Employment Vulnerability in Cameroon's Private Sector

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List of abbreviations and acronyms

CDFs	Cumulative Distribution Functions
CoVE	Commission on Vulnerable Employment
EES	Employment and Informal Sector
EVI	Employment Vulnerability Index
FAOC	First Axis Ordering Consistency
GCA	Generalized Canonical Analysis
GESP	Growth and Employment Strategy Paper
ILO	International Labour Organization
KILM	Key Indicators of the Labour Market
MCA	Multiple Correspondence Analyses
MDGs	Millennium Development Goals
NIS	National Institute of Statistics
NISF	National Insurance Social Fund
NLS	National Longitudinal Survey
NPAYE	National Pact for Youth Employment
PCA	Principal Component Analysis
PRSP	Poverty Reduction Strategy Paper
SME	Small and Medium-sized Enterprise
SMI	Small and Medium-sized Industry
SSA	Sub-Saharan Africa

Abstract

This study aims to empirically investigate the distribution, sources, and consequences of employment vulnerability among private sector workers across subgroups in Cameroon. We construct an employment vulnerability index using the 2005 and 2010 Cameroon employment and informal sector surveys (EES I and II). Results indicate that, in terms of employment vulnerability, the youths, the informal sector, the female, and the other cities (except Yaoundé or Douala) dominate the adult, the formal sector, the male and the labour force in Yaoundé and Douala, respectively. The incidence of employment vulnerability among the private sector labour force increased between 2005 and 2010. Interestingly, we found that the responsiveness of private sector income to an increase in employment vulnerability witnessed a drop between 2005 and 2010 in the private sector, across gender and age group. Our results showed that people without tertiary education and those in rural areas are exposed to vulnerable employment. We found that formal sector employment correlates negatively with employment vulnerability. Employment vulnerability generally reduces monthly income in the private sector. The effect of employment vulnerability on income is gender neutral, but adults register more adverse effects of employment vulnerability on income than the youths. These results have implications for upgrading the skills, with emphasis on the rural areas, adults and female workers in the fight against employment vulnerability. The results also highlight the role that formalization of large informal sector may play in alleviating employment vulnerability.

1. Introduction

Background

There can be very little doubt, if any, on the contention that the current global economic crisis of our time will lead to considerable economic and social hardship, with the worse affected being individuals with vulnerable status in the labour market. Individual workers in primary, industry, and tertiary sectors with low skills, no social cover, and those employed on casual or part-time basis will probably witness their worse. Employment is certainly a barrier against abject poverty, but being fairly or meaningfully employed in the labour market may constitute a breakthrough against this ill. Puzzles with respect to jobs are back on the policy agenda in a gigantic way. The World Bank (2015) intimates that understanding motivation and behaviour at work requires us to examine cognitive and psychological barriers that individuals face; assess the frames that work environments create, and most importantly, examine the social contexts in which work takes place. In a like manner, the ILO has created a "decent work agenda" which includes creating jobs, guaranteeing rights at work, extending social protection, and promoting social dialogue. This agenda argues that decent work is central to increasing productivity, avoiding disputes at work, building cohesive societies, and reducing social inequalities.

A recent report, Global Employment Trends 2010, by the ILO (2011) draws attention to a crucial indicator that gauges the extent to which workers in a given country or region are engaged in wage employment or in rather less-organized forms of employment. According to this report (ILO, 2011)[1], the "vulnerable employment" indicator is characterized by low pay, lack of adequate social protection and difficult working conditions in which workers' fundamental rights may be undermined. In addition, the Commission on Vulnerable Employment (CoVE) is established in the United Kingdom (UK) because unsafe, low paid, insecure work is causing misery for millions of workers. According to this Commission, the time is now right for a major investigation of the causes, consequences, and solutions to vulnerable employment. This paper brings Cameroon into current global theoretical thinking on vulnerable employment and places her ahead of other developing countries in terms of empirical analysis on this issue.

The problem of low income countries as a whole, and Cameroon in particular, is most likely that of vulnerable employment than employment per se. The ILO (2011) report estimates global vulnerable employment rate at 52.8%. According to this report, the highest shares of vulnerable employment are in South Asia (78.5 % of total employment in 2009), sub-Saharan Africa (75.8 %) and South-East Asia and the Pacific (61.8 %). These global concerns are indications that focusing solely on employment or labour market participation itself may not be relevant enough for understanding the problems of poverty. Consolidating this view, Assiga-Ateba (2010) posits that Cameroon's problem is more of underemployment than employment. Even the Cameroon Growth and Employment Strategy Paper (GESP), acknowledges that if growth, albeit strong and sustainable, does not generate decent jobs (or reduce vulnerable jobs), it would not be of satisfactory quality as it might induce wage inequalities and social strife (Government of Cameroon, 2009).

Most workers, especially private sector workers, in sub-Saharan Africa in general and Cameroon in particular work in highly insecure conditions; these workers are vulnerable. By vulnerability, we mean how difficult it is for individual workers in the labour force to manage the risks or cope with the losses and costs associated with the occurrence of risky events. For example, the employment vulnerability of an individual can be seen, inter alia, in terms of contract insecurity, no union membership, unstable remuneration and more broadly, the individual's high degree of exposure to risks concerning her job. Vulnerable workers can be found in all segments of employment including formal/informal, farm/non-farm, private sectors, as well as public and semi-public enterprises.

Private sector workers in Cameroon are probably more prone to vulnerability and deprivation than their public sector counterparts. For example, according to the Government of Cameroon (2007) about 89.8% of household heads involved in informal non-farm activities, 99.1% of those in informal farm activities and 22.6% of those in the formal private sector are placed on an unsteady income scheme. On the contrary, only 3.5% and 9.2% of household heads in public sector/international organisations, respectively, have unsteady incomes. In addition, only 7% of household heads involved in informal non-farm activities, 2.2% of those in informal farm activities and 65% of those involved in the formal private sector have written work contracts, whereas close to 93% and 89% of those in public sector/international organisations, respectively, have written work contracts. Moreover, poverty in Cameroon is more prominent among households involved in the private sector, as only 2.5% of households employed in public sector/international organisations live below the poverty line as opposed to closely 96.6% for those in formal private and informal private sectors.

However, studies on the vulnerability intensity among individuals in the labour force, especially in this seemingly worse affected private sector are still unavailable in Cameroon. This paper attempts to address this lack by studying employment vulnerability among individuals working in the private sector in Cameroon. The paper focuses on individual vulnerability criteria (institutional variables like employment contracts or compliance with labour code and their time-related factors such as casual or unstable employment alongside individual job-related characteristics) rather than firm or business vulnerability criteria[2] which reflect inter-firm dualism and not inter-worker dualism.

According to the Government of Cameroon (2009), the employment situation in Cameroon is characterized by a low rate of unemployment (4.4%) in the strict sense of the term. However, the broad meaning which better reflects the Cameroonian context places unemployment at about 13%. Underemployment in Cameroon stands at 75.8%. Invisible underemployment, which comprises the employed labour force earning a wage lower than the minimum guaranteed inter-occupational wage, accounts for 64.8% of the active population; while visible underemployment, which concerns the people working involuntarily less than the allowed weekly duration of 40 hours per week, accounts for 11%. This situation is developed concurrently with a huge increase of the informal sector which employs about 90% of the employed labour force. The labour force in Cameroon is estimated at about eight million people, with less than two hundred thousand working in the public sector (less than 0.025%), about eight hundred thousand in the formal private sector (about 0.1%) and the rest in the informal sector, including those in the rural areas. Thus, private employment holds about 91% of the workforce in Cameroon. The predominance of employment in the informal sector may be indicative of the inefficiency of public policies implemented in the area of employment. The recruitment capacity of the public sector is limited and the current low level of economic activity prevents the creation of new jobs. According to African Economic Outlook (2012), private sector operators often cite corruption as one of the reasons for this state of affairs, arguing that it limits investment and, by extension, employment levels.

Labour relations in Cameroon are governed by the Labour Code and other regulatory dispositions. In the private sector, para-public and a section of the public sector, the Labour Code determines the rules of recruitment, modalities of firing, forms of contracts and conditions of work. It fixes the activities of trade unions and orientations to determine salaries. The 1967 and 1974 Cameroon labour codes had very restrictive and protective labour regulations. These labour codes were characterized by strong state intervention in determining wage zones, setting minimum wages, stabilizing, protecting workers against firing and fixing the forms of work contracts. The 1992 Labour Code brought significant flexibility in labour regulations. It is characterized by the freedom to determine the form of contracts; recruit temporary workers; it introduces the notion of economic firing, where motives are not connected to the worker's own self. This Labour Code also transmits a strong will to protect workers in terms of setting minimum wages, hours of work, working conditions and maintaining work in times of crisis. The minimum monthly wage in Cameroon was 28, 500 CFA francs up to June 2014; it was increased to 36000 for both private and public workers and weekly hours of work stand out at 40 hours per week. Alongside the duration of work, weekly rest is obligatory; it is a minimum of 24 consecutive hours and cannot be replaced by any compensation.

The 1992 law states that, "under equal working conditions, equal professional qualification and equal returns, the salary is equal for all workers irrespective of their region of origin, sex, age, statute and religious denomination." Thus suppressing salary zones and ensuring a levelled playing ground in terms of remuneration. Concerning working conditions, the Code highlights that temporary employment should not last for more than three months, occasional employment should not last for more than 15 days and seasonal employment should not exceed six months in the year. However, the use of a temporary, occasional or seasonal labour force is submitted to a declaration addressed to the inspector of labour and social security of the region. This category of workers also has the right to social security and to a professional batch delivered by the employer.

When working conditions are judged dangerous for the health and security of workers, the inspector of labour invites the employer for a solution. Enterprises and establishments of all kinds, be they public or private, religious or lay, civil or military, including those that exercise liberal professions and those that depend on associations or professional trade unions, have to organize a medical and sanitary service to benefit their workers.

The Code also states that if no housing is provided, the employer shall be bound to pay the worker concerned a housing allowance. In this light, the legal provisions in the 1992 Labour Code have manifest potentials to affect social security, employment contracts, vacation, hours of work, job-related fringe benefits like housing allowance, and firing of workers.

Cameroon, in particular, has manifestly revived great willingness to turn the tide against increasing employment vulnerability. This policy revival is traceable in her current public policy road map – the Growth and Employment Strategy Paper (GESP). In this regard, the government is bent on promoting the development of decent wage-earning employment, through supporting the development and competitiveness of Small and Medium-sized Enterprise (SMEs) and Small and Medium-sized Industry (SMIs); promote self-employment by specifically encouraging a switch from the informal sector to the formal sector where fairly acceptable working conditions prevail; and introducing specific employment promotion programmes for the most under-privileged segments of the society (youth, women, disabled persons, and indigenous minority groups).

The research problem

The ILO (2007), in the first chapter of its key indicators of the labour market (KILM), lays particular emphasis on showing how indicators can highlight important issues that are associated with major economic outcomes. One of the three "key issues" is assessing vulnerable employment.[3] The World Bank's (2000) report highlights a characteristic of employment vulnerability, job instability, as the leading cause and expression of poverty. According to the ILO, the unemployment rate in sub-Saharan Africa increased to 8.5 % in 2009, representing an additional three million of unemployed. On the contrary, the proportion of vulnerable jobs increased from 77.4 % in 2007 to 82.6 % in 2009, implying an additional 28 million vulnerable jobs in Africa. Though this rate witnessed a decline in 2010 (75.8 %), it is still considered very high (ILO, 2011). This way, the problem in Africa is more that of employment quality or decency than just employment. Thus, analyses to better inform stakeholders on the configuration of this ill across employment sectors and other subgroups as well as it predictors are vital.

In low income countries like Cameroon, most workers are likely to be involved in private sector activities. According to the Government of Cameroon (2007), for example, about 86.7% of households involved in private sectors are placed on an unsteady income scheme. Conversely, only 4.3% of households in public sectors/international organisations have unsteady incomes. In addition, close to 89.3% of households involved in the private sector have no written work contracts, as opposed to only about 1% in the public sectors/international organisations. Unfortunately, studies that examine the situation of employment vulnerability in Cameroon in order to identify the most vulnerable employment sectors and subgroups and suggest routes out of their vulnerability are unavailable. This paper is expected to provide key inputs into the process of implementing the 2009 GESP in the direction of promoting growth and decent employment, which appears to be the main route to pro-poor or shared growth.

The 2009 GESP puts growth and decent employment at the centre of its actions to reduce poverty. This way, its goals are firstly to promote growth and income distribution to the most vulnerable segments of the population. Secondly, to ensure that economic growth translate into employment creation, poverty reduction and into tangible improvements in living conditions of the population (Government of Cameroon, 2009). But to effectively guarantee these visions, efforts should be made to: (1) properly measure the determinants of employment vulnerability; and (2) understand its configuration and intensity across employment sectors and subgroups in Cameroon.

Country-level analysis of employment vulnerability in SSA is still scanty. Bocquier et al. (2010), in an attempt to fill this gap in SSA, uses data from the 1-2-3 surveys which only track concerns in economic capital cities, thus not suitable for nationwide policies. Equally, his analysis uses only variables and sectors which are similar in the seven cities[4] under review. As value added, this study uses the 2005 and 2010 Cameroon Employment and Informal sector survey (EES I and II) to fill these gaps. Moreover, our study accounts for some additional variables (for example job-related fringe benefits), absent in previous efforts, in constructing the vulnerability index. In particular, this study attempts to provide answers to the following research question: What are the sources and consequences of employment vulnerability among private sector workers in Cameroon? Specifically, the paper addresses the following research questions: (1) how is employment vulnerability measured? and which aspects of the vulnerability factors play an important role? (2) What is the distribution and dominance of employment vulnerability across private employment sectors and subgroups in Cameroon? (3) What is the incidence of employment vulnerability? (4) What are the predictors (sources) of private sector employment vulnerability, overall and across subgroups? (5) What is the effect of vulnerable employment on individual incomes?

Objectives of the study

The main objective of this paper is to investigate the sources and consequences of employment vulnerability among private sector workers in Cameroon. This objective is decomposed into the following specific objectives:

- To compute employment vulnerability indices for Cameroonian private sector workers and identify employment characteristics that contributes most to employment vulnerability;.
- To determine the incidence of vulnerable employment in Cameroon's private sector in the 2005 and 2010;
- To compare employment vulnerability across population subgroups using stochastic dominance analysis;
- To examine the predictors (sources) of private sector employment vulnerability, overall and across groups;
- To investigate the effect of vulnerable employment on individual incomes; and
- To deduce policy implications on the basis of the analyses.

Concerning objective (2), besides rural versus urban, young versus adult, and men versus women, it would be interesting to know the distribution and dominance of employment vulnerability across those workers in the capital city (Yaoundé) compared to those in other towns in the centre region; economic capital city (Douala) compared to those in other towns in the littoral region; and even those in a French region compared to those in an English region.

Policy significance of study

A large number of employed workers are stuck in hazardous and risky jobs or jobs with adverse working conditions in Cameroon, especially in the private sector. Many have difficulties finding stable employment. Some self-employed or own-account people earn low incomes and have no social security coverage. Hence, our attempt to inform the stakeholders involved with the GESP on the configuration of employment vulnerability across employment sectors, location (rural versus urban, workers in the capital city versus those in other regional towns), gender, and age group is vital for policy targeting.

In this context, this knowledge will allow the authorities to know the most vulnerable private employment sectors and subgroups in Cameroon. This knowledge may be crucial in the context of a tight public budget. The study will use a threshold to determine the incidence of employment vulnerability in the periods of study (2005 and 2010). This will allow us to separate the very vulnerable in employment from the distribution of employment vulnerability and inform policy makers of evolution of this phenomenon between 2005 and 2010. This study will investigate the sources (in terms of human capital and other socioeconomic variables) of employment vulnerability in the private sector labour force. This will inform policy makers on the variables-cum-policies that could be used to curb employment vulnerability. The study will educate us on the role of employment vulnerability in determining incomes of individuals in the private sector; allowing the authorities concerned with the GESP in Cameroon to visualize the poverty increasing potentials of employment vulnerability.

The engagement of the Cameroon Government in the implementation of the Poverty Reduction Strategy Paper (PRSP), which was validated in 2003 with the primary objective of achieving the Millennium Development Goals (MDGs), were not enough to significantly reduce poverty despite a slight improvement of the macroeconomic framework. It is quite the reverse that, number of the poor increased by about 900,000 between 2001 and 2007, according to the third Cameroon Household Survey (ECAM3). ILO report estimates that, in Cameroon roughly 500 million people (that is, 18 % of the work force) are 'working poor', living with an annual income below the poverty line (ILO, 2007). In order to address these two trends that are difficult to reverse, Cameroon has formulated a development vision with the aim of becoming a new emerging country by 2035 translated for the period 2010- into a Strategy Paper focused on the acceleration of growth and the creation of formal and decent jobs to reduce poverty. This approach fits squarely into the Declaration of the International Labour Conference of June 2009 founded on Decent Work, which prescribes the Global Jobs Pact as the appropriate response to the global financial crisis (DWCP-Cameroon, 2009)

After the introduction (section one), the rest of the paper is organized as follows. Sections two review the literature with respect to the measurement of employment vulnerability and its predictors and consequences. Section three develops the methodological frameworks employed in the study. Section four presents and discusses the empirical results, and section five hosts the conclusion and policy implications.

2. Literature review

Concept of employment vulnerability

Economic literature on the concept of employment vulnerability includes a myriad of definitions of this notion. The concept of vulnerability gained prominence subsequent to Sen's (1992, 1999) capability approach. In line with the capability approach, Dubois and Rousseau (2001) define vulnerability as a person's own structure of "capabilities" that enables that person to replace (or not) one capability with another in the event of an exogenous shock. In this sense, the loss of a job would affect disproportionately an individual with less leeway to work in different occupations and a low level of economic and social capital. Reinforcing this, Pagès (2003) associates vulnerability in employment to different forms of underemployment as the lack of socioeconomic security at work associated more with institutional variables (employment contracts, compliance with labour code, etc.) and their time-related factors (casual and unstable employment). Hinging on a multidimensional perspective, Saunders (2003) posits that many aspects of employment vulnerability are associated to non-standard work, while supposing that not all non-standard workers are vulnerable. He equally argued that when workers are covered by most statutory employment standard they have greater employment security.

Some studies highlight the need to consider the dynamic aspect of employment vulnerability. The study of Pagès (2005) underlines the impacts of employment situation on the workers' capacities and behaviour (that is, the skills-employment causality is reversed). The author measures the dynamic facet of vulnerability at work in terms of labour mobility and employment integration. For example, his study considers instability in employment defined by a change of job without an improvement or with a drop in status in the last five years. Our data does not allow us to track this dynamic facet of vulnerability at work, that is, labour mobility and employment integration. Pagès (2005) equally created a social security variable, but however, unstable remuneration or no written contract or social security variable (for example National Insurance Social Fund – NISF) used in this study, should be enough to reflect the worker's social insecurity.

Using data on the employment characteristics of Australia's metropolitan suburbs, Mitchell and Baum (2009) used three key indicators of jobs at most risk: (1) the proportion of people employed in construction, mining, manufacturing, retail, accommodation and tourism, financial services, and real estate; (2) the proportion of employed people without post school qualification; and (3) the proportion of people working part-time to provide an index of potential job loss based on a new labour market indicator called employment vulnerability index (EVI). The above observations indicate that the meaning of any employment vulnerability index or intensity in the literature should be drawn from the indicators underpinning its construction.

The ILO (2008a) defines employment vulnerability as the risk of lacking full, decent and productive employment. This report characterizes vulnerable employment with respect to temporary work, part-time work, job security, low pay, fringe benefits and chances of promotion. Concurrently, the ILO (2011) also characterized it by low pay, lack of adequate social protection and difficult working conditions. However, attempts to repackage these elements into an employment vulnerability indicator are still heavily fragmented, especially for low income countries. Up to this stage, no attempt has been made to combine the characteristics of the workers with those of their jobs in the form of an index or indicator of employment vulnerability relative to institutional variables (employment contracts, compliance with labour code, and so on) and their time-related factors (casual and unstable employment).

Following from Cheli and Lemmi (1995), Pagès (2003), Pagès (2005) and Fernandez and Nordman (2009), Bocquier et al. (2010) develop indicators of employment vulnerability to construct the private sector employment vulnerability index. The indicator regrouped the following initial indicators: contractual insecurity, independent workers with no employees, adverse working conditions in terms of place or premises of work, casual labour, unstable remuneration, visible underemployment, instability in employment defined by a change of job without an improvement, unwanted job defined as a job which the worker is dissatisfied. Though their study contributes to sub-Saharan Africa empirical literature with respect to job vulnerability, it suffers from a number of weaknesses. First, the study only considers indicator variables in urban areas; hence employment vulnerability index is not suitable for nation-wide policy. Second, their employment vulnerability index only track variables available for all the economic capital cities considered, thus leaving important variables relative to fringe payments unnoticed. Lastly, the computerization procedure of their index is a mere sum of the eight defined criteria for each worker (Bocquier et al., 2010: 9), which may not be appropriate. This study uses the Cameroon employment and informal sector survey that reflects the whole nation, tracks additional variables relative to fringe benefits, and uses a more appropriate indicator approach to systematically cut across the weaknesses in Bocquier et al. (2010).

In Cameroon, some authors have used multidimensional approaches to construct composite indices in the domains of poverty (Foko et al., 2007; Ningaye&Ndjanyou, 2007; Njong&Ningaye, 2008; Nguetse&Dodzi, 2009; Manga &Epo, 2010); health service satisfaction (Kamgnia et al., 2008; INS, 2010); social capital (Tabi, 2009); inequality (Araar, 2009); and education/health (Epo&Baye, 2011). However, our study is the first to apply this multidimensional approach to construct an indicator of vulnerable employment in Cameroon.

Employment vulnerability in this study is analysed with respect to institutional variables (employment contracts; compliance with the labour code in terms of social security, vacation, hours of work); time-related factors (casual and unstable employment);

job satisfaction; remuneration stability; union membership; and job-related fringe benefits. These multi-dimensions of vulnerable/decent employment are further motivated to develop an indicator of employment vulnerability among individuals involved in labour market activities in Cameroon. Attention in this study is given to the private employment sector and its sub-sectors, for example farm as opposed to non-farm and informal as opposed to formal sector. Other socioeconomic subgroups in the private sector are considered as well.

Theory of compensating wage differentials

There is a stretched history of economic research into the mechanisms or models that narrow or widen wage differentials between individuals. The first generation of such models focused on competitive markets, where they found wage premiums compensating non-pecuniary job attributes, such as working conditions, and differences in job stability across industries (Brown, 1980; Rosen, 1986; Murphy &Topel, 1987). Most of these authors argue that when job characteristics (other than wages) enter into players' labour market decisions (firms and workers); the market balance is thus due to the equalization of workers' utilities rather than their wages. Rosen (1986) speculates that the reckoning behind this is to be found in a simple supply and demand structure. On the one hand, labour supply decisions are based on a trade-off between earned income (wages) and the cost of doing the job (stress, repetition, production deadlines, etc.) such that, at optimum, wage differences correspond to the marginal rate of substitution between consumption and working conditions.[5] On the other hand, labour demand decisions by firms are based on a trade-off between the necessity of paying the workers compensation commensurate with the strenuous or hazardous nature of their tasks and the need to improve the working conditions offered.

In this perspective, under the hypothesis of homogeneous individuals and heterogeneous work environments, wages differ between workers such that they all obtain the same utility. To encourage workers to accept more adverse working conditions, firms therefore have to offer higher wages. This is the central idea behind the theory of compensating wage differentials. Bootlegging the hypothesis of homogeneous individuals necessarily introduces a great deal of uncertainty as to the existence of compensation for working conditions when it is observed at the midpoint of the worker distribution. There could be need to divide the population observed into more homogeneous groups, for example by using a conditional wage quantile derived from quantile regressions, so as to reduce the noise created by the presence of individual heterogeneity in the estimation of the compensating differential. More lately, non-competitive theories have argued that wage differences between apparently identical individuals tend more to reflect non-compensating differentials, such as the workers' relative bargaining power (Daniel &Sofer, 1998) and the existence of efficiency wages. Other recent hypotheses have highlighted the existence of information asymmetries, which allegedly increase the friction in the labour supply-demand match (Hwang et al, 1998), and the existence of factor productivity differences between firms (Burdett & Mortensen, 1998; Pissarides, 2000; Mortensen, 2003).

Determinants of employment vulnerability

Though employment vulnerability is fast becoming a major labour market challenge, there is still little work in the literature on the predictors of employment vulnerability. Related literature have emphasized on the determinants of employment status; disaggregating work into several employment status (non-wage agricultural work, non-wage non-agricultural work, regular wage work, and casual wage work).[6] Among these studies we have Assaad et al. (2000) and Assaad and El-Hamidi (2001). The latter explains the allocation of labour force participants into unemployment, salaried work, casual wage work, and self-employment. Their study uses basic demographic information, education, training, marital and hardship status, proportion of landless households and community level information in explaining the various employment status. For the female subsample, their study accounts for additional variables such as dummies indicating whether the woman has young children.[7] Like Assaad and El-Hamidi (2001), Assaad and El-Hamidi (2012) also proxy vulnerable employment by either self-employment or unpaid family work.Assaad et al. (2000) find that self-employment outside agriculture does not have a strong age pattern for males, but increases significantly with age for females. They also find that self-employment declines sharply as education levels rise. Their results show that younger uneducated females tend to be casual workers and farmers and older ones are more likely to be self-employed outside agriculture. Assaad and El-Hamidi (2001) indicate that the type and hours of work are largely determined by the point of a woman's life-cycle, level of education, role in the household, and the employment status of male members of her household.

Another stream of evidence has underlined the relationship between family and work histories and factors that determine the entry and exit into self-employment. Mincer and Polachek (1974) use data from the 1967 National Longitudinal Survey of Work Experience (NLS) to relate family and work histories of women to their current market earning power in Columbia. They argued that men and women differ (on average) in their expectations for employment continuity and indicated that many married women with children participate intermittently in the labour force, experiencing spells of non-employment and part-time employment. Velez and Pena (2010) study the determinants of entry and exit into and out of self-employment and business ownership. Their study revealed a little transition between self-employment and business ownership. They highlighted that there exist a negative relationship between self-employment and education.

Some other endeavours have attempted to empirically investigate the main determinants of one type of vulnerable employment. These studies, that focus mainly on self-employed as a proxy for vulnerable employment, may be classified into two groups. The first group reflects those that examine these determinants on the macroeconomic scale. For example, Pietrobelli et al. (2004) who explores the determinants of self-employment based on a sample of 64 developing countries and 19 developed countries. They find that the rate of self-employment is adversely related to the state of development; confirming the Kuznets hypothesis. A second group investigates these determinants on the microeconomic level in developing economies (Kunt et al., 2007; Faridi et al., 2010; Tamvada, 2010; Velez & Pena, 2010) and in developed economies (Lin et al., 1999; Diamond &Schaede, 2010).

It is essential to highlight that in developed economies, self-employment is considered a viable career choice, driven by entrepreneurship. On the contrary, in most developing countries, it is not looked upon as a viable career choice, but a result of lack of other alternatives and hence it is only considered as a way out of unemployment.

These studies relate self-employment to socioeconomic characteristics, including education, age, gender, residence, wealth, marital status, and economic sector. However, there is very little consensus on how these factors relate to self-employment. For example, Kunt et al. (2007) and Faridi et al. (2010) found that education relates positively to self-employment. Pietrobelli et al. (2004) dissociates the different levels of education and observed a positive relationship with primary education and a negative relationship with secondary education. On the contrary, Diamond and Schaede (2010) and Velez and Pena (2010) underline a negative relationship between self-employment and education. This mixed evidence highlights the need for country-specific studies for policy purposes. Notwithstanding, studies that consider the determinants of a multi-faceted indicator of employment vulnerability are still highly fragmented in sub-Saharan Africa and rare in Cameroon.

Imoro and King (2006) use data from the World Bank sponsored study on youth employment in Ghana in June, 2005 and other secondary sources to demonstrate the momentum of the youth and their vulnerability in terms of unemployment, access to education and/or decent jobs and the opportunities available for exploitation to tackle the vulnerability. Their work examines the ICT sector in Ghana with the view to demonstrate how the sector could be exploited to reduce the vulnerability of the youth. Their results show that there are prospects for the ICT sector to be used to reduce the vulnerability of the youth due to its multi-faceted roles in employment creation, job placement, skills training and enhancement, among others. They also underlined that inadequate participation in education and skills training expose people, especially the youths, to vulnerability in terms of employment.

Bocquier et al. (2010) investigate the determinants of an employment vulnerability indicator in the private sector across a number of West African economic capital cities. Their indicator is explained by socioeconomic variables such as household's status (head or not), father's institutional sector (formal or informal), gender, years of education, potential experience, seniority in the firm, religion, migratory status, marital status. Their study found that in the formal private sector, the impact of the head of household's status is negative and significant in Ouagadougou, Dakar and Abidjan, and significantly positive in Cotonou. In the informal sector, they found a negative impact in all the seven cities considered in their study. They highlighted that in the formal sector, the father's institutional sector does not predict the intensity of vulnerability. This proposal attempts to complement the literature on the determinants of vulnerable employment by constructing a multi-dimensional vulnerable employment indicator and investigating its predictors in Cameroon's private sector.

Effects of employment vulnerability on income

Very few studies have attempted to empirically relate employment vulnerability to earnings/income. In the developed country setting, we have Poggi (2007) and

Fernandez and Nordman (2009) who observed that, in developed countries, the effect of employment vulnerability on income is positive. On the contrary, Bocquier et al. (2010) and Ndamsa et al. (2013), on a developing country setting, have found that employment vulnerability generally correlates inversely with private sector income. However, studies which track the evolution of employment vulnerability across time periods are still emerging. In addition, our study is first of its kind to attempt investigating the incidence of employment vulnerability over time in Cameroon and to capture its consequences across subgroups, such as gender and age group.

3. Methodology of the study

Construction of the employment vulnerability indicator

To build our employment vulnerability indicator or index, we use a number of employment status variables for the worker's main and second jobs, which permit us to characterize vulnerability in the main job. Recall that our attention is focused on inter-worker dualism; and this way, activity sector, business and institutional sectors, which are all units of production are not used, as they capture inter-firm dualism instead. This is the case because our primary focus is the vulnerability of the worker and not of the firm. Our composite index is built using categorical/dichotomous variables, inspired from Pagès (2003, 2005), Bocquier et al. (2010), and ILO's (2011) report on Global Employment Trends 2010 to track different aspects of employment vulnerability.

The analysis of employment vulnerability aims to appreciate the quality of employment of individuals in the labour force. In this regard, an indicator of employment vulnerability for Cameroon workers will be constructed. The main methodological approaches to aggregation employed in the literature are the entropy approach and the inertia approach. The former is inspired from the field of dynamic mechanics and the latter from static mechanics. The inertia approach is based on the techniques of multi-dimensional analysis and draws mainly on the following factor analysis techniques: the principal component analysis (PCA), the generalized canonical analysis (GCA) and the multiple correspondence analyses (MCA). Specifically, standard PCA can only be applied if all the variables are numeric (that is, the variables are either quantitative or continuous) and the relationship between variables are assumed to be linear (Gifi, 1990; Kamanou, 2005; Njong&Ningaye, 2008). The variables used to track the multifaceted nature of employment vulnerability are in a qualitative form, categorical, and can be codified in a binary form and measured at ordinal level. Since the ordinal variables do not have an origin or a unit of measurement, the variance-covariance structure of these variables that the standard PCA relies on and explains will have no concrete meaning.[8]

The factor analysis technique to be used in this paper is the MCA since all the initial employment vulnerability indicators from our data are in a qualitative form and can be codified as binary. In this perspective, the main areas taken into account are contractual security, job satisfaction, employment stability, trade union membership, job-related benefits and allowances which track institutional-level and worker-level aspects of employment in Cameroon. Employing the MCA, the functional form of the composite indicator of employment vulnerability is simply the average weights of categories, which are themselves the average of standardized scores. The MCA technique allows us to select pertinent variables which will serve to construct our indicator. The main selection criteria generally used is the First Axis Ordering Consistency (FAOC) principle.[9] The variable respecting the FAOC property with the MCA in this study are those that obey the rule according to which employment vulnerability of employed individuals improves along the first factorial axis. Suppose *i* designates an individual in the labour force and C_i the value of the composite indicator for individual *i*, the functional form as developed by Asselin (2002) and used by Ki et al. (2005) and Kamgnia et al. (2008) is given by:

$$C_i = \frac{\sum_{k=1}^{K} \sum_{jk=1}^{JK} W_{jk}^{k} I_{jk}^{k}}{K} \tag{1}$$

Where,

K = number of category indicators;
Jk = the number of categories of indicator k;
W = weight (score of the first standardized axis of category Jk); and
I = binary variable 0/1, corresponding to the category Jk.

This paper has as primary objective to investigate the situation of employment vulnerability among individuals in Cameroon and to check its variability across employment sectors. This framework predicts an indicator interpreted in terms of vulnerable employment from the initial indicators discussed to set the basis for our analysis in this chapter. The analysis of the indicator will be done with respect to its distribution and dominance across employment sectors, location, gender, and age groups.

The gross indicator C_i (Equation 1) obtained may have positive values for some individuals and negative for others. With this gross indicator, small values indicate high employment vulnerability and higher values depict less vulnerability. However, the negative values with the gross indicator may render interpretations difficult. Thus, the following expression allows us to deduce an indicator with positive values $\widetilde{C}_i$:

$$\widetilde{C}_i = 100 \,.\, (\max(C) - C_i) / (\max(C) - \min(C)) \tag{2}$$

The normalized indicator $\widetilde{C}_i$ classifies individuals in terms of increasing employment vulnerability (or decreasing decent employment), with values ranging from 0 to 100. An indicator with positive values permits us to effectuate analysis such as dominance tests. It is worth to recall that the indicator constructed summaries the appreciation of employment quality among individuals in the labour force in Cameroon.

The MCA allows us to have the relative contributions of modalities/categories in forming an axis. This contribution reflects the proportion of inertia of the factorial axis explained by the modality/category. The relative contributions of the various categories in forming the first factorial axis were further motivated and made more readable in a bar chart. This simple descriptive tool will enable us to track the relative importance of the primary factors in employment vulnerability. It is worth noting that, the MCA adopted for analysis here is without limitations.

Main limitations of the MCA

Firstly, MCA assumes that variables are either qualitative or categorical ordinal. Thus, a variable with no meaningful ordinal structure cannot be used as a welfare or vulnerability indicator. This is because it will be difficult to satisfy the monotonicity axiom which entails FAOC and global FAOC.[10] Secondly, there is no guarantee that MCA, ran on the primary factors, will come out with the FAOC property. Thus, the use of the first factorial axis as the composite vulnerability indicator would be inconsistent and not acceptable. However, it is worth to underline that everything depends on the structure of the covariance matrix. Literature identifies basically two ways to override this unpredictable difficulty. On the one hand, it recommends the implementation of minor adjustments to the set of primary indicators, especially with a multinomial indicator that fails to satisfy the FAOC.[11]

Minor adjustments can be done in terms of regrouping some categories to achieve FAOC or basically eliminating the indicator. According to Asselin et al. (2005), elimination of indicators is not the rule, but becomes acceptable when the number of indicators is large and there appear to be some duplication in a given dimension. Thirdly, in the case where the FAOC is satisfied but the global FAOC is not verified, we will have, relative to the first factorial axis, two subsets of indicators with opposite ordering on this axis and negatively correlated. Such a problem will always be the case with binomial indicators. It is essential to highlight that there would be no consistency problem if one of the two subsets is the empty subset. However, if no empty set exists, this will mean that the multivariate measurement of employment vulnerability cannot be coined into a uni-dimensional vulnerability measurement. Literature proposes to get around this inconsistency by eliminating one of the two subsets of indicators. Unfortunately, this elimination will imply important information loss, thus there is need for a more appropriate solution strategy. In this line of reasoning, Asselin et al. (2005) have developed a solution strategy that considers more than just the first factorial axis.

Though the MCA technique suffers these limitations, it is essential to underscore that, since concepts of multidimensional welfare (example employment vulnerability, poverty, etc.) are frequently measured with qualitative ordinal indicators, the MCA[12] generally comes in to improve and to provide more powerful description tools of the hidden structure in a set of qualitative variables.

Stochastic dominance approach

The stochastic dominance approach is very essential to establish a careful ordinal comparison between two distributions or two periods for a given social order or welfare indicator. According to Araar (2006: 2), the stochastic dominance for a given social order is not based on a pre-determined functional form, but instead on some desirable properties or axioms that the corresponding indicator or class of indices should obey.

Thus, in the quest to know whether a relation of stochastic dominance holds between two distributions, the distributions are first characterized by their cumulative distribution functions (CDFs). For a given set of vulnerabilities, the value of the CDF at vulnerability *v* is the proportion of vulnerabilities in the set that are not greater than *v*. In this perspective, denoting employment vulnerability by a random variable *V*, the value of the CDF of the distribution of *V* at *v* is the probability that *V* should be less than or equal to *v*. This is expressed as follows:

$$P(V \leq v) = F(v) \tag{3}$$

Where, $F(v)$ is the value of CDF at vulnerability *v*.

Let's now consider two distributions, A and B (A may stand for farm while B non-farm, or A may stand for informal and B formal employment sector), characterized respectively by CDFs F_A and F_B. The distribution B dominates distribution A stochastically at first order if, for any vulnerability **v**, $F_A(v) \geq F_B(v)$. This write-up often appears as though it is the wrong way round, but a moment's reflection shows that it is correct as stated (Davidson & Duclos, 2000). This inequality simply means that the proportion of individuals in distribution A with vulnerabilities less than or equal to v is not smaller than the proportion of such individuals in distribution B. More neatly, there is at least as high a proportion of non-vulnerable individuals in A as in B, if non-vulnerability means a vulnerability smaller than *v*. Importantly, the dominant distribution here refers to the one that generates more employment vulnerability.

Importantly, if B dominates A at first-order, note that whatever vulnerability level we may consider, there is always more vulnerability in B than in A. Thus, we affirm that A is the dominated distribution. In a nutshell, if B dominates A at second-order stochastic dominance, the decision maker considers distribution A better over B in cognizance of risk aversion and *v* is weakly decreasing. Higher orders of stochastic dominance can also be defined. For this, repeated integrals of the CDF of each distribution are defined. This study concentrates on first-order stochastic dominance, since we are primarily interested on whether a given employment sector B dominates another A in terms of employment vulnerability, irrespective of what *v* is, as long as it is weakly decreasing. Suppose $D^1(v)$ is the CDF of the distribution under study (Equation 3), we may write:

$$D^1(v) = F(v), \ D^{s+1}(v) = \int_0^v D^s(r)\, dr \tag{4}$$

Where, s = 1,2,3…. stands for the orders of dominance; r is the set of values for employment vulnerability. It is worth noting that, the lowest value of employment vulnerability in the pooled distribution is zero (since employment vulnerability ranges from 0 to 100), thus the usage of the lower limit of zero.

From Equation 4, it is easy to define the repeated integrals for any order $s : D^2(v)$ is the integral of D^1 from 0 to v given by:

$$D^2(v) = \int_0^v D^1(r)\, dr, \text{ with s=1} \tag{5}$$

Equation 5 defines the first-order of stochastic dominance. We can thus say distribution B dominates A at order $s=1$ if $D_B^2(v) \leq D_A^2(v)$ for all arguments v (that is, for any given level of employment vulnerability). Note that one can also define $D^3(v)$ which is the integral of D^2 from 0 to v given by $D^3(v) = \int_0^v D^2(r)dr$, $s = 2$ (second-order dominance). Higher orders can be obtained in the same way. From these discussions and definitions, we can all bear witness that first-order stochastic dominance implies dominance at all orders higher than the first. This observation corroborates that of Davidson and Duclos (2000), thus further justifying the concentration of this study on the first-order stochastic dominance.

However, theoretical debates sometimes attempt to distinguish weak from strong stochastic dominance. The above notations (for example, $D_B^2(v) \leq D_A^2(v)$) are of weak dominance. In the case of strong dominance, it is required that the inequality should be strict for at least one value of the argument v (for example, $D_B^2(v) < D_A^2(v)$). Unfortunately, in empirical investigations, the distinction is not vital, since no statistical test can detect a significant difference between weak and strong inequalities (Davidson &Duclos, 2000). In this regard, some empirical investigations make use of the concept of restricted stochastic dominance. With restricted stochastic dominance, the relevant inequality is expected to hold over some restricted range of the argument v rather than for all possible values. For employment vulnerability, one may be particularly interested on dominance over a range of higher values of the vulnerability indicator (since employment vulnerability varies over the range 0 to 100).

Following from Equation 4, Davidson and Duclos (2000) and Araar (2006), one can check the stochastic dominance for the order s, by comparing between dominance curves that take the following form:

$$D^s(r) = \frac{1}{(\text{s-1})!} \int_{v_{min}}^{v_{max}} (r - v)^s + dF(v) \tag{6}$$

Where, $(r-v)_+ = (r-v)$ if $r > v$ and zero otherwise and v_{min} and v_{max} are the minimum and maximum values of the vulnerability indicator, respectively.

We realize that this curve (Equation 6) is simply a monotonic transformation of the FGT curve (Davidson &Duclos, 2000; Araar, 2006). Recall that stochastic dominance in this study refers to the distribution that generates more employment vulnerability. In this study, we check the stochastic dominance between two distributions or employment sector; for example, farm as opposed to non-farm, formal as opposed to informal, rural as opposed to urban, female subgroup as opposed to their male counterparts, and youths as opposed to adults. Lastly, also note that this approach can also be used to show how the level of employment vulnerability varies in the range 0-100.

Computing the incidence of employment vulnerability

To compute the incidence of vulnerability, we use as cut-off point the 40th percentile of our vulnerable employment indicator. The 40^{th} percentile corresponds to the poverty line computed by the National Institute of Statistics. Hinging on this premise, we would be able to separate the very vulnerable from the distribution of employment vulnerability and compare the incidence of employment vulnerability over time. We then account for the correlates of employment vulnerability among the private sector labour force.

Modelling the sources of employment vulnerability

To identify the sources of employment vulnerability among individual private sector workers, we employ the following OLS specification:

$$\mathrm{I} = \alpha_0 + \alpha_1 X + \varepsilon \tag{8}$$

Where, I is the employment vulnerability index; X represents a vector of the human capital variables and other correlates (potential labour market experience[13] and its square, seniority in the main job, microcredit access, number of younger children, being married, control for sector of employment, individual's household status - head or not - and control for urban residency); α_1 is a vector of the parameters to be estimated, the parameter of the year dummy is α_2 indicating the change in the intercept between 2005 and 2010, and ε the error term.

We perform an estimation approach across age groups to check the extent to which the predictors of employment vulnerability vary across youths and adults in the labour force. We employ two age cohorts, 15-34 and 35-65; as most individuals above 65 in Cameroon are on their retirements. We also conduct separate regressions for males and females in the labour force and across the above age cohorts.

Modelling the role of employment vulnerability among other determinants of income

To identify the role of vulnerable employment on individual income, we employ the following regression model:

$$Y = \beta_0 + \gamma_0 dummy2010 + \varphi\, EVI + \gamma_1 dummy2010{*}EVI + X'\beta_1 + \varepsilon' \tag{9}$$

Where the variable year dummy is 1 for 2010 and 0 for 2005, β_0 is the intercept for 2005, $\beta_0 + \gamma_0$ is the intercept for 2010, and the parameter φ is the effect of vulnerability on income in 2005, and γ_1 is the effect of vulnerability between 2005 and 2010. So φ measures how the effects of vulnerability have change over this time period. Therefore, $\varphi + \gamma_1$ the total effect of vulnerability in the period 2005-2010. Y is the log of individual income per month; EVI is the employment vulnerability index; X' represents a vector of the human capital variables and other correlates (potential labour market experience and its square, control for gender, number of younger children, marital status, control for urban residency and control for activity sector); β is a vector of parameters to be estimated including the constant term; and ε' the error term. Our analysis has an objective to estimate the effect of employment vulnerability (φ) on income overall and across subgroups (youth versus adult and male versus female) in Cameroon. We acknowledge that employment vulnerability may be potentially endogenous as unobservable variables may be associated with employment vulnerability and incomes. Importantly, Ndamsa et al. (2013) have identified potential instruments of employment vulnerability (that is, the density of formal institutions per region and the attachment to traditional beliefs), but due to data limitations, here we will only use the OLS regression to track the direction of the relationship between employment vulnerability and individual incomes.

To get the effect of a change in employment vulnerability, a derivative technique is used recalling the following formula. Change in monthly income will be based on the change in employment vulnerability. Elasticity model will give a total revenue change for a given percentage change in the independent variables. That is $\Delta Y = \Delta X \cdot Y/X$, where Y/X is the slope of Y with respect to X. In our case the elasticity of a linear regression where Y is given by

$$Y = \beta_0 + \gamma_0 dummy2010 + \varphi I + \gamma_1 dummy2010 {*} I + X'\beta_1 + \varepsilon'$$

ΔY is given as follows $\frac{dY}{dX''} \frac{X''}{Y}$, that is δ f $\frac{X''}{Y}$ρ so the slope is given by the coefficient δ and where $X'' = X'\beta + \varphi I$ (Wooldridge, 2004)

Pooling the data sets to carryout regressions

In order to proceed with the regressions to determine the sources and the impact of employment vulnerability on individual incomes/poverty, the data set is pooled together to produce a single data set. According to Wooldridge (2004: pp. 408-40), one reason for using independently pooled cross sections is to increase the sample size. By pooling random samples drawn from the same population, but at different points in time, we can get more precise estimators and test statistics with more power. Pooling is helpful in this regard insofar as the relationship between the dependent variable and at least some of the independent variables remains constant over time. Further, a year dummy is created, with base year being 2005 in our case. The reason of creating the year dummy is to allow the intercept to differ in the years and to reflect the fact that population may have different distributions over time. To verify whether the effect of employment vulnerability on income has changed over time, the year dummy variable is interacted with the employment vulnerability.

Data used

Data presentation

This paper draws mainly from the individual data of the Cameroon Employment and informal sector surveys, EES I conducted in 2005 and EES II in 2010 by the National Institute of Statistics (NIS). A total of 14606 individuals were interviewed in EESI and 30694 individuals in EES II. These surveys were conducted between May to July 2005 and 2010. These data sets divide the whole country into 32 strata: Douala; Yaoundé; each region was divided into 3 strata that is one urban stratum, one semi-urban, and rural. According to the National Institute of Statistics in Cameroon, 71% of those in the labour force are active and 29% are inactive; while 5% are discouraged unemployed. The labour force age group in Cameroon is from 15 to 65 years. Again, 95% of the population that made up the labour force are employed in the private sector, with 90% of them in the informal sector. Out of this total of 14606 individuals interviewed in 2005, 8780 form the private labour force; that fall in the age group 15-65. Again, out of the 28244 individuals interviewed in 2010, 16533 form the private labour force that fall in the age group 15-65.

Table 1: Indicator variables/modalities

Variables	Variables
Employment contract	Paid leaves
Contract	Yes
No contract	No
Payslip	Housing allowance
Yes	Yes
No	No
Remuneration	Other allowance
Salary	Yes
In kind	No
Advancement	
Yes	
No	
Union membership	
Yes	
No	
Labour status	
Regular	
Not Regular	

Source: Constructed by authors.

Justification of the indicators of employment vulnerability

Table 1 summarize the variables/modalities of the employment vulnerability indicators. The category variables: employment contract, remuneration, and labour status that appreciate the vulnerability/decency of employment respect the FAOC property according to which employment vulnerability of employed individuals improves along the first factorial axis or employment decency deteriorates along this axis. Employment contract tracks the informal/insecure nature of the employment contract.[14] Remuneration and labour status track casual and unstable nature of payment and employment (Table 1). Thus, even if a job is protected by the social security system, the casual nature of the employment is indication that this protection is not guaranteed over time and the risk of visible underemployment with such jobs is high. In this perspective, casual labour is a source of vulnerability. Individuals with unstable remuneration are vulnerable, as they cannot predict what their situation will be in the coming days or weeks. Besides these category variables, we also have dichotomous variables that can help appreciate the vulnerability of employment.

As to what concerns payslip, this variable is important since it allows a person in the event of job loss to convince a prospective employer of his former remuneration status. According to the Government of Cameroon (2007), more than 91.9% of employed individuals in the labour force have no payslips as opposed to only 8.1% with payslips.

We have membership of a trade union/association which is essential in protecting and promoting the rights of workers. According to section 3 of the 1992 Cameroon Labour Code[15], trade unions/employees' associations only protect and promote the rights of their members, so working individuals that do not make part of these unions/associations are likely to be vulnerable. Next, we have paid leaves as a criterion of vulnerability (Pagés, 2003). This is an institutional variable related to the lack of compliance with the 1992 Cameroon labour code. We only limit our exercise to the annual paid special leave of absence granted to working individuals on the occasion of family events directly concerning their own home.[16] This situation of non-compliance is rare in the public sector but very prominent in the private sector. It may be seen as a criterion that exposes an individual working in the private sector to risks of an income loss or decrease, hence making the individual vulnerable.

Other facets of vulnerability relate to the allowances given by enterprises to support or facilitate the quest of their employees to maintain and keep their households. They include: housing allowance and other allowances. Section 66, paragraph 2 of the 1992 Cameroon Labour Code states that if no housing is provided, the employer shall be bound to pay the worker concerned a housing allowance. About 94.9% of employed individuals receive no housing allowance compared to only 5.1% with housing allowance (Government of Cameroon, 2007). Lack of housing allowance is very common among private sector workers (98.7%) compared to their public sector counterparts (17.4%). We use job advancement over time as an initial indicator to capture the dynamism of the employed labour force in their jobs. Workers who after long years of work have not received any advancement are not fairly treated in their jobs, and since most advancements come with income increments and allowances, these workers are likely to be more limited than their peers that receive job advancements. We then define the intensity of employment vulnerability for each individual in the labour force based on the afore-defined criteria.

4. Empirical results

Descriptive statistics

Table 2 below provides the descriptive statistics of the variables which are identified as primary indicators and as sources of employment vulnerability as well as sources of income. Discussions of these statistics will help enhance our interpretations and allow us generate study-specific conclusions. Concerning working experience in years, we found that the average number of years of working experience in 2005 was three years and in 2010 was six years. It is essential to highlight that 69% in 2005 are youths compared to 67% in 2010. Most of the individuals in the private sector live in urban areas. In 2005, 86% of workers lived in urban areas compared to 57% in 2010. This observed drop in 2010 may be due to the visible improvement in roads infrastructure and rural development programmes which may have led to a reduction in rural exodus.

Most private sector workers are in the informal sector. Of the number of workers in the private sector, only 15% in 2005 are in the formal sector compared to 14% in 2010. This way, close to 86% in 2010 of these individuals are in the informal sector depending mostly on farm activities (small scale farms, plantations, fruit firms and animal rearing).In 2010, 33% of sampled individuals had primary education and 11% had tertiary education compared to 53% and 11% in 2005, respectively. In 2005, about 63% of individuals in the sample are married compared 40% in 2010. In 2005 and 2010, a household has an average of three and four children, respectively. The average monthly income in 2005 in the private sector stands at 29.606 CFA per month which is above the minimum wage of 28 500 CFA francs per month in Cameroon compared to 28.650 CFA per month in 2010.

Table 2: Summary of descriptive statistics

Variables	2005			2010		
	Number of of observations	Mean	Standard deviation	Number of observations	Mean	Standard deviation
Initial Indicator variables						
Employment contract	8780	2.74	0.68	17722	8.63	1.56
Pay slip	8780	1.95	0.22	17722	1.95	0.21
Advancement	8780	1.95	0.21	17722	1.99	0.11
Remuneration	8780	3.94	1.77	17722	8.25	1.78
Labour status	8780	1.47	0.50	17722	1.47	0.50

continued next page

Table 2 Continued

Variables	2005			2010		
	Number of of observations	Mean	Standard deviation	Number of observations	Mean	Standard deviation
Initial Indicator variables						
Other allowances	8780	1.94	0.23	17722	1.99	0.11
Housing allowance	8780	1.93	0.25	17722	1.98	0.13
Paid leave	8780	1.92	0.27	17722	1.97	0.16
Union membership	8780	1.91	0.28	17722	1.99	0.11
Employment Vulnerability Indicator						
Employment Vulnerability (Gross indicator)	8780	0.05	1.03	17722	0.13	1.23
Employment Vulnerability (reduced Indicator)	8780	89.25	19.57	17722	96.05	11.19
Regression Variables						
Labour experience (years of work)	8780	2.86	5.52	17722	5.88	8.75
Labour experience Squared	8780	41.85	153.09	17722	111.19	295.19
Number of children	8780	2.83	2.72	17722	4.11	2.54
Gender of Individual (male = 1)	8780	0.50	0.50	17722	0.47	0.49
Location of Individual (urban = 1)	8780	0.85	0.36	17722	0.57	0.50
Primary education	8780	0.33	0.47	17722	0.53	0.50
Tertiary education	8780	0.11	0.32	17722	0.09	0.29
Marital status (Married=1)	8780	0.63	0.48	17722	0.40	0.49
Formal	8780	0.14	0.36	17722	0.14	0.35
Youth	8780	0.69	0.46	17722	0.67	0.47
Monthly income	8780	29606	83.52	17722	28650	67.08
LogTotal monthly income	8780	1.61	1.91	17722	1.72	1.92

Source: Constructed by authors with help of STATA 10 using individual EESI I and II.

Results of the MCA analysis

Explanation of the inertia, factor scores and the reduced indicator

Under this subsection, Table 2 depicts the inertia by factorial axis which contains the principal inertia, percentage and cumulated percentage of the two factorial axes for pooled data.

Table 3: Explanation of inertia by factorial axis

	Principal Inertia	Percentage	Cumulated percentage
Factorial axis 1	0.17	96.56	96.56
Total Inertia	0.18		

Source: Constructed by authors.

In Table 2, we realized that the first factor axis represents 96.56% of the total inertia which means it captures better the quantity of information on employment quality compared to the second factorial axis. It accounts for 96.56% of the total variability in terms of vulnerability with respect to the variables used to appreciation employment quality in Table 1.

Table A in the appendix hosts the MCA scores from which the employment quality indicator is predicted. It contains the contributions of the variables used to construct the indicator of employment vulnerability. The table also contains the squared correlations (squared cosines) indicating the quality of representation of each initial indicator. The table permits us to observe the percentage and the number of observations in each initial indicator in the first factorial axis. The contributions indicate the proportion of the inertia of the axis explained by the category.

The gross indicator predicted from the MCA has both negative and positive values, as indicated in Table 4. With the gross indicators, small values indicate higher employment vulnerability while lower values indicate less employment vulnerability. This gross indicator is normalized, using Equation 2 above, to have positive values which ease further analysis like the stochastic dominance analysis as well as facilitate interpretations (Kamgnia et al., 2008). Upon normalizing, we obtain the reduced indicator which has only positive values; where smaller values indicate lower employment vulnerability (or higher decency) and higher values depict higher employment vulnerability.

Table 4: Summary statistics of the employment vulnerability indicator

	Mean	Median	Standard deviation	Minimum	Maximum	Length
Gross indicator	0.10	-0.29	1.17	-0.52	10.66	10.14
Reduced indicator	93.79	98.50	14.86	0	100	100

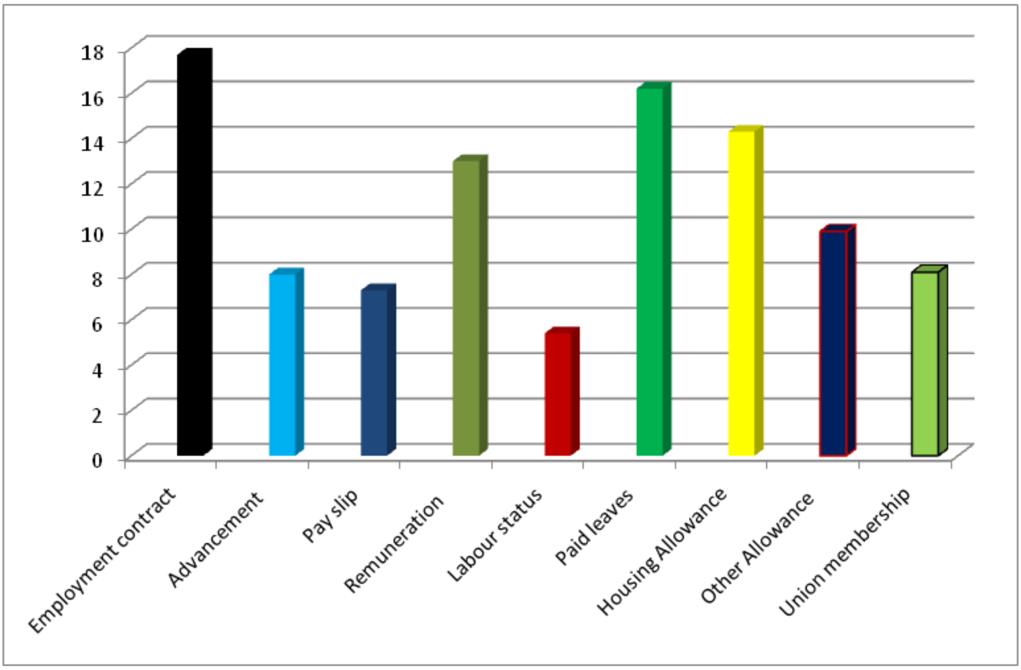
Source: Constructed by authors.

Contributions of the initial indicators

The percentage contributions of the various initial indicators to the formation of the first factor axis can be represented as shown on Figure 1 for better visibility.

Figure 1 shows the contributions of the initial indicators to the construction of the first factorial axis or in capturing the information about employment quality. From Figure 1, initial indicators: employment contract, paid leave, and housing allowance contribute most in the construction of the first factorial axis. This indicates that jobs which guarantee an employment contract, access to paid leaves and housing allowance are more likely to be decent or on the other hand are less likely to be vulnerable. Again labour status (being temporary or permanent) contributes least in determining the variation of job quality. The Growth and Employment Strategy Paper (GESP), launched in 2009, acknowledges that if growth, albeit strong and sustainable, does not generate decent jobs (or reduce vulnerable jobs), it would not be of satisfactory quality as it might induce wage inequalities and social strife (Government of Cameroon, 2009). These policy efforts will produce better fruits if knowledge on the dominance of employment vulnerability across sub-groups, incidence of employment vulnerability, correlates of employment vulnerability is gathered and its relationship to individual income is well understood. The following sections attempt to reconcile these issues in order to accompany the ongoing policy efforts in Cameroon.

Figure 1: Contributions of initial indicators



Source: Constructed by authors using Microsoft Excel 2010.

Quartiles of employment vulnerability

Table 5: Quartiles of employment vulnerability

	Quantiles						
	5	**10**	**25**	**50**	**75**	**90**	**95**
Gross indicator	-0.52	-0.52	-0.30	-0.29	-0.14	0.74	2.65
Reduced indicator	57.18	82.96	95.72	98.50	100	100	100

Source: Constructed by authors.

Table 5 shows the quartiles of employment vulnerability for the gross and reduced indicators. It is observable that employment vulnerability increases across quartiles. Interestingly, employment vulnerability levels-up at 100 as from the 75th quartile in the reduced indicator. The maximum value of employment vulnerability is at the 75th percentile which levels up for the 90th and 95th percentiles.

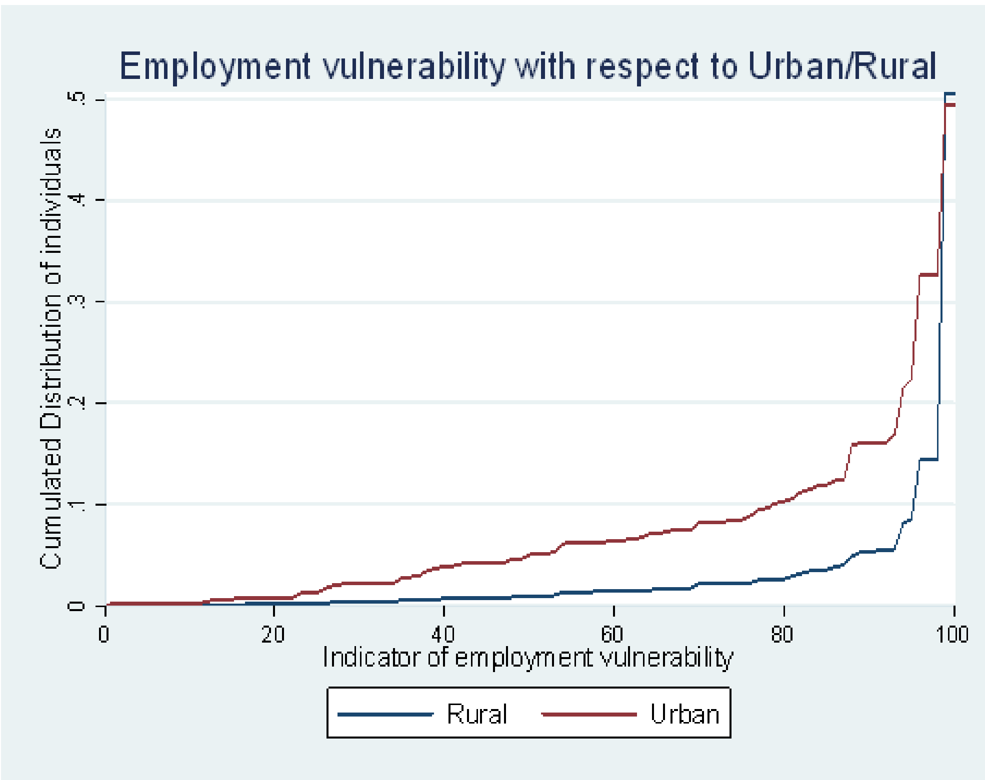
Stochastic dominance analysis

Analysis of the indicator with respect to residence

The construction of the employment vulnerability indicator is followed by a careful ordinal comparison between two subgroups. We carry out a stochastic dominance analysis across the various subgroups; to determine which subgroup dominates in terms of employment vulnerability. The dominance analysis of employment vulnerability is considered across residence (urban/rural), gender (male/female), farm/non-farm employment sectors, formal/informal employment sectors, and location (capital city/ other cities).

Figure 2 shows the dominance of employment vulnerability indicator across urban and rural subsectors. The curves below depict the net dominance of employment vulnerability in the rural area compared to the urban area at all threshold point. This means that employment vulnerability is more widespread among private sector workers in rural areas than those in urban areas. Individuals in urban areas are more likely to be current with the evolution of trade union association which provides them with their rights as employees and new developments from National Insurance Social Funds (NISF). In most rural areas in Cameroon, there are no deconcentrated offices of the NISF as is the case in most urban areas. Most rural dwellers are farmers and self-employed; they are not even well informed about the NISF or sensitized on the operations of trade unions.

Figure 2: Dominance curves of the employment vulnerability indicator with respect to urban/rural

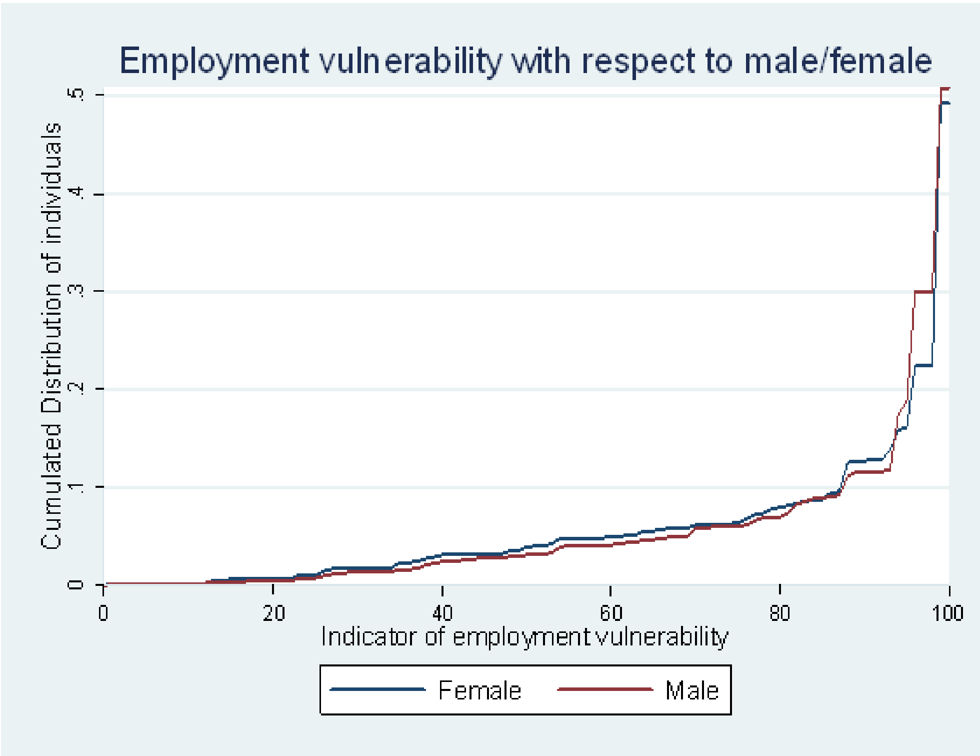


Source: Constructed by authors with the help of SPSS 17 from EESI I &II.

Analysis of the indicator with respect to gender

Concerning the dominance of employment vulnerability with respect to gender, Figure 3 presents stochastic dominance curves.

Figure 3: Dominance curves of the employment vulnerability indicator with respect to male/female



Source: Constructed by authors using EESI I &II.

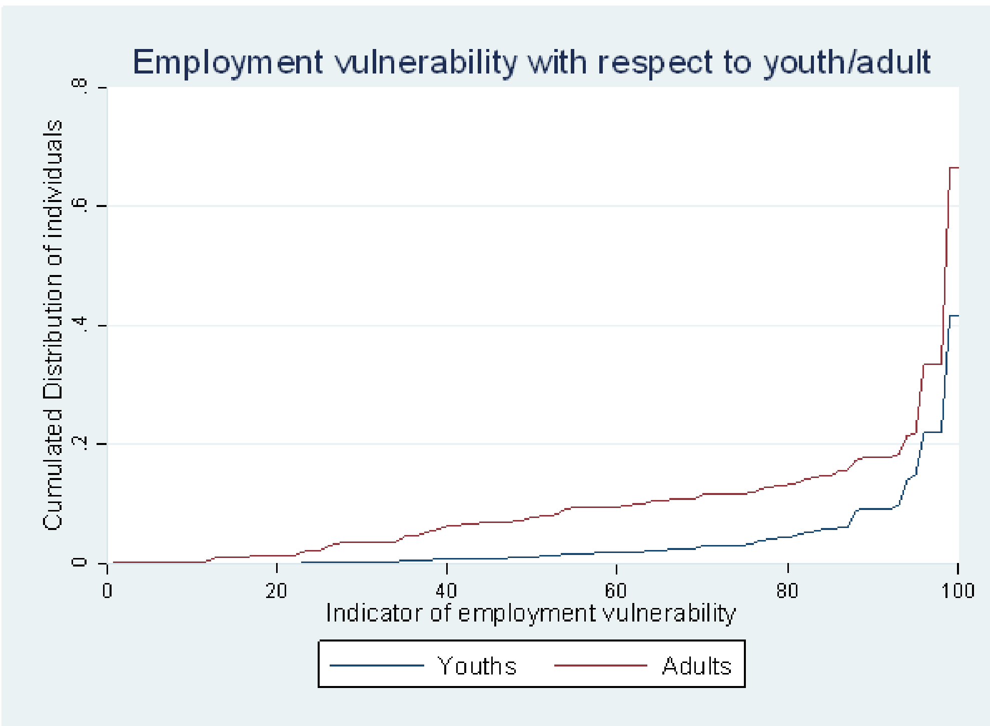
In Figure 3, we can observe that female individuals in the labour force dominate their male counterparts in terms of employment vulnerability from the threshold of 95. This finding is in tandem with the ILO's (2011) observation that employment vulnerability among women exceeds that of men. However, with an employment vulnerability threshold below 95, the males and females almost level-up (slight dominance of males) in terms of employment vulnerability. According to the Government of Cameroon (2009), five years after the execution of the Poverty Reduction Strategy Paper (PRSP) in 2003, the schooling rate in primary schools is 80%, with 82% boys and 77% girls. This may provide inputs to explain the almost levelling up of employment vulnerability below the threshold 95 and constitute a call for policy to encourage higher education for females, given their net dominance on males as the employment vulnerability threshold increases (beyond 95).

Worthy of note, as more and more females achieve higher education, measures to avoid gender discrimination in the labour market are crucial. This is because differences or disadvantages that are gender-oriented and skewed in favour of men affect supply responses and resource allocation both at micro (household) and macro levels of wellbeing (Sikod, 2007); therefore, the few female that are educated and qualified are given decent jobs. Again, policies to empower women are put in place by UNO, encouraging the increase of women empowerment and employment decency. From 1998 to 2003, 61% of women in Cameroon are independent workers, 9% are salaries owners and 27% work in family enterprises (UNDP, 2007). The World Bank and the Department for International Development see women empowerment as a means to poverty reduction through employment and community development in developing countries (Akogutuh, 2008). Women mostly gain revenue from the agricultural sector where there are self-employed.

Analysis of the indicator with respect to age group

As to what concerns the age group (youth versus adult), Figure 4 displays the stochastic dominance analysis.

Figure 4: Dominance curves of the employment vulnerability indicator with respect to youth/adult

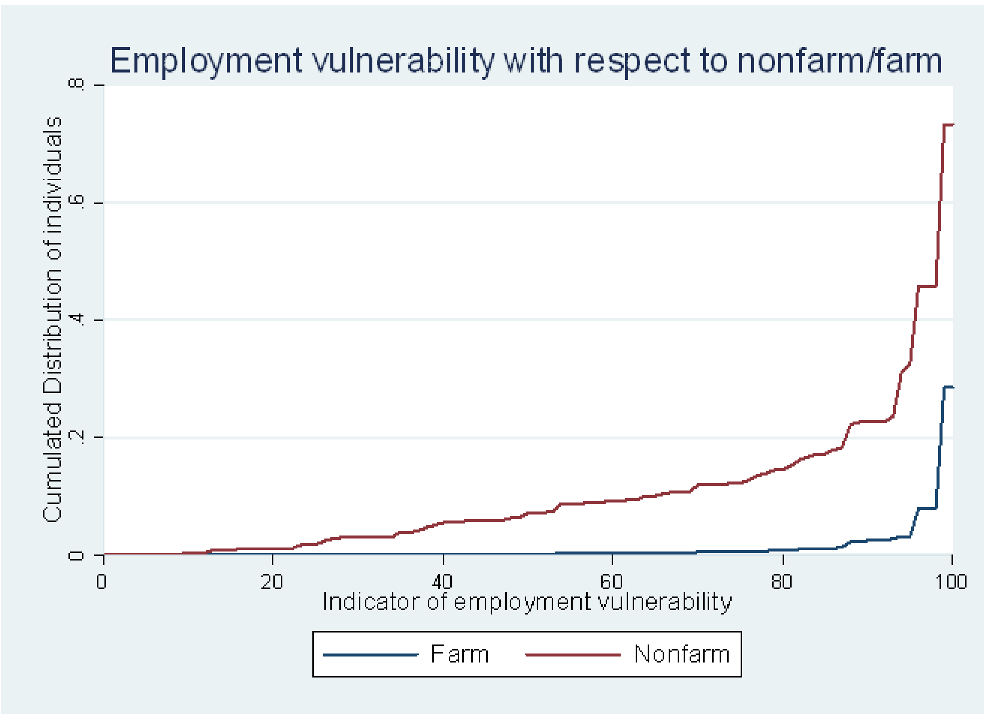


Source: Constructed by author using Individual EESI I & II.

From Figures 4, the youths are more vulnerable in employment as compared to the adult subgroup in the private sector labour force. This may be due to lack of working experience which pushes them to accept any condition for a start. Most youths at the beginning of their careers have a strong tendency to accept a vulnerable job which to them is like a 'stoppage job' while they look for something better. The strong and positive desire of most youths is to disconnect from parental sponsor and meet their own needs by themselves immediately after their education can also explain their likelihood to accept jobs that do not fulfil the basic job standards (such as employment contract, social protection just to mention a few). The promotion of decent youth employment is encouraged in Cameroon by the creation of the Youth Plan (2009–2013) which seeks to ensure that young people are integrated into social and economic life. This plan is based on 13 priority programmes, including the National Pact for Youth Employment (NPAYE) to promote employment among 15-35 year-olds.

Analysis of the indicator with respect to farm/non-farm employment sectors

Figure 5: Dominance curves of the employment vulnerability indicator with respect to farm/non-farm

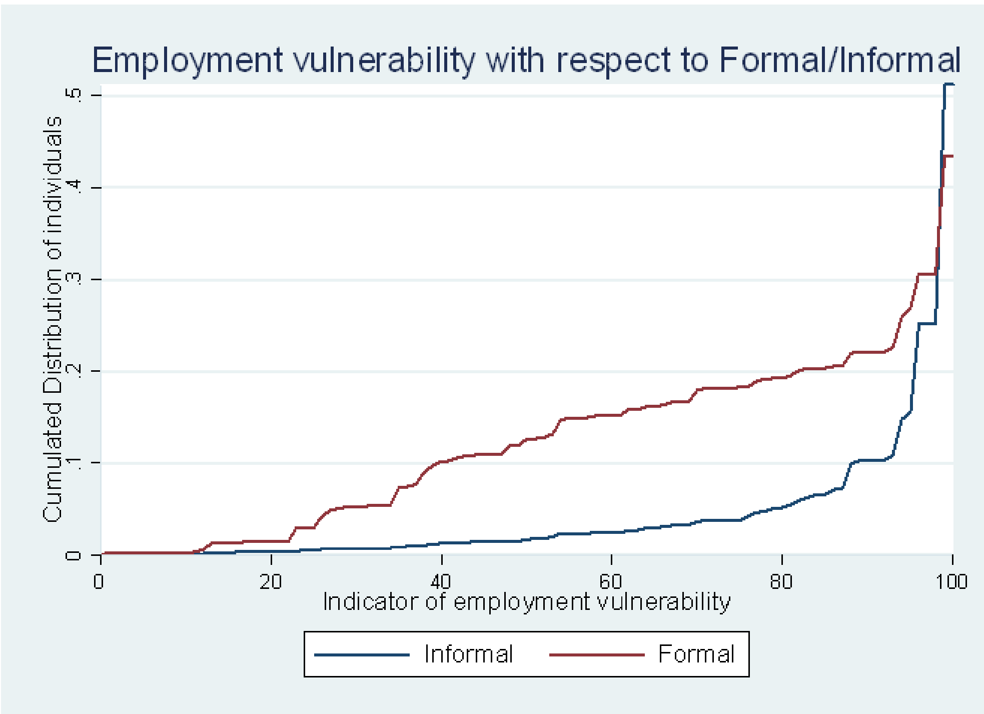


Source: Constructed by authors using Individual EESI I & II.

Figure 5 shows that the farming sector dominates the non-farming sector in terms of employment vulnerability. This is because the farming sector, in a developing country like Cameroon, is mostly made up of those who can hardly find jobs in the non-farm formal private sector, due to lack of education and qualification. According to the Government of Cameroon (2009), 13% of Cameroonians in the labour force are unemployed and lack education as well as capital to begin a business leading let to high rate of farming. The high level of vulnerability in the farming sector is due to lack of training and modern farming tools/techniques to commercialize and gradually formalize the sector.

Analysis of the indicator with respect to formal/informal employment sectors

Figure 6: Dominance curves of the employment vulnerability indicator with respect to formal/informal

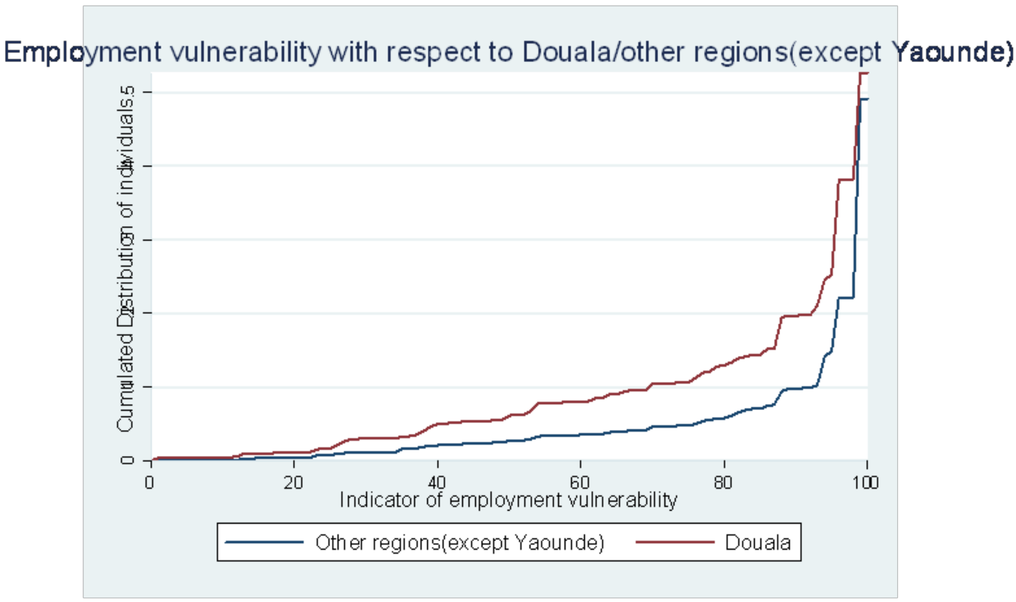


Source: Constructed by authors using Individual EESI I & II.

From Figure 6, the informal sector dominates largely the formal sector in terms of employment vulnerability implying that those in the informal sector are more vulnerable in employment than those in the formal private sector. According to the Cameroon Government (2007), about eight hundred thousand individuals in the labour force work in the formal private sector (about 0.1%) and the rest in the informal sector. In effect, this sector (informal) in Cameroon is characterized by casual or unstable labour, unstable remuneration and little or no organization in terms of associations or unions. Even social security (ensured by the NSIF in Cameroon) only protects civil servants and formal sector workers. To reduce employment vulnerability in the informal sector, the Government of Cameroon should promote the development of decent wage-earning employment, through supporting the development and competitiveness of Small and Medium-sized Enterprise (SMEs) and Small and Medium-sized Industry (SMIs). Promotion of self-employment is vital and the encouragement of mobility from the informal sector to the formal sector in order to reduce employment vulnerability is worthwhile.

Analysis of the indicator with respect to location

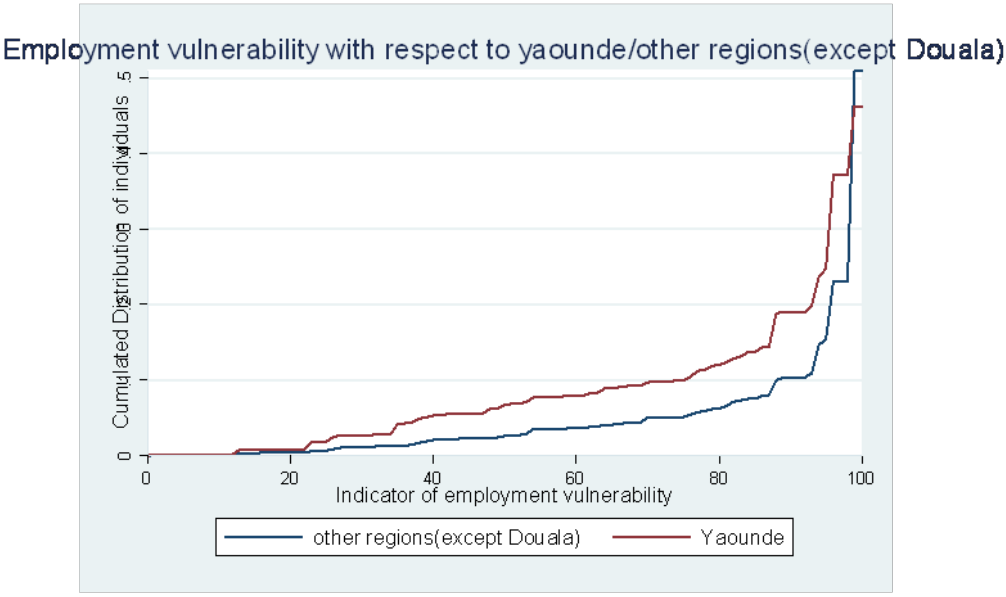
Figure 7: Dominance curves of the employment vulnerability indicator with respect to Douala/other regions (except Yaoundé)



Source: Constructed by authors using Individual EESI I & II.

In Figure 7, we observe a net dominance of the labour force in other regions (except Yaoundé) on the labour force in Douala in terms of employment vulnerability. This is an indication of the huge likelihood of escaping employment vulnerability for the labour force in the economic capital city, Douala. This may also be an indication that the industrial city of Douala has made significant progress in creating more decent jobs compared to other cities (except Yaoundé).

Figure 8: Dominance curves of the employment vulnerability indicator with respect to Yaoundé/other regions (except Douala)



Source: Constructed by author using Individual EESI I& II.

In Figure 8, we observe a net dominance of the labour force in other regions (except Douala) on the labour force in Yaoundé in terms of employment vulnerability. Hinging on the promise that Yaoundé is the capital city where administrative offices are concentrated, the labour force therein is more likely to be enlightened about their job rights and the existence of trade unions. Added to this, the standard of living is high, so workers in these towns enjoy some job-related allowances and fringe benefits which may not be available to those in other regions.

After carrying out the dominance analysis, there is need to isolate the very vulnerable from the distribution of employment vulnerability; identify the sources of employment vulnerability among individuals in the private sector, and investigate the role of employment vulnerability in determining individual incomes.

Incidence of employment vulnerability

Table 6: Incidence of employment vulnerability

2005	2010	Pooled (population)
Decency Estimate	Decency Estimate	Decency Estimate
0.556 (0.0063)	0.519 (0.0046)	0.532 (0.0037)

Source: Computed by authors.
NB: values in parentheses are standard errors.
The cut-off point is the 40th percentile.

The cut-off point used is the 40th percentile. This is because the poverty line in Cameroon stands at 39.9%. So we assume this threshold point in order to distinguish between the very vulnerable and the non-vulnerable. Using the 40th percentile, we have the cut-off values of 98.50 for the pooled sample. Using this threshold, we observe that 55.6% of the labour force falls below this threshold in 2005, indicating that 55.6% are decent in employment and the remaining 44.4% are vulnerable in employment. For 2010, we observe that 51.9% of the labour force falls below this threshold, implying that that 51.9% are decent in employment and the remaining 48.1% are vulnerable in employment in the private sector in Cameroon (Table 6). Thus, on the basis of this threshold, we can observe that employment vulnerability incidence registered an increase between 2005 and 2010 of close to 3.7%.

Sources of employment vulnerability

To identify the sources of employment vulnerability among individuals in the private sector, Table 7 contains the OLS regression of how employment vulnerability correlates to human capital and other socioeconomic variables.

Table 7: Sources of employment vulnerability across subgroups

Variables	Overall (a)	Youth sub-sample (b)	Adult sub--sample (c)	Female sub sample (d)	Male sub sample (e)
Primary education	1.1177***	0.41796**	3.0773***	2.1491***	0.48797***
	5.4933	2.1262	7.2308	6.8284	1.8782
Tertiary education	-9.0374***	-5.375***	-12.079***	-9.0588***	-8.6686***
	-24.708	-15.24	-15.789	-16.077	-18.596
Labour experience (in years)	-0.10161***	-0.39247***	-0.11081***	-0.16065***	-0.07777***
	-6.9731	-15.62	-5.5373	-7.2941	-4.1637
Marital status (Married=1)	-1.757***	-0.04311	-2.6806***	-0.09091	-2.2584***
	-9.0037	-0.22287	-6.0281	-0.29442	-8.8667
Location of Individual (urban = 1)	-2.3212***	-2.1445***	-4.4363***	-1.2616***	-2.6376***
	-11.136	-10.617	-9.9919	-3.9891	-9.8729
Gender of Individual (male = 1)	-1.8435***	-0.58179***	-3.6249***	-	-
	-8.9786	-3.0434	-7.5113	-	-
Sector of employment (Formal=1)	-14.18***	-5.0883***	-31.886***	-6.8972***	-17.499***
	-49.691	-18.528	-52.26	-16.376	-47.195
Number children	0.30878***	0.33993***	0.15901***	0.27714***	0.31358***
	13.919	16.524	2.962	6.9976	11.655
Age group (youth=1)	5.9873***	-	-	4.3441***	6.8597***
	25.97	-	-	12.285	22.913
Constant	93.077***	96.344***	98.683***	91.521***	91.541***
	252.37	322.55	131.24	164.24	212.9
Adjusted R-squared	0.2205	0.0941	0.4254	0.1331	0.2611
Number of observations	26502	17891	8611	13728	12774

Source: Computed by authors with help of STATA 10 using individual EESI I & II.
Note: ***, ** and * represent 1%, 5% and 10% levels of significance, respectively, and t-statistics in parentheses, except otherwise specified. Dependent variable is the indicator of employment vulnerability.

Table 7 hosts the OLS estimates of the correlates of employment vulnerability, overall and across subgroups (the male/female, youth/adult subsamples for the pooled data set). From the overall estimates in column (a), we can observe that tertiary education correlates negatively and significantly with employment vulnerability, while primary education correlates positively. This is an indication that individuals who have earned some university or tertiary education are less vulnerable in employment and those with only primary education are more vulnerable. This way, tertiary education exposes individuals to more stable and secured jobs in the private sector in Cameroon. This result is in tandem with Imoro and King (2006) who found that inadequate participation in education and skills training expose people, especially the youths, to vulnerability in terms of employment. Worthy of note, this hampering effect of tertiary education is more accentuated among the adults compared to the youths; which is further an indication of the importance of the promotion of tertiary education among the adult working population in Cameroon. Concerning the sector of employment, the results indicate that formal sector employment correlates negatively and significantly with employment vulnerability. This highlights the role that formalization of the large informal sector in Cameroon can have in terms of reducing or alleviating employment vulnerability.

Overall, the number of young children in the house is positively correlated to employment vulnerability, except for the adult subsample in column (c). The presence of young children in the household may redefine the working conditions of the man or woman and can even determine the choice of sector of activity, especially for the woman. This finding is in conformity with Mincer and Polachek (1974). Concerning age group, we observe that youthfulness has a positive and significant relationship with employment vulnerability. Most youths, upon making their first experience in the labour market, are eager and desperate to hold onto a job and given that unemployment is very prevalent among young graduates who have little or no working experience, they are exposed to accept even a vulnerable job. Importantly, this effect is more heightened among the females (column d) compared to the men. This may be because young female graduates on their first insertion in the labour market bother much less about job standards compare to their male counterparts.

Being married is correlated negatively with employment vulnerability across gender and age group. This is evident in Cameroon as most people, especially men, only get marry when they must have secured a stable and well earning job. This is reason why the male subsample has a higher negative coefficient compared to the female subsample. The coefficient of urban residency shows that people who reside in the urban areas in Cameroon are less vulnerable in employment compared to those in rural areas. This can be explained by the differentials in terms of jobs opportunities and industries where majority are localized in the urban areas in Cameroon.

The role of employment vulnerability in determining individual income

Table 8 submits the OLS estimates of the structural parameters of income by gender. For the male and female subgroups, employment vulnerability correlates negatively and significantly with private sector monthly income. This finding is consistent with the full sample. However, the female subgroup reports an adverse effect of employment vulnerability on monthly income that is in excess of that of the male subgroup and that of the pooled sample (Table 8 columns 1, 2 &4). This finding supports Ndamsa et al. (2013) who, using the third Cameroon household survey showed that employment vulnerability generally correlates inversely with private sector income. This result is also in line with Bocquier et al. (2010) who observed that the effect of vulnerability on income is negative in developing countries. However, this result runs contrary to Poggi (2007) and Fernandez and Nordman (2009) who observed that, in developed countries, the effect of employment vulnerability on income is positive.

The elasticity indicates that an increase in the level of employment vulnerability among the labour force in the private sector will cause monthly income to decrease. This result is consistent in all the subsamples (Table 8, columns 2, 4, 6, 8 & 10). The coefficient of the interaction term indicates that the adverse effect of employment vulnerability on income has decreased from 2005 to 2010, as the positive coefficient of the year dummy variable (2010 =1) clearly underlines that the diluting effect of employment vulnerability on private sector income has been greatly mitigated in 2010. Specifically, the responsiveness of individual income to an increase in employment vulnerability witnessed a drop between 2005 and 2010. This responsiveness also dropped for the male/female and youth/adults subsamples.

Given this decrease in the responsiveness of private sector income to an increase in employment vulnerability and the observed increase in the incidence of employment vulnerability between 2005 and 2010 (Table 6), one is inclined to believe that though the incidence of employment vulnerability increased between 2005 and 2010, workers in private employment were able to secure more pecuniary benefits for their vulnerable status in 2010 compared to 2005. The year dummy variable show that income of private workers has improved over time (from 2005 to 2010) across the various sub populations considered in this study.

For the youths and adults subgroups (Table 8), the effects of employment vulnerability on income are negative and significant, a finding that corroborates that of the full sample. But it is worthy to mention that the youth subgroup has the same elasticity of 0.003 like the male and female, except the adult subsample with an elasticity of 0.004 (Table 8 columns 7 and 9). This result implies that adults in the Cameroon labour force will suffer the adverse effects of employment vulnerability on income slightly more than the youths. According to the ILO (2014), countries that have made the greatest investment in quality jobs from the early 2000s, living standards (as measured by the growth in average annual per capita income) improved more than in developing and emerging economies that paid less attention to quality jobs. This constitutes a crucial call for concern for the Cameroon Government and policy makers to lay more emphasis on the implementation of the decent growth policies earmarked in her current public policy, GESP. Worthy of note, the effect of employment vulnerability on income almost levels up across gender (with an elasticity of 0.003 for the male and female). This may be as a result of female empowerment efforts that have bridged, to a large extent, gender-differentials in bargaining power and social networks.

The other correlates (for example experience, primary and tertiary education and formal sector of employment) in the various subsamples say the same story as those in the full sample. Specifically, primary education relates negatively with income while tertiary education has a positive and significant relationship with private sector income across all the subsamples considered. These results are feasible as most, if not all, primary education holders are more exposed to vulnerable jobs which pay less as per the efforts they put in these jobs compared to holders of tertiary education with knowledge and skills that permit them access quality jobs. Interestingly, female workers that have acquired tertiary education have the potentials to increase their income by 0.073% more than those of their counterparts with no tertiary education. A youth with tertiary education has the capability to increase his/her income by 0.219% more than that of another youth with no tertiary education. Thus, one can say that increasing the level of education is consistent with enhancing income potentials. This finding is in tandem with the human capital theory which argues that an individual's output depends partly on the rate of return on the human capital he owns.

Importantly, urban residence correlates positively and significantly with monthly income across all the subsamples considered in this study. Specifically, the labour force in the city has more chances of securing a better income compared to that in the rural area. The urban area provides many job opportunities allowing urban dwellers the opportunity to choose better paid jobs and even hold second jobs. Adults in the urban areas have the potential to secure more income compare to the youths in these areas, while females and males in this area almost level up in terms of their potential to generate more income.

Table 8: The role of vulnerable employment in determining income

	Pooled samples									
	Overall(1)	Elasticity(2)	Male (3)	Elasticity (ey/dx) (4)	Female (5)	Elasticity (ey/dx) (6)	Youths (7)	Elasticity (ey/dx) (8)	Adults(9)	Elasticity (ey/dx) (10)
Employment vulnerability (EV)	-0.004***	-0.003***	-0.005***	-0.003***	-0.006***	-0.003***	-0.007***	-0.003***	-0.008***	-0.004***
	(-6.57)	(-6.56)	(-4.30)	(-4.30)	(-6.52)	(-6.51)	(-5.39)	(-5.38)	(-7.56)	(-7.53)
Interaction between EV and Year dummy	-0.077	-0.041	-0.060	-0.032	-0.104	-0.056	-0.117	-0.061	-0.045	-0.025
	(-1.36)	(-1.36)	(-0.90)	(-0.90)	(-0.91)	(-0.91)	(-1.23)	(-1.23)	(-0.64)	(-0.64)
Yeardummy	7.569	4.036	6.218							
(2010=1 or zero otherwise)	3.275	10.111	5.465	11.239	5.891	5.011	2.773			
	(1.37)	(1.37)	(0.95)	(0.95)	(0.90)	(0.90)	(1.21)	(1.21)	(0.74)	(0.74)
Primary education	-0.546***	-0.291***	-0.334***	-0.176***	-0.812***	-0.439***	-0.612***	-0.321***	-0.485***	-0.269***
	(-19.29)	(-19.15)	(-8.12)	(-8.10)	(-20.62)	(-20.30)	(-17.36)	(-17.23)	(-10.07)	(-10.00)
Tertiary education	0.184***	0.098***	0.212***	0.112***	0.136***	0.073***	0.418***	0.219***	-0.230***	-0.125***
	(4.39)	(4.38)	(2.92)	(2.92)	(2.67)	(2.67)	(8.03)	(8.01)	(-3.21)	(-3.20)
Labour experience(in years)	-0.016***	-0.009***	-0.005*	-0.002*	-0.025***	-0.013***	-0.030***	-0.015***	-0.015***	-0.008***
	(-7.52)	(-7.51)	(-1.71)	(-1.71)	(-8.38)	(-8.36)	(-4.93)	(-4.93)	(-6.27)	(-6.25)
Marital status (Married=1)	0.696***	0.371***	0.69***	0.363***	0.560***	0.324***	0.716***	0.375***	0.530***	0.293***
	(23.77)	(23.52)	(18.22)	(17.99)	(12.04)	(11.97)	(18.26)	(18.10)	(10.84)	(10.76)
Location of Individual (urban = 1)	0.268***	0.143***	0.280***	0.149***	0.278***	0.150***	0.183*	0.060***	0.380***	0.210***
	(4.55)	(4.55)	(3.39)	(3.39)	(3.38)	(3.38)	(2.51)	(2.51)	(3.88)	(3.87)
Gender of Individual (male = 1)	0.154***	0.082***					0.032	0.017	0.463***	0.256***
	(6.42)	(6.41)					(1.11)	(1.11)	(10.59)	(10.52)
Sector of employment (Formal=1)	-0.253***	-0.135***	-0.229***	-0.120***	-0.293***	-0.159***	-0.280***	-0.146***	-0.221***	-0.122***
	(-7.35)	(-7.35)	(-4.71)	(-4.71)	(-6.03)	(-6.03)	(-6.78)	(-6.78)	(-3.49)	(-3.49)
Number children	0.061***	0.032***	0.041***	0.021***	0.083***	0.044***	0.056***	0.030***	0.060***	0.033***
	(15.65)	(15.58)	(7.38)	(7.36)	(15.21)	(15.08)	(12.01)	(11.96)	(8.05)	(8.02)

continued next page

Table 8 Continued

	Pooled samples									
	Overall(1)	**Elasticity(2)**	**Male (3)**	**Elasticity (ey/dx) (4)**	**Female (5)**	**Elasticity (ey/dx) (6)**	**Youths (7)**	**Elasticity (ey/dx) (8)**	**Adults(9)**	**Elasticity (ey/dx) (10)**
Age group (youth=1)	-0.383***	-0.204***	-0.491***	-0.258***	-0.174***	-0.094***				
	(-11.89)	(-11.86)	(-11.24)	(-11.19)	(-3.42)	(-3.42)				
Constant	1.146***		1.418***		1.197***		1.132***		1.196***	
	(15.05)		(10.15)		(12.92)		(9.05)		(10.79)	
Adjusted R-squared	0.134		0.126		0.156		0.142		0.140	
Number of observations	26502		12774		13728		17891		8611	

Dependent variable is the log of Total monthly income (Robust t-statistics in parentheses)

5. Conclusions and policy implications

Conclusions

This paper aimed at investigating the situation of employment vulnerability in the private labour force in Cameroon using the Cameroon Employment and informal sector surveys, EES I conducted in 2005 and EES II conducted in 2010 by the Government's Institute of Statistics (NIS). Specifically, the study (1)measured employment vulnerability in the private sector labour force in Cameroon in 2005 and 2010 and investigated the aspects of the vulnerability factors that play an important role; (2) examined the distribution and dominance of employment vulnerability across employment sectors and subgroups to identify the most vulnerable sectors and subgroups in the private labour market in Cameroon; (3) determined the incidence of employment vulnerability in the periods of study; (4) examined the predictors (sources) of private sector employment vulnerability, overall and across age cohorts and across gender; and (5) investigated the effect of vulnerable employment on individual incomes. In constructing the employment vulnerability indicator for the labour force in the private sector, the study employed the MCA, given that our initial indicators are qualitative in nature. This approach also allowed the study to resolve the shortcomings identified in the literature concerning studies on employment vulnerability. The DASP 2.1 package was used to perform the stochastic dominance analyses as well as the calculations of the employment vulnerability incidence. Regression analyses were also undertaken with the help of STATA 10.1.

For the stochastic dominance analyses, results depicted net dominance of employment vulnerability in the rural area compared to the urban area at any threshold point. This implied that employment vulnerability is more widespread among private sector workers in rural areas than those in urban areas. Concerning gender, we observed that female individuals in the labour force dominate their male counterparts in terms of employment vulnerability. For the age group, we found that the youths in the private sector labour force are more vulnerable in employment compared to adults. This result supported the evidence that most youths at the beginning of their careers have a strong tendency to accept a vulnerable job which to them is like a 'stoppage job' while they look for something better. Results showed that the farming sector in the private sector in Cameroon is more vulnerable than the non-farming sector and the informal sector dominates largely the formal sector in terms of employment vulnerability. We equally observed a net dominance of the labour force in other regions on the labour force in the capital cities (Yaoundé and Douala) in terms of employment vulnerability. Among the various initial indicators, employment contract is a very good determinant of employment quality. It contributes about 17.7% in determining variation in employment vulnerability. It made the highest contribution among initial indicators used in forming the factorial axis.

Concerning the incidence of employment vulnerability, using the 40th percentile as the threshold point, we observed that 41.9% of the labour force falls below this threshold in 2005, indicating that 41.9% are decent in employment and the remaining 58.06% are vulnerable in employment. For 2010, we observed that about 43.1% of the labour force falls below this threshold, implying that 43.1% were employed decently in and the remaining 56.9% were vulnerably employed in the private sector in Cameroon. This is evidence that incidence of employment vulnerability dropped between 2005 and 2010. Concerning the correlates of employment vulnerability, we observed that individuals who have acquired some higher education are less likely to be vulnerable in employment and those with no or only the primary education. Worthy of note, we find that this diluting effect is more accentuated among the adults compared to the youths and more accentuated among the female subsample, especially in 2010, compared to the male subsample. Results indicated that being employed in the formal sector relates negatively and significantly with employment vulnerability; highlighting the role that formalization of the large informal sector can have in terms of reducing or alleviating employment vulnerability. Most important, we found that vulnerable jobs reduce monthly income and hence increase poverty. An increase in employment vulnerability was found to have a more adverse effect on the incomes of the adults compared to those of the youths, but it effect levelled up across gender.

Policy implications and recommendation

Concerning the high contribution of employment contract on the reduction of employment vulnerability, we realized that employment contract is a good indicator of employment quality, so, the Ministry of Employment should do regular checks in all formal enterprises verifying the conditions of recruitment. Further, the higher level of employment vulnerability amongst the females, youths and rural subgroups implies that labour market policies based on equal opportunities as stated in the labour code (1992) are not applied. Again, vocational training that is training leading to a particular trade aimed at promoting self-employment is not efficient. The Ministry of Employment and vocational training, should give equal opportunities to both gender and residential areas (rural and urban). More efforts in supporting programmes which are aimed at promoting youths and girls specifically to undertake micro-activities such as, junior enterprises and vocational training are crucial. Regarding the underprivileged position of the youths, the government should improve the coverage and efficacy of the Programmes for the promotion of youths to undertake micro-activities, junior enterprises and training both in rural and urban areas. This policy is conceivable and achievable under the auspices of the U-PAJER in Cameroon (that is Rural and Urban Youth Support Programme). So far in 2011, 138 youths were employed, 2628 trained and 116 junior enterprise were financed thanks to this initiative (Cameroon Government, 2012).The National Pact for Youth Employment (NPAYE) to promote employment among 15 35 year-olds is also very important in this direction; to ensure that young people are integrated into social and economic life. But these initiatives should endeavour to reach out to the underprivileged in the labour market, especially those in enclave rural areas.

The level of vulnerability in informal sector indicates that those in the informal sectors face a lot of difficulties due to harsh conditions(taxes) put in place by the government; conditions which also scare away foreign investors. In order to address this problem of vulnerability in the informal sector, those in charge of the implementation of GESP, should endeavour for a tax-friendly environment to encourage the formalization of the large informal sector in Cameroon. They should also set up special committees to regulate employment and working conditions in the private sector; this will go a long way to avoid poor remuneration and non-respect of basic job standards as enshrined in the Cameroon Labour Code.

Findings indicated that the effect of tertiary education on employment vulnerability is more accentuated among the adults compared to the youths and more accentuated among the male subsample compared to the female subsample. This is further indication of the importance of tertiary education in the struggle to curb employment vulnerability and the need to promote female education. Efforts should be made by the Cameroon Government to empower (in terms of education and training) mostly women living in rural areas, however, without compromising the education of women in urban areas.

Notes

1. It is also seen as the sum of own-account workers and unpaid family workers.

2. Firm vulnerability criteria is captured with variables like firm size, sector of activity and firm-level institutional factors.

3. The ILO defines employment vulnerability as the risk of lacking full, decent and productive employment. First 'key issue' is: "Decent employment and the Millennium Development Goals (MDGs): Description and analysis of a new target"; and the third is: "Beyond the employment/unemployment dichotomy: Measuring the quality of employment in low income countries".

4. Abidjan, Bamako, Cotonou, Dakar, Lomé, Niamey, and Ouagadougou.

5. Suppose we have the utility U(C, A), where C is the worker's consumption and A adverse working conditions, the worker maximizes her utility under constraint C= W(A), implying that W'(A)=UA/UC.

6. The two categories non-wage agricultural work and non-wage non-agricultural work include employers, self-employed workers and unpaid family workers.

7. Dummies for: children under two, from 3 to 6 and from 7 to 11.

8. It is worth noting that, an alternative of the standard PCA recently described by Kolenikov and Angeles (2004) called the polychoric PCA allows us to assume that a latent continuous variable underlies each binary or ordinal variable. The polychoric PCA improves the standard PCA.

9. Another criterion is that, for all primary indicator variables, the FAOC is fulfilled with the same orientation, that is, the ordering relation is equivalent for all primary factors. This criterion is often referred to as the Global FAOC.

10. Global FAOC holds that, for all indicator variables, the FAOC condition is fulfilled with the same orientation, that is, the ordering relation is equivalent for all primary indicators.

11. Note that a binomial indicator always meets the FAOC requirement.

12. MCA was designed in the sixties and seventies to precisely improve PCA approach.

13. Potential labour market experience = Age – minus schooling – minus six.

14. According to the 1992 Cameroon Labour Code, an employment contract is an agreement by which a worker undertakes to put his services under the authority and management of an employer against remuneration.

15. Cameroon Labour Code, Law No. 92/007 of 14 August 1992.

16. Section 89, paragraph 4 of the 1992 Cameroon Labour Code allows a maximum of 10 days per year of paid special leave.

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Appendix

Table A: Scores, contributions and squared correlation of MCA on the initial indicators of employment vulnerability

	Initial scores on the first axis	Squared correlation	contributions		Number of observations	Per-centage
Employment contract				**17.7**		
Yes	3.42	0.92	15.6		2,080	7.85
No	-0.47	0.92	2.1		24,422	92.15
Advancement				**8.0**		
Yes	4.0	1.02	7.7		620	2.34
No	-0.18	1.02	0.3		25,882	97.66
Pay slip				**7.3**		
Yes	3.85	1.02	7.0		1,273	4.80
No	-0.17	1.02	0.3		25,229	95.20
Remuneration				**13.0**		
Salary	1.97	0.96	10.0		4,983	18.80
In kind	-0.59	0.96	3.0		21,519	81.20
Labour status				**5.4**		
Permanent	0.70	1.01	2.7		14,054	53.03
Temporary	-0.7	1.01	2.7		12,448	46.97
Paid leaves				**16.2**		
Yes	4.30	0.93	15.0		1,182	4.46
No	-0.34	0.93	1.2		25,320	95.54
Housing Allowance				**14.3**		
Yes	4.34	0.94	13.4		903	3.41
No	-030	0.94	0.9		25,599	25,599
Other Allowance				**9.9**		
Yes	3.99	1.00	9.4		713	2.69
No	-0.22	1.00	0.5		25,789	97.31
Union membership				**8.1**		
Yes	1.97	1.01	7.5		994	3.75
No	-0.59	1.01	0.6		25,508	96.25

Source: Constructed by authors with help of STATA 10 using individual EESI I and II.