *sex\*pluri*) and (*chc\*uo*, *chc\*pluri*, *uo\*pluri*) models, the likelihood ratios between hour constraints and moonlighting are less than 1 showing that whatever the gender and region of localisation of the university, lecturers with a weekly workload less than 10 hours have a lower tendency to practice moonlighting than those with weekly workloads more than 10 hours. We however notice that the *chc\*pluri* interaction effect of the (*chc\*sex*, *chc\*pluri*, *sex\*pluri*) model is not significant. In other words, when we control for the variable gender, the variable workload in the main job doesn't have an effect on moonlighting (see table 13 on the analysis of variance). However, when we control with respect to the region of localization of the university ((*chc\*uo*, *chc\*pluri*, *uo\*pluri*) model), the *chc\*pluri* interaction effect is significant (see table 14 on the analysis of variance). *We can therefore conclude that whatever the region of localization of the university, the variable hour constraints on the main job is a significant determinant of moonlighting.*

In the same manner, the (*rdu\*sex*, *rdu\*pluri*, *sex\*pluri*) and (*rdu\*uo*, *rdu\*pluri*, *uo\*pluri*) models show that whatever the sex of the lecturer or region of localization of the university, a higher wage in a secondary job, the less the tendency for the lecturer to search for another job since the interaction effects (*rdu*)(*pluri*) are highly significant for both models (see tables 11 and 12 on the analysis of variance).

When the income from a secondary job is not consistent, the tendency to exercise other secondary jobs is higher than when this income is consistent. In fact, lecturers in Cameroonian state universities benefit from a particular status which is that of having a job that makes it difficult for them to be dismissed. This employment insurance gives them the liberty to search for

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employment outside their universities. This state of mind is even more reinforced when the income from the secondary job is not consistent. Lecturers who find themselves in this situation would therefore have the tendency to exercise double employment in order to attain the income levels considered as consistent as shown by the variable secondary income according to which those with inconsistent secondary incomes are more likely to continue holding multiple secondary jobs than those whose secondary incomes are considered as consistent. *We can therefore conclude that income from secondary jobs is an important determinant of moonlighting whatever the sex of the lecturer or the region of localization of his university.*

Finally, the  $(csa*sex, csa*pluri, sex*pluri)$  and  $(csa*uo, csa*pluri, uo*pluri)$  models show us the relationship between moonlighting and the wage from the main job when the control variables are sex and the region of localization. These models predict that whatever the sex of the lecturer or region of localization of the university, the better the wages in the main job, the smaller the tendency to practice moonlighting. We however note that the interaction effect  $(csa)(pluri)$  in the  $(csa*sex, csa*pluri, sex*pluri)$  model is not significant when we control for the variable sex (see the tests on the interaction effects in the table for model 1 on the analysis of variance). However, the second model  $(csa*uo, csa*pluri, uo*pluri)$  shows that the significance of the interaction effect  $(csa)(pluri)$  is small when we control for the region of localization of the university (see the tests on the interaction effects in table 10 on the analysis of variance). *We can therefore conclude that there is a link between the income in the main job and in secondary jobs only when we control for the region of localization of the university.*

These results to a certain extent confirm those of the descriptive analysis performed in section 4 of this study.

## Conclusion

The main objective of this study is to highlight the factors that explain moonlighting of lecturers of state universities in Cameroon. Different log-linear models enable us to capture the different aspects of moonlighting when we control for certain

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factors like gender or the region of localisation of the university. Our analysis shows that the main determinants of moonlighting by lecturers in Cameroon are the wage in the main job, hour constraints in the main job and the income from secondary jobs. Besides these factors, the study also reveals that control variables like gender and the region of localisation of the university also explains moonlighting. The particularity of this study lies in the fact that it reveals the interaction effects between moonlighting and its determinants using odds ratios. The survey data collected shows that moonlighting deteriorates the quality of lectures in state universities in Cameroon. In order to reduce the level of moonlighting by lecturers, the state should put in place a system of incentives based on three main aspects. Firstly, it should create an attractive working environment with offices equipped with fast internet connection and air conditioners, especially in Douala. In fact, in Douala and Dschang, only a minority of lecturers with administrative responsibilities have offices on the university campus. The result of this is that the majority of lecturers lack where to go after lectures or between two lectures and tend to offer their services in the private sector. Secondly, the hourly remuneration that was adopted since the 70's, i.e. about forty years ago should be revised. These rates do not take into consideration changes in the cost of living that have taken place since they were adopted, with the cost of certain basic necessities having been multiplied since then. There is therefore a necessity to adapt these rates to the current price levels. Finally, there should be a substantial increase in the basic salaries of lecturers to levels comparable to those in other African countries at similar levels of development as Cameroon.

The majority of findings on the variables in this study confirm the hypothesis that financial need is one of the main reasons why lecturers in the universities of Dschang and Douala engage in moonlighting (Parham & Gordon, 2011; Winan, 2005). This is mainly due to the social and community pressure on the lecturer in the African context. The lecturer is generally viewed by the traditional community as someone who possesses important material and financial means that should be put at the disposal of the community. In order to satisfy this community, the lecturer

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is somewhat obliged to practice moonlighting. We are grateful to the Higher Institute of Management (ISMA) for the financing of the study's survey.



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# 5

## The determinants of the choice of alternative financing methods of SMEs in bank credit rationing: Evidence from Cameroon

Benjamin YAMB<sup>a</sup> & Noe NDJECK<sup>b</sup>

### Introduction

The Small Enterprise (SE) is defined as a company with a turnover ranging from 15 to 100 million CFA francs, and employing 6 to 20 people. The ME (Medium size Enterprise) makes a turnover of 100 million to 1 billion CFA francs, and employs 21 to 100 people (Note 1). There are several reasons why one may be interested in the Small and Medium size Enterprise (SME) in Cameroon. We can first of all see the role it plays among companies in Cameroon. Indeed, 24% of companies in Cameroon are SMEs ([National Institute of Statistics, 2010](#)). We can then evoke the economic and social role played by SMEs in Cameroon: Kasereka Mbahweka (2009) estimates at 55% the share

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of SMEs jobs in the Cameroonian labor market. He added that SMEs in this country have created 68% of jobs in the private sector in 1998. The SME in Cameroon is therefore a real core economic fabric, and is an excellent job provider (Ndong-Ntah, 2002). The VSE (Very Small Enterprise) employed 120,533 people, the SE (Small Enterprise) 67,553 and the ME (Medium size Enterprise) 49, 977 in 2009 (National Institute of Statistics, 2010).

The place of the SME in the Cameroonian economy therefore justifies all the attention put in place for several decades by the public authorities to promote this category of companies. This particular attention is evidenced by the creation of umbrella organizations for SMEs, and several actions being undertaken. Finally, we can think that the SME was able to overcome the stage of a Very Small Enterprise, the dominant group of the population of the Cameroonian companies (75% of Enterprises in Cameroon are VSE) for its ascension to a big company (only 1% of companies in Cameroon is considered as a big one, National Institute of Statistics, 2010) to form a real basis for economic and social development. However, despite the political will, the SME suffers from many ills like the credit rationing, trade issues, managerial deficiencies, etc.

Foremost among the difficulties of SMEs is financing (Bekolo-Ebe, 1996; Um-Ngouem 1997; Ndong-Ntah, 2002). All the problems facing the SMEs in Cameroon, and to which can be added the risk which is this Enterprise segment and the lack of support structures, accentuate the bank credit rationing of this category of companies. They then use alternative financing formula, including money contribution meetings (Bekolo-Ebe 1993; Tchouassi & Ndjanyou 2002; Edding 2002; Ngongang & Wandji 2002; Wamba 2003; Assiga, 2002), which are based on some financial structure factors.

The optimal financial structure constituting one of the major concerns of the financial theory mainly covers two aspects, namely the allocation of job resources on the one hand, and the allocation between proper funding and debts on the other. The first aspect would like that stable jobs be funded by stable resources (Hirigoyen & Jobard, 1997). However, companies live and develop themselves by financing a part of their stable jobs through short-term debts

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constantly renewed (Hirigoyen & Jobard, 1997). As concerns the second aspect, it favors debt in the presence of the corporate tax (Modigliani & Miller, 1963). However, this privilege is limited by the personal income tax (Miller, 1977) and bankruptcy costs that can result from excessive leverage (Albouy, 1997). Thus, the arbitration between the tax savings on corporations and bankruptcy costs leads to the optimal financial structure (Ginglinger 1997; Jensen & Meckling, 1976). Therefore, at the base of these two aspects, are the determinants of the financial structure (Vernimmen 1997; Vernimmen 2010; Sulzer 1997; Belghiti, 2006) which allow making a choice between funding methods. All these determinants do not seem important in all aspects, especially for SMEs in South-Sahara, including those in Cameroon, which are characterized by the bank credit rationing, and which do not have managerial structure (Bekolo Ebe 2002; Eboué, 1988; Um-Ngouem, 1997; Essomba, Ambassa & Um Ngouem, 2002; Joseph, 2000), hence the problematic of this research on the determinants of the choice of alternative financing methods for SMEs in Cameroon in rationing bank credit situation. Therefore, the main objective of this work is to highlight the most influential determinants of the financial structure which lead to alternative financing methods for SMEs in Cameroon living in bank credit rationing. The importance of this research is twofold: firstly and theoretically speaking, this work is nothing than a continuation of the financial theory on SMEs financing, insofar as it not only gives us a clear idea on the determinants of the financial structure within the framework of SMEs, victims of the bank credit rationing and without any managerial structures, but also, it makes a typology based on the importance of each of these determinants. Secondly, this research could stand as a landmark in the orientation of SMEs on the choice of alternative financing methods, not often considered, but important in case of the bank credit rationing. Practically speaking, this work will raise awareness among SMEs on choice factors neglected by them, but which unfortunately are important. The second section of this paper presents and discusses the different works on explanatory factors on choosing a financial structure. The methodological approach used and the highlighting of some descriptive statistics

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## Literature review

The determinants of financial structure are involved in the optimal financial structure. Studies from the US and European groups to take a financial decision proved that the tax savings related to debt as well as the fear of bankruptcy costs are not essential criteria for choosing a financial structure (Vernimmen 2010). However, there is a target level of debt without which the company would be financially dependent and lose opportunities. Generally speaking, a set of factors guide the selection of a financial structure (Baker *et al.* 2002; Vernimmen 1997; Ginglinger, 1997). These are, among others, the concern to maintain a financial flexibility, the economic characteristics of the enterprise sector, its level of development, the sharing fixed costs / variable costs or the nature of the asset to be financed, the position of shareholders in terms of risk aversion and the desire to control, the existence of opportunities or constraints on the finance market at a given time, the financial structure of competitors.

The financial flexibility enables the company to get at any time the financial opportunities available to it, and the use of various funding sources enhances the financial flexibility (Gamba & Triantis, 2008). However, the proliferation of funding sources complicates the financial structure of the company and therefore its management, especially in case of liquidity crisis.

The industrial adventure is financed by proper funds. It is the same thing concerning a sector with higher fixed costs. Gradually as the company takes shape, indebtedness takes place and directs proper capitals towards new emerging sectors (Vernimmen, 2010). However, the high fixed costs sectors are naturally capital-intensive, and require significant investments that inevitably lead to indebtedness (Hall *et al.*, 2004).

An asset that has little value apart from a given productive process will hardly be financed by debt. Lenders fear the fact that the asset's market value cannot cover the debt (Levasseur *et al.*, 2000). However, one can consider additional guaranties to cover



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the risk.

The position of shareholders affects the financial structure. If the shareholding of the company is composed of influential shareholders (in majority or in minority), their attitude will absolutely affect the choice of funding (Jobard & Hirigoyen, 1997). Only the capital dilution in minority shareholders may reduce or eliminate this influence. In Cameroon and for illustration, shareholding is dominated by a single individual or the same family. As a result, the Cameroonian company is allergic when a capital is involved, and seems to favor debt.

Opportunities can guide the funding method and in turn the financial structure (Baker *et al.*, 2002). It thus appears by adventure to build a financial structure on opportunities, especially as opportunities are within economic conditions. It is noticed that the financial structures of companies in the same activities sector come together. This remark seems appropriate insofar as we are interested in the competitors' behavior. Particularly, in a rationing funding environment, companies would be characterized by the same financial structure. Other determinants of financial structure, referred to as constraints to be respected in a funding problem appear. This is according to Cohen (1997), the minimum requirement of the financial stability, the rule of repayment capacity, the rule of minimum self-financing.

The minimum financial equilibrium rule would like that stable jobs are funded by sustainable resources (Cohen, 1997). However, companies are created and they develop themselves by financing a part of their assets in short-term debts (Hirigoyen & Jobard, 1997). This rule leads to the choice between funding through stable resources and funding through circulating resources.

For the rule of repayment capacity, the amount of the financial debt should not exceed 3 or 4 times the average annual cash flow expected. Theoretically speaking, if the company does not comply with this rule, it should not claim to increase its debt. Its choice is then reduced to components of proper capitals and/or leasing (Brounen *et al.*, 2004). However, leasing institutions carry the same risk analyzes as banks, thus reducing funding opportunities for SMEs in this way (Depallens & Jobard, 1990).

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Similarly, local SMEs are not accessible to the financial market, due to entry conditions that make them illegible.

In the rule of the minimum self-financing, the company must self-finance a portion (usually 30%) of the investments for which it is seeking loans (Bar & Delahaye, 2003). However, there are companies which are created and they get into debt without providing a minimum of self-financing. This is the case of the Central Africa SMEs which are created, and which financed themselves through money contribution meetings (Mayoukou & Ossie, 1993).

Profitability, legal status, size, condition of the financial market, operational risk, ownership structure, the owner-manager or not and the number of managers, the structure of the assets, the solvency and liquidity of the assets, the distress costs, the signals, the rate of taxation and debt-related benefits, the leverage, growth potential, growth opportunities, the cost of the financing method, diluting the control power and the risk of bid, the technology risk, adapting the repayment terms to financial constraints of the company, the obtaining procedures, the required guarantees, also appear as criteria for selecting a financing method (Sulzer, 1997; Belghiti, 2006; Bar & Delahaye, 2003).

However, all the criteria listed above do not seem to influence the choice of the financing methods, especially in the context of SMEs victims of the bank credit rationing, and which do not have the umbrella organizations like those in Cameroon. Thus, Modigliani & Miller (1963) bring to the foreground the tax savings related to debt, and the fear of bankruptcy costs. Extensive surveys of executives and financial directors of American (Graham & Harvey, 2001) and European groups (Brounen *et al.*, 2006) have shown that the tax savings related to debt as well as the fear of the bankruptcy costs are not the main criteria for choosing a financial structure. The financial flexibility and the impact of funding choices on credit ratings come out on top. Earnings per share is an important criterion highlighted in the decision to perform or not a capital increase (Vernimmen, 2010).

## Methodological aspects and descriptive statistics

### Determining the sample's size

To highlight the financial structure factors explaining the choice of the types of alternative financing of short, medium or long-term, a simple random sampling was conducted. As we are unable to determine an approximate  $P$  value through a survey, that is to say, the proportion of SMEs interviewed as part of a preliminary study, we set at  $P$  to 0,5, this value representing the worst case, that is to say, the value which gives the greatest deviation possible for the sampling distribution of  $P$ . In this case, the sample size required to ensure an error margin  $E$  (in absolute value) not exceeding 4% with a confidence level of 95% will be approximately (Note 2):

$$n = \frac{Z_{\alpha/2}^2 P(1-P)}{E^2} = \frac{Z_{\alpha/2}^2 \times (0,5)(0,5)}{E^2} = \frac{(1,96)^2}{4(0,04)^2} \approx 600$$

$E$ : the error margin;  $Z$ : the standard normal distribution;  $\bar{P}$  : the  $P$  estimator in the prior study. However, given the relatively limited means in our possession, only 500 SMEs in the city of Douala, in all activities sectors could be consulted among which 452 returned the questionnaire duly completed, which means a return rate of about 90%.

### Characteristics of the sample

They cover the SMEs surveyed, their promoters or main partners as well as their leaders. The attached tables summarize these different characteristics.

Indeed, it is clear from these tables that the Limited Liability Companies (LLCs) are the most numerous (56% of the SMEs population which collaborated), followed by Individual Companies (21.9%), Limited Companies (19,9%), Corporate Companies (1.8%) and other legal forms (0.4%). The structure of the dominant ownership capital of SMEs studied belongs to a single individual (42.9%), then the family (31%), friends (18.6%), other forms of belonging (4%), and colleagues or former colleagues (2.7%). The dominant promoters' nationality is Cameroonian (90.5%), followed by European (6.9%).

SMEs are distributed in all activities' sectors. However, service provisions are the dominant sector (44.2%). They are followed by trade (28.8%), the manufacture of plastic packaging, the metal industry and public works (8%), the food industry (6.6%), the wood industry (4.6%), the microfinance institutions (4%), agriculture, fisheries and livestock (1.8%), the careers' extraction (0.90%), the clothing industry (0.90%).

64.6% of SMEs make a turnover between 15 and 100 million CFA francs excluding tax, 33.4% with a turnover between 100 million and 1 billion CFA Francs. 69.3% of the surveyed SMEs often make profits. 11.6% have at least 19 years of experience, 25.6% at least 15 years, 51.20% at least 06 years and 81.40% at least 04 years. 92.3% of SMEs keep accounts. However, the mere fact of holding a book is deemed to keep accounts.

Most promoters of SMEs studied in higher education (77.9%). They have a long experience (65.5% are over 10 years of experience), and are mostly from West Cameroon (63.5%). 58% of these promoters are between 30 and 50 years old. They are followed by those over 50 years old (39.8%). Managers are academicians in majority (77.9%). They are also experienced (50.9% have an experience of over 10 years). They are mostly from the West region (63.1%), and are members of money contribution meetings (65.3%) (As promoters) as well as associations (67, 5%).

Finally, 55.1% of SMEs surveyed consider themselves victims of qualitative rationing. 43 of the 199 SMEs which have benefited from the bank financing could not get the amount of credit requested (approximately 9.5% of SMEs who participated in the study and 21, 60% of SMEs that benefited from bank financing). They are subject to a quantitative rationing.

## **The econometric model and the study variables**

The main purpose of this research is to produce the effect of one or several explanatory variables on a qualitative variable with multiple responses, particularly in two responses from a logit model. This will allow us to model the probability that an event could occur, given the values of a set of descriptive variables, quantitative and / or qualitative; in other words, we will seek to predict the probability that a given SME recurses or not to a

Ch.5. The determinants of the choice of alternative financing methods of SMEs... type of financing (short-term (CT), long or medium-term (LMT)), this given a set of factors that govern the choice of financing method (Sulzer, 1997; Belghiti, 2006; Bar & Delahaye, 2003). Thus, the factors used in this work are mostly from the classical theoretical literature on corporate finance. To achieve this goal, the following logistic model was used for the occasion:

$$Type\ of\ funding = 1 \quad \text{if} \quad CT = \mu + \sum \beta_k X_i + \varepsilon_i \tag{1}$$

0 Otherwise

With:  
CT = Short-term financing  
 $X_i$ : A vector representing all the factors governing the choice of a financing method (see Table 1 below) and  $\varepsilon_i$ : A random perturbation that follows a white noise.

## Presentation of results and discussion

The Counting of the SMEs by type of financing (dependent variable) as requested according to the financial structure factors (independent variable) is presented in the table below. The numbers inside the table represent the number of citations of a type of financing for a given financing method. Thus, according to the survey performed, 17 financial structure factors were identified, and they lead more to short-term funding than to long or medium-term.

**Table 1.** *Factors in the choice of financing methods and types of funding*

Factors for choosing a financing method (FF)	Types of funding (TF)	
	CT (1)	LMT (2)
1- Financing Cost (FC) ;	547	57
2- Financial Equilibrium (FE);	269	71
3- Procedures for Obtaining Financing (POF)	762	100
4- Adaptation of the Terms of Reimbursement to the Financial Constraints of the Company (ATRFCC)	421	66
5- Guarantees Requested (GR)	593	90
6- Capital Importance (CI)	282	67
7- Relational Proximity (RP)	608	84
8- Accessibility to the Source of Funding (ASF)	491	103
9- Financial Autonomy (FA)	127	26
10- Dilution of power (DP)	200	12

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11- Financial Profitability (FP)	121	20
12- Nature of the Asset to Finance (NAF)	126	31
13- Technological Risk (TR)	32	25
14- Flexibility Concern (FC)	80	10
15- Position of Shareholders in terms of Risk Aversion (PSRA)	14	-
16- Existence of Opportunities or Constraints on Financing Market at a given time (EOCFM)	74	12
17- Financial Structure of Competitors (FSC)	8	4
<b>TOTAL</b>	<b>4755</b>	<b>778</b>

**Source:** Authors, from the survey of SMEs

These 17 factors of the financial structure identified above do not exert the same influence in the choice of alternative financing methods for SMEs in bank credit rationing, as shown by the results in the table below from equation (1).

**Table 2.** Equation 1 Estimation

Parameter	DF	Estimate	Standard Error	Chi-Square	Pr > ChiSq	ODDS Ratio
Intercept	1	0.6931	0.6124	1.28	0.2577	1.9999
FF CF	1	1.5683	0.6280	6.24	0.0125***	4.7984
FF EF	1	0.6389	0.6267	1.04	0.3080	1.8943
FF POF	1	1.3376	0.6215	4.63	0.0314**	3.8098
FF AMRCFE	1	1.1598	0.6265	3.43	0.0641*	3.1892
FF GD	1	1.1922	0.6227	3.67	0.0556**	3.2943
FF IC	1	0.7441	0.6273	1.41	0.2355	2.1045
FF PR	1	1.2862	0.6233	4.26	0.0391**	3.6190
FF ASF	1	0.8686	0.6219	1.95	0.1625	2.3835
FF AF	1	0.8929	0.6491	1.89	0.1689	2.4422
FF DP	1	2.1203	0.6807	9.70	0.0018***	8.3336
FF RF	1	1.1069	0.6582	2.83	0.0926*	3.0249
FF NAF	1	0.7091	0.6444	1.21	0.2711	2.0321
FF RT	1	-0.4463	0.6680	0.45	0.5041	0.6399
FF SF	1	1.3863	0.6982	3.94	0.0471**	4.0000
FF PAAR	1	21.6722	19208.97	0.00	0.9991	2582955183
FF EOCMF	1	1.1260	0.6869	2.69	0.1012*	3.0832
FF SFC	0	0.0000	0.0000			1

LR Statistics For Type 3 Analysis					
The GENMOD PROCEDURE (Logit)					
		Chi-Square		Pr > ChiSq	
Source	FF	DF			
		16	100.50	<.0001	

**Source:** Our estimates, based on data in Table 1 above. \*\*\*Significant at 1%; \*\* significant at 5%; \* significant at 10%

The analysis of the likelihood ratio test shows that the main effect *factors of choosing a financing method* (FF) is highly significant; in other words, the type of financing sought by the Company (Short- term or medium and long-term) will strongly depend on the choice of the financing method. However, we note that only 09 factors of the financial structure determine more significantly the recourse to short-term funding than to long and medium-term. These include: the cost of financing where our estimates reveal that the odds are about 5 times higher to lead to short-term alternative financing than to long and medium-term. The same thing goes with procedures for obtaining funding, the need for flexibility and the close relationship which are almost 4 times higher. The adaptation factors of the repayment terms to the financial constraints of the company, the required guarantees, the financial viability and the existence of opportunities or constraints on the financing market at a given time, are about 3 times more likely each, compared to the factor of power dilution which owns about 8. These results show that the

Thus, the financing cost, the procedures for obtaining financing, the adaptation of the repayment terms to the financial constraints of the company, the requested guarantees, the relational proximity, the power dilution, the financial profitability, the flexibility concern, the existence of opportunities or constraints on the financing market at a given time, are factors that determine the financial structure of SMEs in Cameroon, which are in the bank credit rationing situation. On the contrary, factors such as the financial balance, the importance of the capital, the accessibility to the source of funding, the nature of the asset to be financed, the technological risk, the position of shareholders in terms of aversion for the risk, and the financial structure of competitors, have only an insignificant impact. Yet, these factors are also important in determining the choice of financing methods:

The financial balance which is a dear notion to the company's financing policy prevents the risk of immobilization. Indeed, it is not easy for a debtor to meet his/her payment's schedule by using the short-term resources to finance a stable employment. However, the negligence of this factor "financial balance" must surely be due to the fact that SMEs have only at their disposal

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the short-term resources. The importance of the capital should lead to specific financing methods. This is the case of the use of the financial market for an investment that requires significant capitals. However, SMEs in Central Africa and particularly in Cameroon have almost no access to the financial market, the access conditions constituting a barrier for them. The accessibility to the source of funding should be a very important motive for SMEs that have a very restricted financing field, especially in Central Africa. The analysis of the survey data allowed us to obtain a score of 491 responses for short-term financing against 103 for long and medium-term, this due to the accessibility factor (Table 1). Factors such as the nature of the asset to be financed, the technological risk, the position of shareholders in terms of risk aversion and the financial structure of competitors, seem to have no place in the context of SMEs, rationed by bank credit for the following reasons: the industrial environment for SMEs in Central Africa seems not to understand the specific technologies difficultly transferable if necessary, referring to the nature of the asset to be financed. Leasing institutions in Cameroon seem a little bit unknown on the one hand, and they are least solicited for the technological risk to influence the use of alternative financing on the other. They also adopt the same requirements like the bank (study of profitability, accounting records ...). The very small financing space of SMEs can lead them to indifference for the risk and finally, the financial structure of competitors is generally imitated; on the contrary, the state of the SMEs financing market appears to limit this possibility.

## Conclusion

Factors determining the SMEs' financial structure identified in this work seem relevant in the context of these financial entities. These are, as a reminder and in order of significance: the power dilution, the financing cost, the concern for financial flexibility, obtaining financing procedures, the relational proximity, the required guarantees, adapting the repayment terms to the financial constraints of the Company, the existence of opportunities or constraints on financing market at a given time and the financial profitability. However, the concern for financial flexibility explained in this work and highlighted in



major US and European groups as a factor of the choice of financial structure occupying the first position (Vernimmen, 2010) does not seem appropriate, representative or relevant to our view, insofar as loan is a rare commodity in the SMEs' environment in Cameroon. Indeed, SMEs in this environment are victims of excessive bank credit rationing (Ndjeck, 2016). They do not have access to financial market (because of their characteristics), they do not accept the capital opening to benefit from capital-risk resources (companies being for families or for individuals in majority). Similarly, leasing institutions are no longer a source of funding readily available to SMEs because they increasingly proceed to the same risk analyzes as banks, and this reduces the possibilities of SMEs' financing by this means (Depallens & Jobard, 1990). It is for these reasons that SMEs fall back on alternative financing methods, essentially of short-term (including money contribution meetings, microfinance institutions, trade credit, helps towards relatives and partners' current accounts) which provide very limited resources because their custodians do not have money creation power.

We would like to draw particular attention of SMEs on the factor of financial structure, "financial balance" according to which the resources to finance a job must remain available to the company for a period at least equal to that of the financed asset. In short, stable jobs must be funded by stable resources (Cohen, 1997), even if there are companies that develop themselves by financing part of their investments through constantly renewed short-term resources (Hirigoyen & Jobard, 1997). Although SMEs' financing resources are essentially short-term, they should mobilize themselves for long and medium term financing in order to cover stable needs (long and medium term). They can for example resort to leasing institutions, venture capital firms, partners' blocked current accounts and capital increase. Thus, the golden rule of the minimum financial stability (stable jobs must be funded by stable resources) will be respected, and the risk capital of the debt avoided. However, let's not forget that leasing institutions increasingly express the same requirements as banks. Nevertheless, by reducing the information asymmetry (including the holding of a regular and honest accounting), by

mitigating the managerial deficiencies (including employment of qualified personnel) and by cleaning up the economic, social and judiciary environment, the SMEs will not only become transparent, they will also present a lower risk and by extension, their funding will be improved. The requirement of the legal form of corporations to limited companies and the opening of the capital being a brake for venture capital in Cameroon, the change of mindset and function-objective of the promoter may lead to capital opening. Indeed, the function-objective of SMEs' promoters being not absolutely the search for profit (Colot & Michel, 1996), they should adopt an entrepreneurial attitude, the one that matches profit so as to enable their business to grow.

Leaders of course are rigid with the opening of capital because they fear to lose their position in the company and therefore their benefits. But in an environment where capital is scarce, capital opening could be beneficial for a company which wants to grow. However, the capital increase as the partners' current accounts is a limited source of funding in our space, SMEs having no ability to access the capital market and their performance being not good for most of them.

The criterion "accessibility of the funding source" should also be considered by SMEs because in a capital rationing context, one can only rush to available funding sources. Ignoring this criterion therefore seems controversial. Not taking into account this criterion is due to the fact that SMEs being disproportionately victims of bank credit rationing, have essentially use identical short-term resources (Ndjeck, 2016, p.369). They are their natural market, and the accessibility issue does not arise again.

We have studied the factors related to SMEs' financing structure in general. It might be interesting to do so by SMEs' categories (small, medium enterprise), or by business sector (agricultural SME, industrial SME and service SME). This could be considered in future researches.

## Appendix

**Distribution of SMEs according to the Legal Nature**

Form	Number
Limited Liability Company (LLC)	253(56%)
Limited Company (LC)	90(19.9%)
SNC	8(1.8%)
Individual Companies	99(21.9%)
Other Forms	2(0.4%)
Total	452(100%)

**Distribution of SMEs by the Capital Structure**

Capital Property	Number
A Single Individual	194(42.9%)
Non-responders	4(0.9%)
The Same Family	140(31%)
Friends	84(18.6%)
Colleagues or Former Colleagues	12(2.7%)
Other Forms of Membership	18(4%)
Total	452(100%)

**Distribution of SMEs according to the Promoters' Nationality**

Nationality	Number
Cameroonian	409 (90.5%)
European	31(6.9%)
Others	10(2.6%)
Non-responders	2(0.4%)
Total	452(100%)

**Distribution of SMEs by Activities' Sectors**

Activities' Sectors	Number
Road Transportation	27(8%)
Service Provisions	200(44.2%)
Trade	130(28.8%)
Food Industry	30(6.6%)
Wood Industry	21(4.6%)
Micro-finance Institutions	18(4%)
Agriculture, Fisheries, Livestock	8(1.1%)
Careers Extraction	4(0.9%)
Clothing Industry	4(0.9%)
Other Activities <sup>1</sup>	96(21.2%)
Total	538 <sup>2</sup>

<sup>1</sup> Manufacturing plastic packaging, metal industry, construction and civil engineering, aeronautics, leather goods.

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**Distribution of SMEs according to the Number of Employees**

Persons Employed	Number
6 to 20	263 (58.2%)
21 to 100	187(41.3%)
Non-responders	2(0.5%)
<b>Total</b>	<b>452 (100%)</b>

**Distribution of SMEs according to the Turnover**

Turnover	Number
15 to100 million	292(64.6%)
100 million to 1 billion	152 (33.4%)
Non-responders	8 (2%)
<b>Total</b>	<b>452 (100%)</b>

**Distribution of SMEs according to Results Achieved**

Gains obtained	Number
Profits more often obtained	313 (69.3%)
Others	133(30.7%)
Non-responders	6(1.3%)
<b>Total</b>	<b>452(100%)</b>

**Distribution of SMEs according to Accounting**

Accounting	Number
Accounting	417 (92.3%)
No Accounting	33(7.3%)
Non-responders	2 (0.4%)
<b>Total</b>	<b>452(100%)</b>

**Qualitative Distribution of Bank Credit for SMEs According to Rationing**

Qualitative Bank Credit Rationing	Number
Number rationed	249 (55.1%)
Number non- rationed	199(44%)
Non-responders	4(0.9%)
<b>Total</b>	<b>452 (100%)</b>

**Distribution of SMEs according to the quantity rationing of bank credit**

Quantity Rationing of Bank Credit	Number
Number rationed	43 (21.6%)
Number non- rationed	156 (78.4%)
<b>Total</b>	<b>199 (100%)</b>

<sup>2</sup> The responses are 538 in number instead of 452 because of the fact that 86 SMEs perform several activities at once.

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**Distribution of SMEs Promoters according to their Membership to the Money**

**Contribution Meeting**

Members of the Money Contribution Meeting	Number
Members promoters	306 (67.7%)
Non-members Promoters	146(32.3%)
Total	452(100%)

**Distribution of SMEs Promoters according to the Association Membership**

Association Member	Number
Promoters members	313(69.2%)
Promoters non- members	139(30.8%)
Total	452(100%)

**Distribution of SMEs Promoters according to their Training**

Studies	Number
Primary	6 (1.3%)
Secondary	86 (19%)
University	352(77.9%)
Professionnal Training	6(1.3%)
Non-responders	2(0.4%)
Total	452(100%)

**Distribution of SMEs according to the Professionnal Experience of Promoters**

Age Groups Experience	Number
Below 5 years old	32 (7.1%)
From 5 to 10years old	120(26.5%)
Above 10 years old	296(65.5%)
Non-responders	4(0.9%)
Total	452(100%)

**Distribution of SMEs according to the Promoters' Origins**

Promoters' Origins	Number
West- Cameroon	287(63.5%)
Center-Cameroon	61(13.5%)
South-Cameroon	4(0.9%)

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