Investigating the role of male advantage and female disadvantage in explaining the discrimination effect of the gender pay gap in the Cameroon labor market. Oaxaca-Ransom decomposition approach

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Abstract. The paper assesses the sources of gender-based wage differentials and investigates the relative importance of the endowment effect, female disadvantage and male advantage in explaining gender-based wage differentials in the Cameroon labor market. Use is made of the Ordinary Least Square technique and the Oaxaca-Ransom decomposition. Oaxaca-Ransom decomposition results show that primary education, secondary education, tertiary education and professional training are sources of the gender pay gap. Our results also underline the importance of working experience, formal sector employment and urban residency in explaining wage differentials between male and female workers in the Cameroon labour market. Our findings reveal that education human capital explains a greater portion of the endowment effect and contributes little to the discrimination effect. Essentially, we observe that the discrimination effect has a worsening effect on the gender pay gap compared to the mitigating role of the endowment effect. Again, our results show that a greater part of the discrimination effect of the gender pay gap is attributed to female disadvantage in the Cameroon labor market.

Keywords: gender pay gap, Oaxaca-Ransom decomposition, discrimination effect, female disadvantage and male advantage.

1   Introduction

Wage inequality within countries is a topic that has received a great deal of attention in the economic literature of recent times. The difference in income between men and women is of great importance because it affects a very large number of people. Wage differentials in particular between male and female workers have important ramifications on economic growth as explained by the Kuznets' Inverted-U curve Hypothesis which underlines the existence of a relationship between the per capita income of a country and the amount of income inequality within it (Moran, 2005). Gender-based wage discrimination will hinder the weaker sex, most likely the women, from acquiring and developing land related assets or participating fully in realizing growth potentials that can help households break away from poverty and inequality traps (World Bank, 2005; Endeley & Sikod, 2005; Epo et al., 2013). According to Sikod (2007), these differences or disadvantages that are gender-based and skewed in favour of men affect supply responses and resource allocation both at micro (household) and macro levels of well-being. In-depth information is essential because of the role played by women in fighting poverty and participating in development (Boserup, 1970; Feldstein & Jiggins, 1994).

DEVELOPMENT POLICIES

There currently exist a vast number of studies on unequal wages for different labour force groups in the labour market. However, increased attention recently has focused on male-female wage differentials. Cohen and House (1993) found that occupational segregation rather than pay discrimination was primarily to be blamed for gender differentials in wages in the urban labour market. Oaxaca (1973) in his pioneer study on income gap decomposition defines the existence of wage differentials based on gender as a situation where the average income of men is higher than that they would have had if males and females were paid according to the same criteria. Thus, gender wage differentials exist when there is an income gap between male and female workers with similar skills and certainly the same expected productivity.

The situation in developed countries is a call for concern. The gender wage gap is not uniform across countries, and if the determinants of the gap size can be identified, policies could be implemented to reduce the income disparities (Boserup, 1970). According to OECD (2002), in 2010, Japan registered the largest gender wage differential of 28.7 percent, followed by Germany with 20.8 percent. In the US and the UK wage gaps are also quite high, at 18.8 percent and 18.4 percent respectively. Earnings differentials are less pronounced in some Eastern European countries like Hungary (6.4 percent) and Poland (6.2 percent). A low wage differential of 6.1 percent was also reported for Spain. Scandinavian countries recorded relatively small wage gaps of which countries like Denmark had 11.8 percent and Norway had 8.1%. It is evident that in the OECD countries, women earn less than men. The threatening situation of gender-based wage inequality has caused Barrack Obama the current president of the United States of America to declare on 19 April 2013 the National Equal Pay Day where he called upon all Americans to recognize the full value of women's skills and their significant contributions to the labour force, acknowledge the injustice of wage inequality, and join efforts to achieve equal pay. This is indication of expressed willingness to curb this ill; and developing countries and their leaders should follow suit.

The gender wage differential situation in less developed countries is not void from this counter revolution of income distribution. The issue of gender wage inequality in the labour market is so rough in a country like Pakistan where females constitute almost half of the population and are involved in production directly or indirectly, but do not have access even to their own earnings. Similar results are also reported by Behrman and Zhang (1995), who studied gender issues and employment for Asian countries in-depth. They report that gender segregation is higher in Pakistan, Philippines, and Turkey, mainly due to the higher concentration of females in the agricultural sector. The third Cameroon Households Survey (ECAM 3) 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 inequalities in the labour market of the Cameroonian economy (INS, 2005).

Studies that address the determinants of gender-based wage inequality are just emerging in Cameroon. Fonchingong (1999) has questioned the extent of structural adjustment reforms on women and how this affects agricultural output in Cameroon. Fonchingong underlines in his study that enhanced agricultural productivity is achievable if adequate government policies that empower women are put in place. Other endeavours have investigated the role of nongovernmental organisations in promoting the participation of women in fostering development (Fonjong, 2001). Epo et al. (2013) have investigated disparities in access and returns to endowments between male and female headed households in Cameroon using the Oaxaca–Blinder decomposition. Their study revealed that wage discrimination against female headed households is explained more by endowments such as education, health, share of active household members and working in the formal sector. Studies that employ the Oaxaca–Ransom decomposition framework to elucidate policy makers in Cameroon on the proportion of the discrimination effect that is attributed to female disadvantage and to male advantage are still not available. In an attempt to fill this gap, this study has as main research question: What are the sources of wage differentials between male and female workers in the Cameroon labour market? The specific research questions are: (1) What is the effect of educational attainment on wages overall and across genders? (2) What is the relative importance of the endowment and discrimination effects in explaining gender pay gap in Cameroon? (3) What is the relative importance of female disadvantage and male advantage in explaining the discrimination effect between male and female workers in the Cameroon labour market?

DEVELOPMENT POLICIES

The main objective of this study is to identify the sources of wage differentials between male and female workers in the Cameroon labour market. More specifically this study intends to:

   i.   Analyze the effect of educational attainment on wages overall and across genders;
   ii. Examine the relative importance of the endowment and discrimination effects in explaining gender pay gap in Cameroon;
   iii. Investigate the relative importance of the female disadvantage and male advantage in explaining the discrimination effect between male and female workers in the Cameroon labour market; and

Make recommendations on how to tackle wage differentials between male and female workers in the Cameroon labour market.

2   Literature review and theoretical framework

Literature review

In most traditional economies, it is very difficult to relate wage difference with the productivity difference because most workers are unskilled and the productivity differences may not be captured by human capital variables (Gazi et al, 2008). For Gazi et al. (2008), society's perceptions of women's bargaining power play dominant roles in this context. He further indicated that an important socio-cultural factor behind the lower wage of women is the perception that women are secondary earners. The perception of women as secondary earners also influences the institutional wage setting process. He found that gender-based wage differential is related to lower bargaining power and secondary job holding in the society.

Cohen and House (1993) found that occupational segregation rather than pay discrimination was primarily to blame for gender differentials in wages in the urban labour market. The situation may be worst in the informal rural labour market, which is characterised by unskilled labour. Like Cohen and House (1993), Oaxaca and Ransom (1994) found that labour market discrimination not only lowers the wages of the disadvantaged group but also results in higher pay for other groups. In less developed countries like Cameroon, wage differentials against vulnerable groups may worsen household wellbeing and therefore policy action is vital to reduce it. The literature is extensive in the developed country, but attention to the area in the developing country perspective is scanty but increasing. Many developing countries have inadequate information on the magnitude and dimension of discrimination, and Cameroon is one of them.

Studies concerning least developing countries have found considerable sex discrimination (Ashenfelter and Oaxaca, 1991). For Ashenfelter and Oaxaca (1991), earning differences between males and females result from both occupational segregation and pay differences within the same occupation. Alan et al (2004) suggested regulatory measures and its strict implementation and monitoring by the government agency that could overcome work place insecurity problems of female garment workers in Bangladesh. Halim and Kabir (2005) revealed that women are exploited in the Ready –Made Garment (RMG) sector in Bangladesh due to lack of technical knowledge and training and the oppressive nature of their employment. They indicate that women are vulnerable and are more likely to work for low wages and for longer hours under exceedingly inhospitable conditions of work. In this perspective, some studies have demonstrated that the 'oriental docility' of women normally does not let them to join unions and agitate against managerial policies (Standing, 1989; Barbezat, 1993; Lim, 1984).

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Other studies have looked at social, political and economic marginalisation of women to be responsible for gender-based wage discrimination. According to Halim (2001), women are ignored socially, neglected politically, deprived legally, exploited economically and oppressed religiously. Kabeer (2000) observed that in the early decades of the twentieth century, most of the female workforce in the garment industry was made up of young single women from the rural areas for which the only alternative employment was domestic service. Gupta et al. (2000) analyzed the Danish gender wage gap with special emphasis on different developments in the private and public sectors. They indicated that one of the key explanations for a stagnating Danish gender wage gap is the large public sector, which employs a substantial portion of the female work force at relatively low wages.

Some developed country based studies have indicated that variations in earnings between male and female workers are substantial. Using data from the 1970, 1980, and 1990 Government of Canada Censuses, Gunderson (1998) found that the earnings of females relative to those of males increased consistently from 61.6 percent in 1970 to 66.6 percent in 1980, then to 71.4 percent in 1990. Employing Oaxaca decomposition, he decomposed the differential into explained and unexplained portions and found that the unexplained portion accounted for 64.5 percent of earnings differential between male and female workers in 1970 and increased to 70.5 percent by 1990. Gunderson (1979) study of male-female earnings differentials, he calculates the annual earnings of females relative to those of males to be 60 percent by using data from the 1971 Canadian Census. He estimated earnings equations for males and females separately and using the Oaxaca decomposition he found that the percentage of earnings differentials is attributable to differences in productivity and discrimination. However, studies that address the portion of female disadvantage and male advantage in explaining gender wage discrimination in favour of male workers are still emerging, especially in developing countries like Cameroon. This study will provide inputs in this direction.

Some studies on wage differentials have focused on the public and private sectors. Fuller (2001) pointed out that the wage gap is smaller in the public sector than in the labour market as a whole. Drolet and Mumford (2009) have investigated the importance of the workplace for the gender wage gap in Britain and Canada. They found that high levels of unexplained wage inequality in the private sector of both countries, which is related to women receiving relatively lower wages within workplaces than do men. Long (1976) found that in the United States of America, women in the public sector earned 74 percent of the male wage while women in the private sector earned 59 percent of the male wage in 1970. Choudhury (1994) attempted to uncover the wage differentials between the public and the private sectors in the United States. She uses data from the March 1991 Current Population Survey. Choudhury found that on average, public sector workers are better paid than private sector workers and that females can earn more in the public sector than in the private sector. She also observed that the return to experience for female is considerably lower than that for males in both the public and private sectors. However, Choudhury study does not take into account selection bias. If the labour force participation rate increased during the observation period for one of the groups, this could affect the results concerning the development of the gender wage gap.

Baker and Fortin (2000) studied the effect of femaleness of occupation on wage structure using the Canadian Labour Market Activity Survey and from the US Current Population Survey data for 1987 and 1988. The results showed that women working in female-dominated occupations in the United States suffered a wage penalty relative to women in mixed and male dominated occupations. However, they observed that, in Canada, this penalty was absent when calculated for women as a whole, a difference they attributed to the relatively high wages earned by certain "public goods" occupations in Canada, such as those in the educational and health sector, and to unionization effects. Fortin and Huberman (2002) studied the effects of occupational changes and intra-occupational gender

differentials on the gender pay gap in Canada over the twentieth century. They introduced an approach that divides the gender wage gap into between-occupation and within-occupation class components. They found that the largest contribution to the gender wage gap in the first half of the century came from the between-occupation class component because women moved out of domestic and manufacturing work into clerical work. Since 1990 the contribution of the within-occupation classes has become predominant.

Juhn et al. (1991) analyzed black-white wage trends in the United States to estimate the contribution of gender-specific factors versus wage structure in explaining trends in racial wage differentials. The employed data from 1964 through 1988, and they extended the Oaxaca decomposition by decomposing the residual differential into two parts: one according to differences in relative ranking within the residual wage distribution and the second according to wage dispersion. This decomposition, which can also be used to study factors that influence the gender pay gap over time, has been called Juhn-Murphy-Pierce decomposition. Gupta et al. (1998) employed the Juhn-Murphy-Pierce decomposition and the Oaxaca-Ransom-Neumark to examine the Danish gender wage gap.

Country-based empirical studies on gender-based wage differentials have not received the attention they deserved in Cameroon; only few endeavours have attempted to explain gender-based wage differentials. Few studies that exist have focused attention on enhancing the participation of women to foster development (Fonchingong, 1999; Fonjong, 2001). Fonchingong (1999) investigated the extent of structural adjustment reforms on women and how this further enhanced agricultural productivity in Cameroon. Fonjong (2001) on his part examined the role of nongovernmental organisations in promoting the participation of women in fostering development. The only endeavour to our knowledge that has specifically addressed the correlates of gender pay gap in Cameroon is the study of Epo et al. (2013). This study employed the Oaxaca-Blinder approach to investigate differences in endowments and returns to these endowments between male and female headed households. They observed that discrimination against female-headed households is explained more by endowments such as education, health, share of active household members and working in the formal sector. Regrettably, country-specific knowledge on the portion of the gender pay gap attributable to female disadvantage and to male advantage is still at large. This study, amongst others, will provide policy makers with informed knowledge on the proportion of gender-based wage discrimination attributable to female disadvantage and to male advantage in the Cameroon labour market.

Theoretical Framework

The gender pay gap refers to the difference between men's pay and women's pay as a percentage of men's pay. If the gender pay gap is 15% then women, on average, earn 15% less than men. Gender pay gaps can be either positive or negative, with a negative gender pay gap indicating that women earn, on average, more than men. Gender pay gaps are an important element in analysing and monitoring progress on equal pay both nationally and within organisations. Oaxaca (1973) in his pioneer study on income gap decomposition defines the existence of wage differentials based on gender as a situation where the average income of men is higher than that they would have had if males and women were paid according to the same criteria. Thus, gender wage differentials exist when there is income gap between male and female workers with similar skills and certainly the same expected productivity.

While the overall definition of the gender pay gap is widely shared, its exact measurement varies. The Office for National Statistics uses the median (middle data point) hourly earnings excluding overtime to calculate the gap, while the Equalities and Human Rights Commission, along with, inter alia, the Organisation of Economic Cooperation and Development (OECD, 2002), prefer to use the mean

(central tendency) hourly earnings. In this study we use the mean natural logarithm of monthly earnings. The most basic way to look at differences in pay between the genders is to look at the median wages of men and women. However, this comparison is of limited usefulness because men and women exhibit very different characteristics for many of the factors that affect pay. For example, men tend to choose fields with higher average pay, and tend to work more hours per week. Because of these differences in order to determine what effect discrimination has upon the wages of men and women in the workplace the differences in career choices must be accounted for. The raw median wages of men and women are often used in misleading ways to inform public policy, without explaining the reasons behind the gap

Becker (1964) held that education and training are the most important investment in human capital. He lends credence to his hypothesis by the fact that highly educated and skilled individuals earn more than less educated and less skilled individuals. The presumption that all pay differences are related to skills (even if these skills are unobserved to the economists in the standard data sets) forms the basis for our conceptual structure on empirical wage distributions. In this study, the gender wage gap is explained in terms of human capital, employment and socio-economic variables using the Oaxaca-Ransom decomposition approach which allows us to give weights to female disadvantage and male advantage in accounting gender-based wage gap in the labour market.

3   Methodology. Oaxaca-Ransom decomposition

This decomposition model proposed by Oaxaca and Ransom (1994) model helps to distinguish between the explained and unexplained components of the gender wage gap. Firstly, the model runs three different regressions for men, women, and pooled specification with several human capital as well as employment and socio-economic indicators. For the first two regressions the following equation is applied:

$$\ln W_i = X_{ij}\beta_{ij} + Y_{ik}\alpha_{ik} + \mu_i \tag{1}$$

Where

$\ln W_i$ is the natural logarithm of monthly wage of individual $i,$; i is the indicator of gender; m and f indicating male and female, respectively; X_j is the vector of human capital characteristics (education, experience, professional training); β_j are the estimated coefficients from regression analysis, showing wage sensitivity to different human capital characteristics; Y_k is the vector of employment and socio-economic characteristics (sector of activity, marital status and residential status); α_k are the estimated coefficients from regression analysis showing wage sensitivity to different employment and socio-economic characteristics; μ_i is an error term with expected value of 0.

From the above wage equation, we derive the earnings functions for males and females as follows;

The earnings functions for males will be:

$$\ln \overline{W}_m = \overline{X}_{mj}\beta_{mj} + \overline{Y}_{mk}\alpha_{mk} + \mu_m \tag{2}$$

The earnings functions for females will be:

$$\ln \overline{W}_f = \overline{X}_{fj}\beta_{fj} + \overline{Y}_{fk}\alpha_{fk} + \mu_f \tag{3}$$

Where: $\ln \overline{W}_m$ and $\ln \overline{W}_f$ are the mean values of natural logarithm of monthly wages for men and women, respectively; $\overline{X}_m$ and $\overline{X}_f$ are the mean values of different human capital characteristics such as level of education, experience, professional training for men and women, respectively; $\overline{Y}_m$ and $\overline{Y}_f$ are the mean values of different employment and socio-economic characteristics such as sector of activity, marital status and residential status for men and women, respectively; β_m and β_f are the estimated coefficients from regression analysis, showing wage sensitivity to different human capital characteristics for men and women respectively; and α_m and α_f are the estimated coefficients from regression analysis, showing wage sensitivity to different employment and socio- economic characteristics for men and women respectively.

For the pooled regression, a gender dummy for female is added. This is the estimation of the non-discriminatory wage structure. Thus the regression is run in accordance to the equation:

$$\ln W_i = X_{ij}\beta_j^* + Y_{ik}\alpha_k^* + S_2 + \mu_i \tag{4}$$

Where: S_2 is the dummy variable for female; β_j^* are the estimated coefficients for the pooled model, showing non-discriminatory wage sensitivity to different human capital characteristics; α_k^* are the estimated coefficients for the pooled model, showing non-discriminatory wage sensitivity to different employment and socio-economic characteristics.

This regression shows what would be log-wage sensitivity to different endowment factors if there was no discrimination in the labour market. After running regressions we shall find the return on different characteristics (e.g., education, experience, marital status, residential status etc.) for men and for women separately. When the coefficients are estimated we turn to the next step; namely, calculating the gender wage gap. We calculate the difference between mean natural logarithm wages for men and women. The following formula is employed for this calculation:

$$\ln \overline{W}_m - \ln \overline{W}_f = \overbrace{\beta_j^*\left(\overline{X}_{jm} - \overline{X}_{jf}\right) + \alpha_k^*\left(\overline{Y}_{km} - \overline{Y}_{kf}\right)}^{\text{EXPLAINED COMPONENT}}$$
$$\underbrace{+ \underbrace{\overline{X}_{jf}\left(\beta_j^* - \beta_{jf}\right) + \overline{Y}_{kf}(\alpha_k^* - \alpha_{kf})}_{\text{FEMALE DISADVANTAGE}} + \underbrace{\overline{X}_{jm}\left(\beta_{jm} - \beta_j^*\right) + \overline{Y}_{km}(\alpha_{km} - \alpha_k^*)}_{\text{MALE ADVANTAGE}}}_{\text{UNEXPLAINED COMPONENT}} \tag{5}$$

where we utilize the mean values of natural logarithm wages $\left(\ln \overline{W}_m - \ln \overline{W}_f\right)$, the mean values of different human capital characteristics $\left(\overline{X}_{jm} - \overline{X}_{jf}\right)$ and the mean values of different employment and socio-economic characteristics $(\overline{Y}_{km} - \overline{Y}_{kf})$.

Subscriptions m, f, and * indicates male, female and pooled model respectively;

$\beta_s \; and \; \alpha_s$ are the estimated coefficients from the previously run regressions.

The mean gender wage gap equation will be decomposed into three parts as follows:

$$\ln \overline{W}_m - \ln \overline{W}_f = E + U_f + U_m \tag{6}$$

Where;

$$E = \beta_{jm}\left(\overline{X}_{jm} - \overline{X}_{jf}\right) + \alpha_{km}(\overline{Y}_{km} - \overline{Y}_{kf})$$

$$U_f = \overline{X}_{jf}\left(\beta_j^* - \beta_{jw}\right) + \overline{Y}_{kf}(\alpha_k^* - \alpha_{kf})$$

$$U_m = \overline{X}_{jm}\left(\beta_{jm} - \beta_j^*\right) + \overline{Y}_{km}(\alpha_{km} - \alpha_k^*)$$

The first part, E, indicates proportion of mean gender wage gap that can be explained by the difference in human capital and employment and socio-economic characteristics for men and women weighted by the non-discriminatory coefficients from the pooled model. This is called the explained component of gender wage gap. The second two parts, U_f and U_m, are called unexplained or discriminatory components of gender wage gap. It shows how the returns (previously estimated coefficients) on different human capital and employment and socio-economic characteristics differ for men and women. The difference of the coefficients demonstrates that the same characteristics are valued differently for male and female employees, leading to discrimination. The first part of unexplained gender wage gap, U_f, shows female disadvantage in terms of wage in labour market compared to non-discriminatory wage. U_m, is the second component of unexplained wage gap, which indicates male advantage in terms of wage relative to non-discriminatory wage.

4   Data used and definition of variables

We employ the Cameroon household consumption surveys, CHCS III conducted in 2007 by the National Institute of Statistics (NIS), which provides information on labour market employment sectors and labour market characteristics relevant for the study. The CHCS III survey was conducted between May and July 2007; and comprised 11391 households that were actually interviewed with 9219 of these household heads in the private sector and about 1102 of them in public/parapublic and international organisations. It is important to recall that 165 of these household heads are unemployed according to the international labour office, 93 are discouraged unemployed and 812 are inactive in the labour market.

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Table 1 Description of variables used in the study

Variables	Description
LnWage (LnW)	Natural logarithm of monthly earnings (in FCFA)

Education	It is a variable capturing the level of education.
	  ➢ Primary education (1, zero otherwise).
	  ➢ Secondary education (1, zero otherwise)
	  ➢ Tertiary education (1, zero otherwise).

EXPERIENCE(EXP)	The coefficient on labour market experience also can be interpreted as the rate of return to the experience. Since actual work experience is rarely available in data sets, we use Mincer transformation where **Experience equals Age minus Schooling minus 6,** as a proxy for the experience variable.
EXP^2	Experience squared control for non-linearity between wages and experience
MARITAL STATUS (MS)	Dummy variable=1 if the individual is married and zero otherwise
RESIDENCE	Dummy variable=1 if the individual lives in an urban centre and zero otherwise
SECTOR OF ACTIVITY	Dummy variable=1 if the individual works in a formal sector and zero otherwise

5   Empirical findings and interpretations

Descriptive Statistics

The purpose of this study is to identify the sources of wage differentials between male and female workers in the Cameroon labour market. Here, we carry out some descriptive discussions on the variables that we employed in our model. Subsequently, these discussions will help us emphasis on econometric findings and generate result-based recommendations and conclusions.

Table 2 Descriptive statistics of variables for the total sample observations

Variables	Observations	Mean	Standard deviation	Minimum	Maximum
Earnings per month	11391	33385.82	34161.25	2760.91	668432.8
Primary education	11391	0.3321043	0.4709889	0	1
Secondary education	11391	0.3505399	0.47716	0	1
Tertiary education	11391	0.0796243	0.2707225	0	1
Experience	11391	30.92046	15.18844	0	88
Experience	11391	1186.743	1139.99	0	7744
Professional training	11378	0.5175778	0.4997129	0	1
Marital status	11391	0.5676411	0.4954253	0	1
Sector of activity	11391	0.1801422	0.3843227	0	1
Residential status	11391	0.5587745	0.4965553	0	1
Female	11391	0.2669651	0.4423934	0	1

Source: Calculated by authors using ECAM III data

Table 2 shows the summary statistics of the variables used in our study, indicating the number of observations, their mean values, standard deviation, minimum and maximum values. The descriptive statistics show that an individual from our sample earns an average 33 885 .82 CFA francs per month which is greater than the minimum monthly salary of Cameroon (28 500 CFA francs). Also, our results shows that 33%   of our sample observations attended primary education, 35% attended secondary education, 8% attended tertiary education and 24% had no education. 51.8% have gathered some skills through professional training and 56.8% of our sample is married.

Experience in our model is a continuous variable. On average, an individual in our sample observations have work for 31 years. Our descriptive statistics on sector of activity also reveals that 18% of individuals from our sample observations are employed in the formal sector and the remaining 82% do work in the informal sector. As concerns the residential status, more than 55% of our sample

observations do reside in urban areas and less than 45% do reside in rural areas. That notwithstanding, out of our sample observations of 11391 individuals, female workers constitute more 26% and male workers harbours less than 74% of our total sample observations.

Table 3 Descriptive statistics of variables used in the model for male sample

Variables	Observations	Mean	Standard deviation	Minimum	Maximum
LnWage(lnw)	8350	10.12673	.7177292	7.964725	13.41269
Earnings per month	8350	33391.12	35454.76	2877.637	668432.8
Primary education	8350	0.3385629	.4732493	0	1
Secondary education	8350	0.3737725	.4838333	0	1
Tertiary education	8350	0.0886228	.2842155	0	1
Experience	8350	29.72754	14.67176	0	88
Experience	8350	1098.962	1082.83	0	7744
Professional training	8340	0.5745803	.4944361	0	1
Marital status	8350	0.6948503	.4604984	0	1
Sector of activity	8350	0.2091018	.4066916	0	1
Residential status	8350	0.5649102	.4957985	0	1

Source: computed by authors using ECAM III data

Table 4 Descriptive statistics of variables used in the model for female sample

Variables	Observations	Mean	Standard deviation	Minimum	Maximum
LnWage(lnw)	3041	10.15185	.6986396	7.923316	13.09808
Earnings per month	3041	33371.28	30332.59	2760.91	488003.2
Primary education	3041	.3143703	.4643409	0	1
Secondary education	3041	.2867478	.4523171	0	1
Tertiary education	3041	.0549161	.227854	0	1
Experience	3041	34.19599	16.07778	2	87
Experience^2	3041	1427.776	1252.866	4	7569
Professional training	3038	.3610928	.4803965	0	1

Variables	Observations	Mean	Standard deviation	Minimum	Maximum
Marital status	3041	.2183492	.4131936	0	1
Sector of activity	3041	.1006248	.3008807	0	1
Residential status	3041	.541927	.498321	0	1

Source: computed by authors using ECAM III data

Table 3 and 4 illustrate that the average monthly earnings for males and females are 33391.12 CFA francs and 33371.28 CFA francs per month, respectively. Their monthly earnings are clearly greater than the minimum monthly salary of Cameroon which stands at 28 500 CFA francs. Also, our results show that 34% of our male sample and 31.4% of our female sample attended primary education. Also, 37.4% of our male sample and 28.7% of our female sample attended secondary education compared to 8.9% and 5.5% for tertiary education for the male and female sub-samples, respectively. These observations show evidences of more educated male workers compared to female workers in the Cameroon labour market.

The average number of years of experience is 29.7 years and 34 years for males and females, respectively. 57.5% and 36% of males and females sample observations respectively have professional training. Concerning the sector of activity, 30% of male workers and 10% of female workers are employed in the formal sector. These are indications that majority of those with professional training and formal sector employment in Cameroon are male workers compared to female workers.

Presentation and discussion of Econometric Findings

The explanatory variables defined in our model have been regressed on the dependent variable using the ordinary least square (OLS) technique. The results from the estimation are presented in table 5 below. Column 1 shows our variables, column 2 shows results for the female model, column 3 shows results obtained from the male model and column 4 shows results of the pooled regression.

Table 5 The wage production function: dependent variable is log of individual monthly income

VARIABLE	FEMALE MODEL Coefficient (t-statistics)	MALE MODEL Coefficient (t-statistics)	POOLED MODEL Coefficient (t-statistics)
Primary education	0.119*	0.132*	0.127*
	(4.05)	(6.99)	(8.09)
Secondary education	0.395*	0.307*	0.323*
	(10.78)	(15.09)	(18.42)
Tertiary education	0.926*	0.760*	0.789*
	(15.60)	(25.81)	(30.20)
Experience	-0.007*	-0.011*	-0.012*
	(-2.71)	(-6.25)	(-7.99)
Experience ^{2}	0.0001*	0.0001*	0.0001*
	(3.45)	(5.85)	(7.59)
Professional training	0.129*	0.119*	0.122*
	(5.13)	(8.55)	(10.02)
Marital status	-0.080*	-0.256*	-0.216*
	(-3.06)	(-16.51)	(-16.76)
Sector of activity	0.180*	0.247*	0.236*

VARIABLE	FEMALE MODEL	MALE MODEL	POOLED MODEL
	Coefficient (t-statistics)	Coefficient (t-statistics)	Coefficient (t-statistics)
	(4.42)	(14.01)	(14.54)
Residential status	0.321*	0.378*	0.364*
	(13.74)	(27.53)	(30.73)
Female	-	-	0.043*
			(3.02)
Constant	9.811*	9.928*	9.9075*
	(171.39)	(310.85)	(355.62)
Root MSE	0.58716	0.5783	0.58175
R-Squared	0.2950	0.3512	0.3339
Adjusted R-Squared	0.2929	0.3505	0.3333
Fisher test-statistics	140.78	500.95	569.89
(df:p-value)	(9; 3028 :0.0000)	(9; 8330: 0.0000)	(10;11367: 0.0000)
Number of observations	3038	8340	11378

Source: Computed by researcher using ECAM III

Note: * represent 1% levels of significance and t-statistics are in parentheses.

Table 5 hosts the wage production function for the male subsample, female subsample and the pooled sample. This result shows that our model is globally significant at 1% (Fisher p-value of 0.0000). The coefficients of education human capital variables in general are positive and statistically significant at 1%. Primary education in particular has coefficients of 0.119, 0.132 and 0.127 for the female, male and pooled samples, respectively. This implies that, other things held constant, a female who has attained primary education has the chance to increase wages by 11.9 units over a female worker without primary education, compared to 13.2 units for the male and 12.7units for the pooled sample. This is indication that the returns to primary education are greater for the male workers than the female workers in the Cameroon labour market.

The attainment of secondary education increases the female wage by 49.5units, the male wage by 30.7units and the wage of the overall sample by 32.3units and the attainment of tertiary education increases the female wages by 92.6units male wage by 76units and the wage of the entire labour force market by 78.9units. Here, we realise that the returns to secondary and tertiary education accrue to female workers is greater than those of the male workers. These results indicate that the rewards of educational attainment tend to increase as the level of education increases. However, female workers are seen to have higher returns to educational attainment than their male counterparts at the secondary and tertiary levels of education. One is inclined to predict that education, especially secondary and tertiary levels of education, has the likelihood to reduce the gender pay gap.

Working experience relates negatively and significantly with income and experience squared relates positively with income for the female, male and pooled samples, respectively. This implies that as working experience increases, individual income tends to drop until a critical level of working experience above which income is affected positively. This is evidence of a U-shaped relationship between working experience and labour market income. Concerning professional training, our results indicate that a female with professional training has the likelihood to increase monthly income by 12.9 units over another female without professional training. This likelihood stands at 11.9 and 12.2 for the male and pool samples. This implies professional training benefits the female workers more than the male workers; indicating its potential to reduce gender-based wage discrimination in favour of men.

Being married relates negatively and significantly with income with magnitudes of -0.080, -0.256 and

-0.216 for female workers, male workers and the entire labour market, respectively. This is indication that the wages for married female workers will fall by 8units while those of male workers will drop by 25.6units. Here, we realise that married men are likely to earn less than married women.

Formal sector employment relates positively and significantly with monthly income with magnitudes of 0.180, 0.247 and 0.236 for the female, male and pooled market wage structures. This implies that workers employed in the formal employment sector are likely to earn higher than those out of this sector. Female and male workers employed in the formal sector have the likelihood to earn 18units and 24.7units more over those not employed in this sector. This shows that male workers in the formal sector earn more than female workers in the same sector. This may be due to the fact that majority of female workers in the formal sector are more liable for promotions and find it easy to take additional responsibilities which earns them extra bonuses than their female counterparts who will prefer to devote extra time to family responsibilities. As for residential status, urban residency relates positively and significantly with monthly income with magnitudes of 0.321, 0.378 and 0.364 for the female, male and pooled market structures. This shows that workers residing in urban centres earn more than their rural counterparts.

Table 6 The contribution of each variable to the explained and unexplained component of the gender pay gap

	THE GENDER PAY GAP (GPG)			
VARIABLES	**EXPLAINED COMPONENT (ENDOWMENT EFFECT)**		**UNEXPLAINED COMPONENT (DISCRIMINATION EFFECT)**	
	Coefficient	**%contribution**	**Coefficient**	**% contribution**
Primary education	-0.0030961	16.5	-0.0040864	-9.5
Secondary education	-0.0281309	149.5	0.0266488	61.8
Tertiary education	-0.0266385	141.6	0.0101055	23.4
Experience	-0.0528396	280.85	0.142573	330.8
Experience	0.0488018	-259.4	-0.0372485	-86.4
Professional training	-0.0259564	138	.0042429	9.8
Marital status	0.1030748	-547.87	0.0574863	133.4
Sector of activity	-0.0256835	136.5	-0.0080442	-18.7
Residential status	-0.0083455	44.36	-0.0311074	-72
Constant	0	0	-0.1174726	-272.6
TOTAL	**-.0188139**	100	**.0430975**	100

Source: computed by authors using ECAM III data

Table 6 submits the contribution of each variable to the explained and unexplained component of the gender pay gap. Table 6 reveals that primary education, secondary education and tertiary education constitutes respectively 16.5%, 149.5% and 141.6% of the explained component of the wage differentials between male and female workers in the Cameroon labour market. Also, experience,

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professional training, formal sector of employment and urban residential status respectively constitute 280.85%, 138%, 136.5% and 44.36%   of the explained difference in earnings between male and female workers in the Cameroon labour market.

Table 6 also reveals that the variables in our model that explains the greatest percentage of the explained component of the wage differentials between male and female workers in the Cameroon labour market are experience (280.85%), secondary education (149.5%) and professional training (138%) respectively. Also, the variables that contributes the least to the explained differences in earnings between male and female workers in the Cameroon labour market are marital status with a percentage contribution of -547.87% and experience squared with a percentage contribution of -259.4%.

As concerns the unexplained component otherwise referred to as the discrimination effect of the gender pay gap, our results reveal that secondary education ,tertiary education, experience, professional training and marital status constitutes 61.8%, 23.4%, 330.8%, 9.8% and 133.4% respectively to the total unexplained component of wage differentials between male and female workers in the Cameroon economy. Hence, they contribute positively to the discrimination effect with the greatest contribution stemming from experience (330.8%) and marital status (133.4%). In this perspective, primary education is identified to contribute 16.5% of the explained differences in earnings between male and female workers and reduces discrimination by 9.5%. Secondary education contributes 149.5% of the explained differences in earnings and increases discrimination by 61.8%. Tertiary education harbours 141.6% of the explained component and 23.4% to the discrimination effect.

Our results also reveal that certain variables reduce the discrimination effect as they pose negative percentage contributions to the unexplained component of the gender pay gap in the Cameroon labour market. These variables are primary education, formal sector of activity, urban residential status, and experience squared with negative percentage contributions of -9.5%, -18.7%, -86.4% and -72% respectively.

Our study shows that experience is a major source of wage differentials between male and female workers with a positive and significant contribution. This is because our descriptive statistics reveal that female workers are more experienced than male workers with a 5 years difference in experience but their monthly returns to experience as later on revealed from our regression results tend to be lower than those of their less experienced male counterparts. This perhaps might be attributed to the fact that a greater proportion of the years of experience for female workers might have not been spent on the job sites as they may frequently take maternity and child-care leaves thereby making them to be less productive than their male counterparts. Hence, we realize that experience contributes 280.85% of the explained component and increases discrimination by 330.8% with its greatest contribution geared towards the female disadvantage (Table 6 & 7).

Professional training is also an important source of wage differentials between male and female workers in Cameroon. It contributes 138% to the explained differences in earnings between genders and increases discrimination by 9.8% (Table 6). We also realize that the rewards attributed to workers who have professional training tend to be higher for females than for males workers reason why it contributes so little to discrimination. The sector of activity also proves to be a major source of the gender pay gap in Cameroon. Our results show that it increases the explained differences in earningsbetween male and female workers by 136.5% and reduces discrimination by 18.7%.

DEVELOPMENT POLICIES

Table 7 Oaxaca-Ransom decomposition of gender wage gap specification for explained and unexplained factors

$$\ln \overline{W}_m - \ln \overline{W}_f = \overbrace{\beta_j^*(\overline{X}_{jm} - \overline{X}_{jf}) + \alpha_k^*(\overline{Y}_{km} - \overline{Y}_{kf})}^{\text{EXPLAINED COMPONENT}}$$
$$+ \underbrace{\underbrace{\overline{X}_{jf}(\beta_j^* - \beta_{jf}) + \overline{Y}_{kf}(\alpha_k^* - \alpha_{kf})}_{\text{FEMALE DISADVANTAGE}} + \underbrace{\overline{X}_{jm}(\beta_{jm} - \beta_j^*) + \overline{Y}_{km}(\alpha_{km} - \alpha_k^*)}_{\text{MALE ADVANTAGE}}}_{\text{UNEXPLAINED COMPONENT}}$$

VARIABLES	EXPLAINED COMPONENT (ENDOWMENT EFFECT) E	UNEXPLAINED COMPONENT (DISCRIMINATION EFFECT)	
		FEMALE DISADVANTAGE U_f	MALE ADVANTAGE U_m
Primary education	0.0030961	0.0026626	0.0014194
Secondary education	0.0281309	-0.0205808	-0.0060422
Tertiary education	0.0266385	-0.0075203	-0.0025746
Experience	0.0528396	-0.1560568	0.0134577
Experience^2	-0.0488018	0.0448321	-0.0075828
Professional training	0.0259564	-0.0025609	-0.0016820
Marital status	-0.1030748	-0.0297042	-0.0277578
Sector of activity	0.0256835	0.0056337	0.0024204
Residential status	0.0083455	0.0232832	0.0078315
Constant		0.096984	0.020489
Sub -Total	0.0188139	-0.0430274	-0.0000701
		-0. 0430975	
Total wage deferential **($\ln \overline{W}_m - \ln \overline{W}_f$)**	**-0.0242836**		

Source: compiled by authors using ECAM III data

Subscriptions m, f and * indicate male, female and pooled samples respectively. **Note:** $\overline{X}$ and $\overline{Y}$ are the mean values of human capital variables and employment and socio-economic variables respectively from our result of descriptive statistics in Tables 3 and 4. β and α are the estimated coefficients of human capital variables and employment and socio-economic variables respectively from our regression result in Table 5.

Table 7 shows a raw gender wage differentials of -0.0243 out of which the explained component constitutes 0.0188 and the unexplained component representing the discrimination effect constitutes -0.04302. Out of this unexplained component, the female disadvantage constitutes -0.043 while the male advantage constitutes 0.0000701. This means that female wage is about 97.6% of male wages.

Table 8 The percentage contribution of each component to the gender wage gap

Wage differentials = -0.0242836		
COMPONENT	COEFFICIENT	% CONTRIBUTION
EXPLAINED (**E**)	0.0188139	-77.5%

Wage differentials = -0.0242836		
COMPONENT	**COEFFICIENT**	**% CONTRIBUTION**
UNEXPLAINED		
Female disadvantage (U_f)	-0.0430274	177.2%
Male advantage (U_m)	-0.0000701	0.3%
Discrimination effect ($U_f + U_m$)	-0. 0430975	177.5%
Total ($E + U_f + U_m$)	**-0.0242836**	**100%**
Wage differentials (%)	-2.4%	

Source: Calculated by authors using ECAM III data

Table 8 reveals the percentage contribution of each component to the overall gender gap. Here, we realised that the explained component contributes -77.5% of the overall wage differentials between male and female workers in Cameroon. This constitutes the endowment characteristics. Also, the unexplained component that constitutes the discrimination effect makes up 177.5% of total wage differentials between male and female workers out of which the female disadvantage encompasses

6   Concluding remarks and policy implications

The purpose of this paper was to identify the sources of wage differentials between male and female workers in the Cameroon labour market. The Oaxaca-ransom wage decomposition method was applied to data from the Cameroon National Institute of Statistics. The main findings of this investigation indicated that wage discrimination underlies a substantial portion of the wage gap between male and female workers in the Cameroonian labour market whereas differences in the groups' characteristics account for a small part of those differentials. That is, the results indicated that majority of the observed gap arises from potential labour market discrimination rather from gender wage differences in the mean values of productive and job related characteristics. Notwithstanding, the female disadvantage makes up a substantial portion of the total discrimination effect while the male advantage makes up a small portion.

Our findings reveal that education increases the earnings of workers in Cameroon. However, female workers are found to have received greater returns to educational attainment, especially secondary and tertiary levels of education, than their male counterparts. Hence, education reduces the wage differentials between male and female workers in the Cameroonian economy. In effect, our study reveals that it explains a greater percentage of the endowment effect and contributes little to the discrimination effect.

Our findings also reveal that on average, female workers are more experienced than male workers but their returns to experience is much lower than those of their less experienced male counterparts. Hence, experience tends to be a major contribution to the gender wage gap. It contributes little to the endowment component and renders its greatest contribution towards the component of the female disadvantage. Also, we realise that professional training is also a source of wage differentials between male and female workers in the Cameroon labour market. We realise that the returns to female

workers for the accomplishment of professional training is greater than that of males. Hence, our results showed that it contributes much to the explained component and little to the discrimination effect.

A number of policy implications can be drawn from our study as follows,

- *Equal pay policy aiming at tackling gender wage discrimination should be implemented*

The operationalisation of the Convention on the Elimination of All forms of Discrimination against Women (CEDAW) adopted by Cameroon in 1994. This Convention provides a framework for laws aiming to protect Cameroonian women according to the principle of equality between women and men.

- *The activities of trade unions should incorporate gender equality in pay*

It should be noted that the active involvement of trade unions, work councils or the machinery of collective negotiation in the pursuit of equal pay is a requirement for the successful implementation of a gender pay equality policy. Where national policy is rather weak and focused more on issues of occupational segregation and/or the impact of family responsibilities than on issues of under-valuation as such, social partners may take over and actively campaign for a more gender equal wage system.

- *Encouraging the education of the girl child*

 Given the result we realised on the level of education, we recommend the education of the girl child. This is because our results show that education reduces the pay differences between male and female workers as the returns to education favours females more than male workers. Much has already been done within the country as far as educating the girl child is concerned in Cameroon. However the eastern and northern regions of Cameroon still have the lowest rate of female education enrolment especially in the primary and secondary levels. Much sensitization should be done in these regions to make parents see the need of educating the girl child.

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