

## IMPACT OF GENDER WAGE DIFFERENTIALS ON POVERTY AND INEQUALITY IN CAMEROON: A DISTRIBUTIONAL APPROACH<sup>1</sup>

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### Abstract

This study analyzes the distributional impact that gender wage differentials could have on poverty and income inequalities in Cameroon. It specifically focuses on public sector workers and those in the formal private sector. The study uses data of the Survey on Employment and the Informal Sector conducted in 2005.

The results indicate that in the absence of gender wage differentials in the formal labour market, the hourly income of women would be, on average, superior by 2.7% to that of men. This thanks to the returns to education, which are higher to that of men, therefore allowing women to offset their gap in work experience. The impact of gender wage gap on poverty shows that the eradication of gender segregation in the formal sector would help to improve the living conditions of people living in households with at least one woman exercising in the formal sector. At the national level, it would also reduce the incidence of poverty whereas there will be an increase in income inequality.

The study recommends a greater awareness of political and social actors on the impact of gender wage gap on the well-being of people who are victims; the application of the Convention on the Elimination of All forms of Discrimination against women; the implementation of a gender approach in civil service recruitments; and, the instauration a gender equality bonus system in public and private enterprises.

**JEL Classification:** J16; J31; I32

**Key words:** Labour market, Gender wage gap; Poverty; Income inequalities; Cameroon

### **I. INTRODUCTION**

Since 1994, the Cameroonian economy resumed growth and in 2000, new programs with less constraints, of which the Initiative for Heavily Indebted Poor Countries (HIPC), were negotiated with donors. However, despite this progress and reforms, the conditions of living and of activity of Cameroonians remain alarming. In fact, the third Cameroonian Households Survey (ECAM 3) has reveals that the poverty headcount has been steady at 40% between 2001 and 2007; it also shows the strong significance of the socio-economic group on the probability of a household to be poor (INS, 2008). The same survey also revealed great wage differentials between men and women in the labour market; Women are mostly engage in unprotected jobs and earn on average two times less than men (INS, 2008). These facts corroborate the results of the Employment and the Informal Sector Survey (EESI) realised in 2005, which has clearly established the existence of gender inequality in the labour market of the Cameroonian economy (INS, 2005).

Moreover, in the context of globalization and trade liberalization, the issue of imperfect markets is of an increasing interest. In particular, it is important to give a special attention to the costs incurred by the inefficient use of labour as in the case of gender wage differentials. Indeed, the functioning of the labour market has a great impact on economic growth and income distribution (Cambarnous, 1994). In addition, the "classical" theoretical analysis, based on the work of Becker (1975) and Arrow (1973), clearly showed the implications of discrimination on profits, wages and efficiency in work allocation.

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<sup>1</sup> This study was conducted with a grant from the African Economic Research Consortium (AERC). We express our thanks to all who have contributed directly or indirectly to its achievement. We particularly thank Professors Eric Thorbecke, Jean Yves Duclos, David Sahn, John Strauss and Patrick Plane, and also anonymous commentators for their contributions.

This paper analyzes the distributional impact that gender wage differentials could have on poverty and income inequality in Cameroon. It aims to assess whether political actions aiming at establishing gender equality in the labour market especially in the formal sector can also contribute to improve significantly the welfare of beneficiary households. More specifically, the methodology consist to quantify and decompose gender wage differentials in the formal sector (public and private formal) and assess how a decrease of gender wage differentials can affect the poverty situation of households.

This study is based on two key assumptions. The first assumes that the income gap between men and women is totally explained by a number of observable variables. This amount to associate, certainly wrongly, the impact of unobservable factors (such as absenteeism, skill, effort, etc.) on income differences to forms of discrimination. The second assumption is to assume that the discrimination-free equilibrium wage coefficients are unbiased. This is unlikely since these coefficients are a weighted average of the men and women wage regression coefficients. This problem is yet inherent in models of the type Oaxaca-Blinder.

## II. METHODOLOGY

### II.1 Income Equation

As it is the case for most African economies, Cameroon labour market is segmented<sup>2</sup> and it has four segments: public, private formal, informal non-agricultural and informal agricultural<sup>3</sup>. However, given the difficulty of apprehending the mechanisms of remuneration in the informal sector, our study is limited to the workers of the formal sector. We have distinguished the public segment from the private segment. Indeed, government enterprises and services provide public goods and are generally subject to political objectives, while private formal companies have for principle the maximization of their profit. Therefore, each sector certainly has its specificities with regard to the level of wages.

In each segment, we have estimated the earnings equation (4) separately for men and women:

$$\ln(w_i) = \beta X_i + \theta_i \lambda_i + e_i \quad (1)$$

Where  $w_i$  is the hourly income of activity;  $X_i$  is the vector of characteristics and  $\beta$  is the vector of coefficients,  $e_i$  is the vector of residuals distributed according to a standard normal distribution  $N(0, \sigma_e)$ ;  $\lambda_i$  is the inverse Mills ratio; it is derived from the labour market participation model. This variable permits to take into account the possible selectivity bias. Equation (1) is estimated by the two stages procedure developed by Heckman (1979).

### II.2 Living standard indicator

The study is focus on monetary poverty and its assessment passes through the calculation of a living standard indicator. Available data (the survey on employment and informal sector) did not include a module on households' final consumption expenditure. To overcome this problem the standard of living indicator that we have considered is the sum of jobs earnings (main and secondary jobs) and out of employment incomes of all the household's members aged 10 and above. Out of employment revenues include the following items: 1-Work pensions, 2-Other pensions, 3-Land and real state income, 4-Income from transferable Securities, 5 - Transfers received from other households, 6-Scholarships, and, 7-Other Income. To make the various incomes comparable from one region to another in terms of real purchasing power we have used regional price deflators. For the choice of consumption units, we consulted the study of Nembot *et al.* (2007); these researchers have computed an empirical scale of equivalence based on Cameroon's data.

### II.3 Poverty line, poverty indices, income inequality index

In this study we have chosen an absolute poverty line because this better addresses our objectives. Therefore, the threshold of one dollar per consumption unit per day has been adopted; this is about 15000 Cfaf per month. A household is classified as poor if its income per adult equivalent is below the poverty line and a person is said to

<sup>2</sup>Labour market segmentation can be defined as a situation where workers with similar productive characteristics, get different salaries. (Marouani, 2002).

<sup>3</sup> Adams (1991) ; Schultz (2004).

be poor if he lives in a poor household. To assess the extent of poverty as prescribed by the labour market, the FGT indices (Foster, Greer and Thorbecke, 1984) are used. To capture income inequality we have computed Gini and Theil indices.

**II.4. Measuring the impact of gender wage differentials on poverty and inequalities**

The assessment of the impact of gender wage differentials on poverty and income inequalities is based on the approach proposed by Carlos Gradin *et al* (2006) which falls under the continuity of the study conducted by Jenkins (1994). For these authors gender wage discrimination is first an individual concern.

More specifically, let us denote  $w_i$  the hourly activity income of a female worker  $i$  of the formal sector and  $w_i^{nd}$  is her counterfactual non-discriminatory income. Then, this female worker  $i$  is affected by income gender discrimination if her counterfactual income is superior to what she is actually earning, this is to say  $w_i^{nd} > w_i$ ; in this case the individual wage gap ( $g_i$ ) is positive. If in contrary the individual wage gap is null then, the female worker  $i$  does not suffers from gender wage segregation.

$$\text{We have: } \begin{cases} w_i^{nd} = w_i + g_i \\ \text{where } g_i = \text{Max} \left( \exp \left( \beta_{nd} X_i + \theta_f \lambda_i + \frac{\sigma_e^2}{2} \right) - \exp \left( \beta_f X_i + \theta_f \lambda_i + \frac{\sigma_e^2}{2} \right); 0 \right) \end{cases} \quad (2)$$

From the initial households income distribution  $Y = (y_1, y_2, \dots, y_H)$  it now possible to conjecture a counterfactual income distribution  $Y^c = (y_1^c, y_2^c, \dots, y_H^c)$ ;  $H$  is the total number households. In the counterfactual distribution  $Y^c$ , the job income of all women exercising in the formal sector is replaced by their counterfactual income which is what they would have earn if the labour market was functioning “perfectly”.

$$\text{We have: } Y^C = Y + Y^* \quad (3)$$

Where  $Y^* = (y_1^c - y_1, y_2^c - y_2, \dots, y_H^c - y_H)$ ; is the vector of discrimination.

To measure the impact of discrimination on poverty, we compute the variations of poverty indexes depending on whether we use the initial distribution  $Y$  or the counterfactual non-discriminatory distribution  $Y^c$  while maintaining the same poverty line, which is one dollar per day per adult equivalent.

*All things being equal*, the impact is then given by:

$$\Delta P_\alpha(Y, Y^c, z) = P_\alpha(Y^c, z) - P_\alpha(Y, z) \quad \text{and} \quad \Delta_r P_\alpha = \frac{\Delta P_\alpha(Y, Y^c, z)}{P_\alpha(Y, z)} * 100 \quad (4)$$

$\Delta P_\alpha$  measures the absolute impact of gender income differentials on poverty; the relative impact is given by  $\Delta_r P_\alpha$ . Similarly, we compare the inequality indices derived from the two distributions to see which distribution was more egalitarian.

**II.5 DATA**

The data at our disposal are those of the Employment and the Informal Sector Survey (EESI) carried out in 2005 by the National Institute of Statistics. This is the first nationwide exercise of its kind in Cameroon. It comprises two phases. The first phase is an employment survey that collected data on socio-demographic characteristics of individuals and on employment. The second phase is a survey of the "enterprise" type carried out on non-agricultural informal units identified during the first phase.

Within the framework of this study, we are using phase 1. This phase relies on a random sample of 8 540 households. The sample design is stratified according to the ten regions and area of residence. The cities of Yaoundé and Douala are considered as survey regions. The survey clearly identified the four segments of the labour market. The sample of this study consists of individuals aged 15 and above who are working in the formal sector. People still going to school were excluded from our sample not to bias the education variables.

The income variable we use is the hourly income of the main activity. This income is the ratio between the monthly income of the individual and the number of hours devoted to work during this period for an individual who has a job. For somebody who, for some reasons (strike, sickness, holidays, etc.), has not normally worked within the reference month, what is considered is his usual number of working hours per month. The job income includes the salary, bonuses, profit sharing, end of year bonuses and benefits in kind.

### III. RESULTS

#### III.1 Income Equations

The results reveal that whatever the segment, the structure of remuneration of men is different from that of women at the threshold of 5%. In all equations, the variables are generally significant and explain at least 44% of the dispersion of the hourly income. In addition, men and woman exercising in the public sector do not constitute random samples of the active population; since the inverse Mills ratio is significant at 10% threshold. The negative sign of this variable express the fact that unobservable factors encouraging the participation of an individual into the labour market are negatively affecting his/her income once he/she has succeeded entering into the public service. On the other hand, these factors have no effect if the individual rather goes into the private sector (Mills ratio not significant).

Mincer key variables (education and experience) are significant in all equations. Education is more profitable in the formal private sector than the public sector. The average marginal returns to education are around 10.2% for men of the public sector and 12.6% for women against 12% and 15.5% respectively in the private sector. Indeed, private companies operating in a competitive environment are guided by a caution of efficiency and maximization of profit; so, they certainly pay more attention to the background of people they recruit.

Besides, whatever the segment, the marginal returns to education increases significantly with level of education 31% for women of private sector having a diploma at least equivalent to GCE-AL plus 5 years university. The returns to education in Cameroon formal sector are thus convex. This result is contrary to the classical theory of human capital, which stipulates that there is a level at which the returns to education are constant or even decreasing. This convexity has also been observed in seven cities of WAEMU<sup>4</sup> by Keupie *et al* (2008).

The influence of experience on the hourly income has two phases. The first phase is that in which an additional year of work still contributes to increase the hourly income of the worker. In the public sector, this phase corresponds to a period of about 28 years for women and 21 years for men. In the private sector, it is only 19 years for women against 26 years for men. Then comes the second phase, where the marginal returns to professional experience become zero or decreasing. Other variables such as age and place of residence also significantly influence the income of workers in the formal sector. Variables related to migration and the marital status are less relevant in explaining the income of workers.

However, given the fact that for men and women labour experience may not reflect the same reality, mainly because of periods of childbearing, earnings equations were then re-estimated excluding this variable but results were not significantly different from those of earlier estimates.

#### III.2 Income gap decomposition

We found that in the public sector, the income gap is 0.163 and the private sector, it is equal to 0.089. This indicates that the average hourly income of a male worker is 17.7% higher than that of a female worker in the public; in the private sector, the difference is 9.3%.

**In the public sector**, whatever the non-discriminatory wage structure considered, we noticed that the “pure” gender wage differentials that incorporates male’s advantage and the female’s disadvantage is very important; it is about twice the income gap. With Oaxaca’s method it is 0.313; it is 0.319 and 0.317 respectively with the matrices of Reimers and Cotton. According to this last approach, the income gap is largely attributable to disadvantage women face in the labour market.

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<sup>4</sup> The seven WAEMU (West African Economic and Monetary Union) cities mentioned are: Abidjan, Bamako, Cotonou, Dakar, Lomé, Niamey and Ouagadougou.

Therefore, in the absence of discrimination in the public sector, women would be better paid than men. In fact, whatever the weighting matrix used the income gap between men and women would be negative (-0.009 to -0.016); indicating a situation in favour of women. Subsequently, the hourly income of a female worker would have been around 2.7% higher than that of a male worker. This is because the level of education of female workers is higher than that of male workers. In fact, female workers's education contributes to reduce the income gap by at least 27%. On the contrary, work experience is in favour of male workers. The sign of the selectivity component indicates that the process of entering into the public sector is in favour of women and helps to reduce gender wages differentials by 44%. This may be the result of the gradual incorporation of the gender dimension in recruitments in Cameroon civil service.

**In the private sector**, we have omitted the selectivity component; since the referring variables are not significant. The findings are almost the same as in the public sector. The total gender wage differentials are very high; it varies between 0.079 and 0.111 according to the technique used. The part of income gap attributable to a difference in average productive characteristics is negative, in favour women. It varies between -0.013 and -0.045. Thus, if imperfections of the labour market were to be absorbed, for the same working time and similar functions female workers working of the private sector would be better paid than men thanks to their level of education that they oppose to men experience. Moreover, unlike the public sector situation and referring to Reimers or Cotton weighing matrix, it is not possible to say whether gender income gap is mainly due to the male's advantage or to female's disadvantage in the labour market.

### III.3 Impact of gender income differentials on poverty and inequality

For this impact analysis, we have mostly focused on people living in households with at least one woman working in the formal sector (beneficiary group). These potential beneficiaries account for 6% of Cameroon total population; about 1 050 000 persons<sup>5</sup>.

#### *Impact on poverty*

Results show that the elimination of gender wage differentials in the formal sector in Cameroon would increase the welfare of people living in households with at least one woman working in this sector. Such a situation will lead to an increase of 8 000 Cfaf (Reimers approach) to 17 000 Cfaf (Oaxaca approach) of the average monthly income of a female worker of the public sector, against respectively 5 000 Cfaf and 11 000 Cfaf for her counterpart of the private sector. The impact of this additional income would a decrease of poverty indicators in the beneficiary group. The incidence of poverty would regress from 1.5 to 2.4 points, the depth of about 17% and the severity of poverty of at least 13%. The impact at national level would consequently be a decrease of about 0.15 point of the proportion of people living on less than a dollar per day.

An explanation of these results may arise from the fact that the increase women's income consequential to the elimination of gender wage inequality in the labour market will result, *all things being equal*, in a rise in the share of women's income in total income of the household. This will lead to a better allocation of the household budget and thus improve the standard of living. In fact, Hoddinott *et al* (1994) with Côte d'Ivoire living standard survey data of 1986-1987, have shown that an increase of women income share in the total income of the household increases the share of expenditure on food, reduces the share allocated to alcohol and tobacco and also reduces the share of expenditure on meals taken out of the household.

#### *Impact on income inequalities*

To better illustrate the impact of gender income gap on inequalities we have associated to the Gini index the Theil index. The results show that the eradication of income gap in the formal sector actually will lead to a decline of income inequality in the group of individuals living in households with at least one woman exercising in this sector. Indeed, whatever the weighting matrix used, there would be a decrease in inequality indices. For example, with Oaxaca matrix, the Gini index will go down from 0.434 to 0.429, a decrease of 1.2%. With Theil index, the differences between the initial situation and the counterfactual situation are more pronounced and

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<sup>5</sup> The results of the Third General Housing and Population Census indicate that Cameroun total population was estimated at 17 463 836 in 2005.

illustrate a reduction of income inequality by at least 1.5%. So, within the group of beneficiaries, the supply due to the eradication of gender discrimination can be seen as a discriminatory progressive tax, which will more benefit to people belonging to low-income households.

If we consider all of the Cameroonian population. The Gini index will increase by at least 0.4% and the Theil index by about 1% *all things been equal*, indicating an increase in income inequality. Indeed, people living in households with at least one woman working in the formal sector are less affected by poverty than the rest of the population (9.1% against 53.5%). Thus, increasing their income through the discrimination tax of the formal sector can only increase income inequality and could even be a source of social tensions. Nevertheless, this analysis is limited because it does not capture the impact of the discriminatory tax on the other sectors of activity and has not considered the relationship between economic agents.

## VI. CONCLUSIONS AND SOCIO-ECONOMIC POLICY RECOMMENDATIONS

The study suggests:

- The sensitisation of socio-political actors on the impact of gender discrimination on well-being;
- The operationnalisation of the Convention on the Elimination of All forms of Discrimination against Women (CEDAW) adopted by Cameroon in 1994;
- A better representation of women in senior positions in public institutions (Government, Parliament, direction of public enterprises, etc..) and in private enterprises;
- The application of the gender approach in civil service recruitments;
- The allocation of bonuses to public and private enterprises to encourage gender equality.

To efficiently fight against gender discrimination and improve the living conditions of populations, Government should also put an emphasis on the informal sector by facilitating women's access to productive resources such as micro credit and land and organizing the informal production units in order to make possible their transition to the status of SMEs/SMIs.

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