THE EFFECT OF OCCUPATION ON WAGE DISCRIMINATION IN KENYA

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CLARATION

is my original work and has not been presented for a degree in any other University

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ose W Ngugi

DEDICATION

This research paper is dedicated to my beloved wife Doris and Children Sally. Collin. Caleb and my dear parents.

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ABSTRACT

This research paper examines the effect of occupation on wage discrimination in the Kenyan labour market using cross-sectional data from 1998/1999 labour force survey. The study examined whether occupational segregation exists in the labour market and assessed the effect of occupation variable on wage discrimination in the labour market in Kenya. Occupations have been classified into eight categories based on International Labour Organization's International Classification of Occupations (ISCO-88) framework. The Duncan and Duncan Index of dissimilarity was used to measure the existence of occupational segregation. The computed value of 25.7% reveals that occupational segregation exists in the Kenyan labour market. This index is however, less than that observed in industrial countries such as Germany and United Kingdom with 40% and 33% respectively.

Two separate equations were regressed for both the male and female wage equations using Ordinary Least Square (OLS). The regression was first run with occupation included in the model and with occupation excluded from the model. The results indicate that the value of R-squared was 46% and 55% for male and female respectively when occupation was included in the model while when the occupation variable was excluded; the R-squared value was 39% and 49% for male and female respectively. Based on the findings, we can be conclude that occupation has an effect on wage discrimination since its inclusion in the regression gives a higher value of R – squared which decreases when the variable is excluded from the model.

The results of the wage decomposition show that there is a wage gap between male and female. This is attributed to the human capital characteristics and the contribution of returns. The study recommends investment in instruments that reduce gender inequalities in access to education, choice of occupation and also policies aimed at promoting training programmes for both men and women.

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LIST OF ACRONYMS/ ABBREVIATIONS

BLUE - Best Linear Unbiased Estimators

D - Index of dissimilarity
LFS - Labour Force Survey

ILO - International Labour Organization

ISCO - International Standard of Classification of Occupations

MM - Marginal Matching Index

NASSEP- National Sample Surveys & Evaluation Programme

OLS - Ordinary Least Squares Estimation

PPS - Probability Proportional to Size

PSU - Primary Sampling Unit

RESET - Regression Equation Specification Error Test

UK - United Kingdom

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Labour markets in sub-Saharan Africa are fragmented, with differing characteristics between formal and informal sectors of the economies. Particularly characterized by a dichotomy between the formal and informal sectors is the urban labour market. In Kenya, as in other parts of Africa, segmentation relates mainly to economic phenomena. Workers in the formal sector have higher levels of education than those in the informal sector, and since firms in the formal sector are likely to have technologies requiring more skills and on-the-job training, the workers are likely to be more skilled (Bigsten and Horton, 1997) Segregation is the tendency for men and women to be in different occupations. A situation of total segregation exists if exclusively one sex occupies a given occupation

The gender wage differential, one of the outcomes of occupational segregation is persistent in every country at all levels of economic development and under all political systems. Although the ruinous impact of wage discrimination and occupational segregation on an economy's labour market is obvious, the latter is more serious since it is the major source of labour market rigidity and hence economic inefficiency. Occupational segregation leads to general gender differences in earnings and, moreover this can be observed through wage differential. One of the reasons for wage differential may not only be due to discrimination wages and in occupation but also observed factors that affect payment.

Available data reveals that the share of women in formal sector employment is proportionately less than that of their male counterparts while participation of females in wage employment has remained low compared with men's. The share of women in the labour force also shows that they are disproportionately concentrated in community, social and personal services. Although women's share in total wage employment increased to 29.5 percent in 2000, their share in traditionally male dominated industries remain low, while their share in community and personal services stand at 58.5 percent (Republic of Kenya, 1998, 1999, 2002).

In Kenya, the policy of the government on employment has centered on creating conducive environment for the private sector to play the leading role in economic growth and employment generation. Short-term policies have focused on the need to stabilize the economy in order to create an enabling environment for investors, while the long-term policies have targeted creating an environment supportive of increased productivity with commitment to achieve an equitable distribution of income and fair wages. Since 1995, however, there has been a substantial increase in real wages in both the private and the public sectors partly because of inflationary pressure necessitating upward wage adjustments (Republic of Kenya, Economic Survey 2002). Wages per employee also vary by sub sector and occupation (Table 1). For example in both private and public sectors real wages per employee are lowest in agriculture and forestry and highest in the finance, insurance, real estate and business services (Republic of Kenya, Economic Survey 2007).

Table 1: Average wages per employee in Kshs per annum (2002-2007)

Sector/Year	2002	2003	2004	2005	2006	2007*
Agriculture and Forestry	83,364 (140,419)	94,702 (154,721)	106,387 (178,273)	119,409 (171,661)	130,023 (185,566)	138,118 (202,956)
Mining and Quarrying	117,418 (186,466)	132,774 (194,673)	152,861 (212,428)	176,402 (194,344)	197,386 (199,741)	216,681 (206,512)
Manufacturing	118,042 (165,405)	134,774 (166,063)	156,933 (188,336)	165,182 (176,491)	180,827 (194,956)	193,374 (207,408)
Electricity and water	367,484 (287,056)	429,833 (315,594)	496,4522 (359,067)	570,074 (349,302)	607,586 (377,345)	686,617 (409,937)
Building and construction	200,699 (202,732)	231,030 (223,019)	265,267 (256,874)	323,194 (247,686)	374,186 (268,140)	418,930 (292,353)
Trade Restaurants and Hotels	339,820 (310,497)	394,329 (350,192)	459,278 (407,836)	534,459 (432,190)	601,809 (489,115)	646,978 (561,281)
Transport and Communications	383,725 (306,726)	447,574 (344,364)	541,146 (412,139)	637,922 (407,960)	697,889 (445,685)	736,684 (524,670)
Finance, Insurance, Real estate and Business services	435,385 (540,617)	508,261 (606,576)	599,532 (729,513)	705,221 (655,922)	810,535 (725,854)	918,041 (818,012)
Community, Social and personal services	255,188 (218,881)	296,552 (238,461)	347,720 (268,737)	404,711 (261,617)	458,295 (281,397)	507,703 (303,844)
Total Private sector		245,930	289,863	340,721	387,193	427,716
Total Public sector		(221,899)	(251,859)	(272,132)	(294,975	(322,260)

Source: Republic of Kenya: Economic Survey 2008

* ***Provisional***

Public sector figures are in parenthesis while those not in parenthesis are private sector figures

Annual average earnings in the private sector increased from Kshs 387, 193 in 2006 to Kshs 427,716 in 2007, an increase of 10.5%. Overall average earnings per employee rose

by 10.8% from Kshs 354,969 to Kshs 393,142. Table 1 further reveals that the average wages per person are higher in the private sector than in the public sector. Private sector wages in the Finance, Insurance, Real estate and Business services were highest followed by Transport and Communications. The average wages of employees in the private sector in the activities of agriculture and forestry, mining and quarrying are significantly below those of their counterparts in the public sector.

1.2 Statement of the Problem

Occupation segregation does not necessarily indicate discrimination. It could be the result of differences in skills/education attainment, job seeker's preference and/or discrimination. Skills/education attainment is a major reason behind occupation segregation observed between males and females that preclude discrimination. Female preferences for subjects like social sciences in lieu of technical courses like engineering also determine the kind of occupations they are likely to undertake and the pay they will receive (Statistics Department, Singapore 2000).

Miller (1987) demonstrated that it is important to model occupational segregation when accounting for the lower wage received by women. Studies of this type are less frequent in developing countries (Cohen and House 1993). Some relevant researches have been done for transitional countries but no such study has been done for Kenya. This study attempts to determine the extent to which women and men are employed in different occupations and to investigate the effect of occupation on wage discrimination in the labour market in Kenya. The paper will specifically investigate to what extent wage

disparities between male and female workers can be explained by differences in occupational distributions.

Although several studies have focused the role of occupational segregation in accounting for gender wage disparities in different countries, including the US (Brown el al., 1980), Britain (Miller 1987 and China (Meng and Miller, 1995), there is still very little empirical research in this field. Despite the existence of differences in the occupational distribution of male and female employees in Kenya, there is no known study that attempts to highlight the contribution of these differences to the wage discrimination.

Surveys on labour force participation in both the formal and informal sectors of the economy indicate that women are disproportionately concentrated in certain activities with limited access to more remunerative enterprises. Gender analyses also reveal that urban women earn less than half (49%) as much as urban men. The wages of women are consistently lower than men's even when adjusted for type of employment, status of employment occupation and hours of work (Republic of Kenya (1988). Little information exists on occupation and wage discrimination and how policy can effectively influence labour market outcomes in Kenya. This study will therefore attempt to fill this research gap

1.3 Objectives of the study

The general objective of this study is to investigate the nature of labour market conditions on the basis of occupations in Kenya. The specific objectives are:

(i) To examine whether occupation segregation exists in the labour market;

(ii) To analyze whether occupation contributes to wage discrimination in the labour market in Kenya, and

(iii) To draw policy recommendations based on the above that will reduce income inequalities and labour market rigidities.

1.4 Significance of the study

The study of occupation segregation is important because segregation can be a major source of labour market rigidity, greatly reducing labour market's ability to respond to changes. Downturns affecting one sector of the economy would be less problematic if job seekers can move unhindered between sectors. This adjustment is more difficult when sectors are sex segregated. For instance, males retrenched from the manufacturing sector may find it difficult to fill openings in the services sector, if females are preferred.

The findings from this study will therefore give some of the solutions to labour market segmentation and income disparities in the labour market. The proposed study will further help policy makers in planning to achieve an equitable distribution of income and fair wages and also in designing policies that are geared towards reducing wage discrimination in the labour market.

CHAPTER TWO

2.0 LITERATURE

2.1 Introduction

This chapter gives an overview of both the theoretical and empirical literature on studies that have been done on occupational segregation and its effect on wage discrimination. There are a few studies from the developing countries that have been done in this area, Kenya included. Most of the review has therefore, concentrated on studies based on the developed countries.

2.2 Theoretical literature

There are several explanations for the existence and persistence of occupational segregation across the globe. More or less formalized such theories rely on supply and demand factors that building on gender traditional roles assign women and men particular occupations. In the neoclassical theory framework, the human capital model has been initially applied to the study of occupational segregation by Polachek (Polachek, 1991). The model assumes that workers and employers are rational and that labour markets function efficiently. Workers will search for the best paying jobs, considering their own personal endowments for instance education and experience. Beyond the neoclassical theory and in a more dynamic approach, it has been argued that women are constrained by their personal endowments in the choice of an occupation. It is argued in this case that in some cases parents' decision to invest more in the education of their children provide the children with more and better job opportunities (Anker, 1998).

The human capital theory explains that productivity is basically determined by the stock of human capital a worker holds. The investments associated with the human capital are mainly those of formal education and work experience, which affect education and in turn affect earnings.

The fact that female workers on average earn less than male workers prevails all over the world. But what accounts for the differences in wages? The observable factors such as education, job experience, and hours worked, explain about 50% of the gap. Surprisingly, only 10 to 30% of the difference in wages can be explained by the different occupations of men and women. The remaining is due to differences within occupation, which cannot be explained by observable factors. This residual part may be explained by individual self – selection or due to discrimination (Goldin 2000).

A number of theories exist that explain group differences in wages, occupations and employment patterns as a consequence of preference and skill differences rather than discrimination. According to human capital theory developed by Polachek and Mincer (1974), returns to human capital for investment is higher for persons who expect to work full-time most of their adult life. The differences in social expectations about gender roles and pre-market discrimination may explain the differences in investment in human capital and consequently, the differences in labour market outcomes. In human capital theory, as workers become more similar in all kinds and amounts of human capital they possess, wage gaps and male – or female dominated occupations should become less prevalent. In the rural-urban context, labour force members with similar human capital would be expected to have similar wage levels.

In a perfectly competitive economy, persons who provide labor services to the market and who are equally as productive with similar characteristics should be treated equally. "Equally" means that the persons receive similar wages or face the same demands for their services at a given wage (Blank 1999) Studies have shown that men and women often have very different occupational distributions-potentially leading to occupational segregation. There might be female dominated occupations and male dominated occupations. There can be two interpretations if men and women have choices about which fields to go into. One is that there is no problem with the labour market Occupational preferences form naturally and respect the market economy. The other is that there is discrimination in the market before an individual even enters the labor pool. Society pushes down on female wages and points them to lower paying occupations (Ehrenberg and Smith 2003). For instance, women who are thought to be nurturing and caring would not have the same competitive drive as men. The management therefore could rather promote a man versus a woman. Another consideration is that women, recognizing potential scenarios where they must leave the labor force for some time due to child birth will choose occupations with lower rates of return to experience and lower penalties for their withdrawal

2.3 Empirical Literature

According to Blackburn (1995) for any measure of segregation to be satisfactory, it must be substantively intelligible and it must allow consistent interpretation so that comparisons are meaningful. To assess whether an index provides an appropriate measure of segregation four criteria are usually used (Rich 1999). This include (i)

Organizational equivalence (ii) Size invariance (iii) Gender symmetry (iv) The principles of transfers.

According to Morrison (2002) most cross-country studies conclude that occupational segregation is extensive worldwide both in industrialized and developing countries. Boulding (1976) and Psacharopoulos and Tzannatos (1992) report an approximate value of 0.49 for the Duncan index based on 1980 data. A study by Blau and Ferber (1992) found the Duncan index to be 0.44 in Latin America and 0.42 in the Caribbean. According to World Bank (1994) there is no consistent change overtime The Duncan index was highest in North Africa (0.55) and Lowest in West Africa (0.20)

There are several methods of measuring segregation but the most common ones include:
i) The Hakim Index (1979) which is based on comparing the sex-ratio within each occupation with the ratio of the whole workforce while the Duncan Index is based on comparing the distributions of men and women across all occupations.
ii) The Karmel & Maclachlan index (1988). For this index the segregation component is computed subtracting two weighted ratios: the male participation in each category relative to the total labour force weighted by the female participation in the whole labour force minus the analogous ratio. As noted by Anker (1998), all indices have the advantage of simplicity, condensing into one number all variation in the distribution of jobs between men and women. This simplicity is also a disadvantage, potentially masking important underlying variations and limiting possibility for discussion of many practical and policy- related aspects. According to Watts (1993) if appropriate adjustments are

made in the Karmel and Maclachlan index to remove the effect of changing labour composition of the labour force, the same results are obtained as the Duncan and Duncan Index.

(iii) The Marginal Matching index (MM) which measures changes in occupational segregation overtime, ensuring that sex composition and (gendered) occupation invariance. This index is calculated by ordering occupations.

Miller (1987) used empirical model to estimate the effect of occupational segregation on the labour market outcomes of segregated groups. According to Brown et al's (1980) model the total wage differential between men and women were decomposed into components related to: (i) within occupation wage differences denoted wages and (ii) within occupational discrimination denoted occupations. The model is specified as follows:

$$w_0 = \alpha_i + X_{ij}\beta_i + \varepsilon_0 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

where w_0 is the hourly wage, X_{ij} represents the characteristics (e.g education, experience) of the individual α_i and β_i are parameters to be estimated and ε_0 is a random error term.

The results suggest that the different occupational distributions of men and women are partly due to endowment differentials between the two and partly due to occupational segregation between the genders

In a similar study, Miller (1987) combined effects of wage discrimination and occupational segregation. This study found 39% of wage gap, 14% of which is attributed

to discrimination Occupational segregation on the basis of sex is an important characteristic of the labor market George (1983) showed that in 1971, about 40% of female workers would have to shift between occupations to achieve an occupational distribution comparable to that of their male counterparts. Greenhalgh and Stewart (1985) showed that occupational attainment of men and women differ significantly. They used the average income of occupational category as measure of occupational rank These occupations were then analyzed using standard regression techniques. This contrasts with approaches taken by other studies, which have examined occupations using techniques such as discriminant analysis (Brown et al; 1980), Probit Models (Miller and Volker, 1985).

Brown et al (1980) specified a reduced form multinomial logit model to capture how variables affect the probability of an individual working in a specified occupation.
This probability may be defined as:

$$P_{ij} = prob(y_i = oc_j) \frac{e^{x_i \beta_j}}{\sum_{k=1}^{J} e^{x_i \beta_k}} \quad i = 1,\ldots\ldots N, \quad j = 1\ldots J \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

where N= sample size, J = Number of occupational groups and x_i a vector of exogenous variables affecting supply and demand factors.
The findings from this approach conform with those of Miller (1987) which suggest that the different occupational distributions of men and women are partly due to endowment differences and partly due to occupational segregation between gender groups.

According to Orhan and Kara (2006) since wage dispersion between men and women is well established, researchers have focused on investigating the extent to which

discrimination prevails and the possible explanations. Studies on wages have shown that female/male earning ratios are usually less than one, indicating that women usually earn less than men do. According to Blau and Kahn (1992), in eight industrialized countries, the female/male earning ratios were between 0.62 and 0.77.

Sloane and Seibert (1980) found that female workers are not unduly concentrated in low paying occupations and that it is the difference in pay within occupations that is crucial Aldrich and Buchele (1986) concluded that in the US empirical studies generally view job segregation to be a significant but not the dominant source of wage differentials Dex and Shaw (1986) dispute this and claim that more disaggregated studies identify women's inferior position as being primarily due to occupational crowding. Goldin (2000) concluded that even disaggregating her data to some 400 occupational categories does not significantly alter her conclusions.

Chiplin and Sloane (1975) and Greenhalgh (1980) found out that eliminating occupational differences by sex across occupational groups would have little impact on women's wages unless it is accompanied by changes in relative wage rates within occupations. Mariara (2003) in her study on wage determination and the gender wage gap across sectors in Kenya found out that education and other demographic factors are important determinants of the choice of sector of employment and wages and no serious selectivity problem. The gender decomposition results suggest that favoritism towards men is pronounced in all sectors, while there is no evidence of discrimination against women Mwabu and Everson (1997) concluded that the existing rural occupational structure is a consequence of rational career decisions of households. Education and

proximity to market centers are key factors in the transformation of occupational structure in rural Kenya.

Miller (1987) concluded that the depreciation effect associated with non-participation accounts for the major part of both the gender wage gap and the disparate occupational distributions of male and females. Miller (1987) studied the gender wage differentials by estimating the human capital wage function for males and females. The important explanatory variables were educational attainment and years of labour market experience. Results reveal that the difference in mean logarithm of wages for married males and females is 0.495, which implies a wage gap of 39 percent. According to Miller (1987) using 1980 General Household Survey data, 20% of the wage gap can be attributed to different levels of wage related characteristics of male and female workers. Further 40% of the wage difference derives from the depreciation effect of non-participation. The remaining 40% cannot be explained by the variables in the underlying estimation equation.

Studying within and between estimates of male /female wage gap, Barth and Dale-Oslen (1999) found that going from a male dominated to a female dominated occupation depress wages by 8% *ceteris paribus*. Moreover, the male turnover is more wage elastic than female turnover.

Glick and Sahn (1997) examined the impact of gender and schooling on employment and wages in the private and public sector and self-employment in Guinea. This study showed

that access to factors of production, information and technology as well as human capital, children, spouse's wages and age are important in labour supply.

Sung et al. (2001) reported that although the within-occupational effect on Hong Kong dominated the explanation of total male-female wage differentials, their cross-occupation differential actually improved the situation for women. Meng (1998) reported the dominance of within-occupation effect in the explanation of total gender wage differentials among Chinese migrants from rural to urban areas.

Access to the labour market or occupational attainment can be seen as an outcome of interaction between demand and supply. A number of factors determine labour demand and supply and hence allocation into different sectors. Labour supply decisions result from workers' desire for utility maximization. Therefore, factors that affect/influence the expected and reservation earnings are important in labour supply.

The conventional analysis of wage differentials focuses on issues of wage discrimination without considering the differences in male and female occupations (Meng, 1998). This is valid only if the same characteristics that determine wage also determine occupation. If there are other determinants of occupational status, for instance discrimination exercised as barriers to entry, then these approaches will underestimate the discrimination component (Brown et al; (1980).

In his study of the distinction between cross-occupation and within-occupation wage differentials (Brown et al., 1980; Hawke 1991 ;) expanded the model which is written as;

$$\ln \overline{w_M} - \ln \overline{w_f} =$$

$$\underbrace{\sum_j \ln \varpi_M \left(P^M_j - \hat{P}\right)}_{QD} + \underbrace{\sum_j \ln \varpi_M \left(\hat{P}^f_j - P^f_j\right)}_{OD} + \underbrace{\sum_j P^f_j \left(\alpha^M_j - \tilde{\alpha}^f_j\right)}_{I} + \underbrace{\sum_j P^f_j \bar{x}^f_j \left(\beta^M_j - \tilde{\beta}^f_j\right)}_{WD} +$$

$$\underbrace{\sum_j P^f_j \tilde{\beta}^M_j \left(\bar{x}^M_j - \bar{x}^f_j\right)}_{PD} \quad \ldots\ldots(3)$$

Where a bar over a variable denotes the mean value, superscripts M and f refer to male employees and female employees respectively. p^M_j and p^f_j are the observed proportion of male and female employees in occupation j. $\hat{p}^f_j$ measures the proportion of the sample of female employees who would be in occupation j if female employees were allowed the same occupational choice as male employees.

This predicted occupational distribution for females is generated from female characteristics using male occupational attainment as the non discriminatory norm. The difference between the actual distribution of males and predicted females is simply the non-discriminatory differences arising from male–female productivity related characteristics (Sung et al.2001).

The computation of the non-discriminatory occupational attainment for female employees will be estimated by a model of occupational attainment. The mean log wage differential in equation (3) consists of four components. Brown at el (1980) defined QD and OD as the explained and unexplained occupation segregation respectively. I and WD represent the unexplained within – occupation wage differences, while the PD represents the explained within occupation wage differences. The 'explained' term refers to wage

differentials resulting from gender differences in productivity related characteristics. The "unexplained" term refers to wage differentials that cannot be accounted for on the basis of productivity endowments and is commonly interpreted as a measure of labour market discrimination.

Estimation of equation (3) involves three steps to decompose the gender wage differentials. First, wage functions are estimated to obtain α_j and β_j for male and female employees respectively. Second, the multinomial logit model is employed to predict the occupational distribution of female employees in the absence of discrimination. Third the information obtained is used to calculate QD, OD, I, WD and PD that might be summed to obtain the wage differential between male and female employees.

Studies of Brown et al. (1980) in the US and Meng (1998) in China showed that occupational segregation can play a significant role in explaining the overall gender wage differential. Brown et al's. (1980) decomposition technique treats individual's occupational attainment as an endogenous variable and uses observable male and female characteristics to determine occupation selection. It employs a two-stage method to incorporate the impact of occupational segregation on gender wage differential[1].

Brown R. Moon M and Zoloth (1980) concluded that a significant portion of occupational segregation by sex can be attributed to discrimination. Most important

[1] Previous studies with similar approach included Miller (1987), Hawke (1991), Kidd and Shannon (1994) and Sung et al. (2001)

manifestations of sex discrimination in the labour market are wage differentials within occupations and differences in the occupational distribution of men and women.

2.4 Overview of literature

Although the Duncan index or index of dissimilarity is the most commonly used measure of occupational segregation, it however, has the weakness that changes over time in estimated values can result from both changes in the occupational structure of the labour force and changes in the sex composition of occupation While I recognize the limitations of this measure, for this study it is the most suitable because we are using cross sectional data and not time series data. The other index like the Karmel & Maclachlan index is suitable for studying trend in measures of segregation using time series data. The Marginal Matching index (MM) which measures segregation by ordering occupations is found to present unrealistically low levels of occupational segregation in countries with low rates of female labour force participation.

As indicated in the literature, it can be seen that not many studies have been done in this area to determine the effects of occupational segregation on wages in labour markets especially in developing countries. Mwabu and Everson (1997) estimated a model of occupational choice in rural Kenya but did not look at the effect of male dominated occupations and female dominated occupations in rural Kenya. This study was limited to rural Kenya and therefore did not consider urban because they used 1981/82 rural household surveys. The study by Mariara (2003) did not extend the wage decomposition analysis to distinguish between occupational wage and the unexplained wage gap. This may be partly due to shortcomings in the occupational classification in the data used.

Mariara's (2003) study was based on the Kenya Welfare Monitoring Survey (1994). In this study the integrated labour force survey data for 1998/99 is used. This survey captured information on the variables for instance occupations which previous studies may not have done and are important for this study.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Introduction

This chapter presents the model, diagnostic tests and discusses the variables used in the study. The sources of data are also discussed.

3.2 Model

The key factor in determining the effect of occupation on wage discrimination is the identification of non-productivity characteristics which are the suspected targets of discrimination. By estimating a wage function using ordinary least squares the influence of factors not relating to discrimination can be isolated. The function formulated here uses monthly wage as the dependent variable and independent variables which measure age, age squared which is used as a proxy for experience, education level, sex, marital status, and occupational dummy variables. Experience is entered into the equation through two variables, age and age squared which are included as a measure of overall experience although the relationship may not be linear. The variable age is expected to be positively related to the monthly wage while age squared is negatively related to monthly wage

The marital status variable (1 if dmarried; zero otherwise) was included because marriage usually creates pressure upon an individual to expand his income. In effect, marital status becomes a proxy for a variety of measures to succeed financially. Married individuals are

expected to have pressure for a job due to family responsibilities. The variables included in the equation were chosen not only because they are generally accepted as influencing wages, principally through productivity effects, but also because they are relatively free from the direct effects of labor market discrimination.

This study therefore proposes to estimate the wage function in which wages depend on personal characteristics and occupation which is specified as:

$$\log w_{ij} = \alpha + \beta X_{ij} + \gamma Z_{ij} + \varepsilon_{ij} \quad \text{.....(1)}$$

Where w_{ij} is the monthly wage of individual i in occupational class j. X_{ij} is a vector of individual characteristics and Z_{ij} is a vector of variables on occupations α, β and γ are parameters and ε_{ij} is a random error term. The model being estimated is linear regression and therefore estimated using Ordinary Least Squares (OLS). Diagnostic tests could be used to indicate whether any of the assumptions required for OLS to be the best linear unbiased estimator (BLUE) appear to be violated. These assumptions includes serially correlated and homoscedastic error term, absence of correlation between the error term and the regressors and correct specification of the conditional mean function, that is no omitted variables and appropriate functional form.

The model is first regressed with occupation dummy variables included in the regression equation so that we can capture the effects of the variables on the dependent variable wage for both male and female wage equations. These results are compared with a second regression in which the equation for both male and female are regressed but with

the occupation variable excluded from the regression. By comparing the effect of inclusion and exclusion of the occupation variable on the dependent variable, we are able to assess the effect of the variable occupation on wage discrimination by considering the effect on the R- squared.

3.3 Wage Decomposition

According to (Meng, 1998) the conventional analysis of wage differentials focuses on issues of wage discrimination without considering the differences in male and female occupations. This is valid only if the same characteristics that determine wage also determine occupation.

Oaxaca (1973) decomposed wage differentials between two groups. This method decomposes wage differentials to two components; a component observable by wage differences in male and female productivity related characteristics and an unexplained (residual) component which is often taken as a measure of wage discrimination . The role of occupational segregation in explaining wage differentials is included in this decomposition method by incorporating a sequence of occupational dummies in the vector of productivity related characteristics. The occupational distribution is considered exogenous and its inclusion is likely to increase the explained component of the wage gap and diminish the unexplained component.

3.4 Diagnostic Tests

The diagnostic tests conducted before arriving at the estimable form of the model are the Breusch-Pagan test and Ramsey RESET test.

the occupation variable excluded from the regression. By comparing the effect of inclusion and exclusion of the occupation variable on the dependent variable, we are able to assess the effect of the variable occupation on wage discrimination by considering the effect on the R- squared.

3.3 Wage Decomposition

According to (Meng, 1998) the conventional analysis of wage differentials focuses on issues of wage discrimination without considering the differences in male and female occupations. This is valid only if the same characteristics that determine wage also determine occupation.

Oaxaca (1973) decomposed wage differentials between two groups. This method decomposes wage differentials to two components; a component observable by wage differences in male and female productivity related characteristics and an unexplained (residual) component which is often taken as a measure of wage discrimination . The role of occupational segregation in explaining wage differentials is included in this decomposition method by incorporating a sequence of occupational dummies in the vector of productivity related characteristics. The occupational distribution is considered exogenous and its inclusion is likely to increase the explained component of the wage gap and diminish the unexplained component.

3.4 Diagnostic Tests

The diagnostic tests conducted before arriving at the estimable form of the model are the Breusch-Pagan test and Ramsey RESET test.

Breusch Pagan

This test is used to test for heteroscedasticity in a linear regression model. It tests whether the estimated variance of the residuals from a regression are dependent on the values of the independent variables. The squared residuals are regressed on the independent variables, if an F- test confirms that the independent variables are jointly significant then we can reject the hypothesis of no heteroscedasticity. The bruesch-pagan test tests for conditional heretoscedasticity and is a chi-squared test. If the test shows that there is conditional heteroscedasticity, this can be corrected using robust standard errors.

Ramsey RESET

The Ramsey Regression Equation Specification Error Test (RESET) is a general specification test for the linear regression model. It tests whether non-linear combinations of estimated values help explain the exogenous variables. The intuition behind the test is that if non-linear combinations of the explanatory variables have any power in explaining the exogenous variable, then the model is mis-specified. The regression is estimated and the coefficients tested by means of F-test whether they are zero. If the null hypothesis is that all regression coefficients of the non-linear terms are zero is rejected, then the model suffers from mis-specification.

3.5 Data Sources

The study will use the 1998/99 Integrated Labour Force Survey data collected by the Central Bureau of Statistics. The survey had three Modules (Labour Force, Informal Sector and Child Labour). This study will however utilize data for only one module which is labour force. This is mainly because the variables of interest for this study are captured

in the labour force module. The survey was conducted across all the administrative districts as constituted in 1989 but excluded Samburu, Turkana and Marsabit and was based on National Sample Survey and Evaluation Programme (NASSEP III) sample frame. This survey had 1,139 clusters of which 930 were rural and 209 were urban. The enumeration areas for the 1989 Census were the Primary Sampling Units (PSU's) which were selected using the Probability Proportional to Size (PPS) and were segmented into smaller units of about 100 households constituting one measure of size. One segment from each PSU was selected randomly for the creation of a cluster. A response rate of 86.2 percent was recorded on randomly selected interview of 12,814 households.

The survey revealed notable variations in participation rates between the rural and urban areas and across the eight provinces in Kenya. The survey collected a wide range of information which can be useful in this study. The main variables captured under this survey that are of interest to this study are age, age squared, educational level, marital status, occupation, wage, sex and region. This study will focus on the age limits 18-64 years, so as to facilitate international comparisons. In addition, in Kenya the Government recognizes individuals who are 18 years and beyond as mature and such individuals are legible for applying for the National Identity Cards. For this reason the minimum age is considered to be 18 years while the maximum age is considered to be 64 years. The maximum age is taken to be 64 years because after this age an individual is considered not to be active in the labour force. In addition, most people retire at this age. The occupational classifications analyzed in this study are based on the current International

Labour Organization's International Classification of Occupations (ISCO-88) framework at one digit level of aggregation

3.6 Variables

Occupation

This is the job occupied by an employee at the time of the survey. The classification of an occupation is based on the latest International Labour Organization's International Classification of Occupations (ISCO-88) framework.

This study proposes to use the Duncan and Duncan Dissimilarity index (D) to measure segregation. The index indicates the proportion of men (women) that would have to change occupations in order to maintain the sex ratio of each occupation equal to the sex ratio of the labour force as a whole. In this study, the Duncan and Duncan Dissimilarity index (D) is expressed as:

$$D = \sum_{j=1}^{J} \left| F_j / F - M_j / M \right| .100. \frac{1}{2} \quad \text{.....(2)}$$

Where j= total number of occupations, F_j = number of women in occupation j, F= number of female workers in overall labour force, M_j = number of individuals in the comparison group (men) in occupation j, M= number of male workers in overall labour force, D= percentage of the labour force that should change the occupations to yield the perfect correspondence between the sex ratio of each occupation and the sex ratio of the overall labour force.

Log of the wage rate (lnwage) This is the natural logarithm of the individual's wages. The wages is measured in Kshs per month;

age Is the number of years from the time when the respondent was born to the last birthday before the

	date of the survey. The variable is expected to be positively related to the wage rate;
agesquared	Age squared which is used as a proxy for experience.
new Sex1	This is a dummy variable with one if male and zero otherwise;
dmarried	This is a dummy variable with one if married and zero otherwise;
educ1	This is a dummy with one if highest education level attained is (none, nursery, primary),else zero;
educ2	This is a dummy with one is highest academic level attained is Secondary, else zero;
educ3	This is a dummy with one if highest academic level attained is undergraduate, else zero;
educ4	This is a dummy with one if highest level attained is postgraduate, else zero;
occ1	This is dummy with one if in occupation type one (Legislators, senior officials and managers), else zero;
occ2	This is dummy with one if in occupation type two (Professionals), else zero;
occ3	This is dummy with one if in occupation type three (Technicians and associate professionals), else zero;

occ4	This is dummy with one if in occupation type four (Clerks, service workers and market sale workers), else zero;
occ5	This is dummy with one if in occupation type five (Skilled agricultural, fishery and related workers), else zero;
occ6	This is a dummy with one if in occupation type six (Craft and related workers), else zero;
occ7	This is a dummy with one if in occupation type seven (Plant and Machine operators & assemblers), else zero;
occ8	This is a dummy with one if in occupation type eight (Elementary Occupation), else zero

CHAPTER FOUR

4.0 DESCRIPTIVE STATISTICS, EMPIRICAL RESULTS AND REGRESSION ANALYSIS

4.1 Introduction

In this chapter we present and discuss the results of the study. We first discuss the general descriptive results and the results of the OLS regression of the wage equations and the wage decomposition. This is done by regressing the wage equations taking into consideration the occupational variables and also regressed without occupational variables. This study considered 4,147 observations out of which 3113 were men while 1034 were female.

Table 2: Mean and standard deviation of variables

Variable	Obs	Mean	Std. Dev	Min	Max
Lnwage	4147	8.164	0.8725	4.61	12.43
age	4147	35.01	9.86	18	64
agesquared	4147	1323	728	324	4096
dmarried	4147	0.709	0.454	0	1
occ1	4147	0.0169	0.129	0	1
occ2	4147	0.027	0.163	0	1
occ3	4147	0.180	0.383	0	1
occ4	4147	0.218	0.413	0	1
occ5	4147	0.079	0.270	0	1
occ6	4147	0.102	0.302	0	1
occ7	4147	0.085	0.278	0	1
occ8	4147	0.292	0.455	0	1
educ1	4147	0.515	0.500	0	1
educ2	4147	0.453	0.498	0	1
educ3	4147	0.018	0.133	0	1
educ4	4147	0.014	0.116	0	1

Source: Own computation based on data from Labour force survey

The mean lnwage is 8.2 while the minimum and maximum lnwage is 4.6 and 12.4 respectively. The mean age for the sample is 35. The marital status (new_status) has been categorized into three groups as follows: those who are not married, those married who include both monogamous and polygamous and the last category is for those (separated, divorced and widowed).

For purposes of this study, sectors have been grouped into three namely; modern sector public, modern sector private and lastly the informal sector and small scale farming/pastoralists have been considered in one category.

We have lumped and categorized education together, those without education (small number), nursery (small number) and primary to have (educ1). Those with Secondary level of education have been considered separately (educ2) while those with undergraduate level have been considered as educ3 and those with postgraduate (educ4). In regression, the educ2 dummy variable as been dropped as the control variable.

Table 3: Frequency of academic level

Academic level	Frequency	Percent	Cum
educ1	2,137	51.53	51.53
educ2	1,878	45.29	96.82
educ3	75	1.81	98.63
educ4	57	1.37	100.00
Total	4,147	100.00	

Source: Own computation based on 1998/99 LFS

In respect to education we have lumped together those without education (small number), nursery (small number) and primary to have (educ1).Those with Secondary level of education have been considered separately (educ2) while those with undergraduate have been considered as educ3 and those with post graduate (educ4). In

regression, the educ3 dummy variable as been dropped as the control variable. From the table it can be observed that the majority of the individuals did not go beyond secondary education About 52% attained primary education, 45 % had secondary education while those with undergraduate and post graduate were 1.8 percent and 1.4 percent respectively.

The table below shows the distribution of occupations by sector.

Table 4: Distribution of employees in occupations by sector

Sector/occ	1	2	3	4	5	6	7	Total
Modern pub.	38	54	605	305	37	52	72	1,316
Modern priv	25	40	99	383	64	158	184	1,352
Informal	7	19	41	218	227	212	95	1,479
Total	70	113	745	906	328	422	351	4,147

Source. Own computation based on 1998/99 LFS

The data has been categorized into three sectors. The modern public sector, modern private sector and the informal sector which includes small scale farming/ pastoralists. The table above shows how individuals are distributed across sectors among the eight occupation categories. From the table it can be seen that occupations three and four have the highest number of employees. Overall, the majority of the employees are absorbed in informal sector followed by the modern private sector and lastly the modern public sector. This statistics conform to the current situation in the labour market as the informal sector absorbs a majority of the workers.

Table 5: Distribution of employees by marital status

Status/sector	1	2	3	4
Never married	152	292	538	982
Married	1,124	998	817	2,939
Separated div/wid	40	62	124	226
Total	**1,316**	**1,352**	**1,479**	**4,147**

Table 5 above shows that the majority of the working employees were married followed by those who are single. Further, across the sectors the majority are in the informal sector. This is because the sector has opportunities for self employment compared to the modern private and public which may not absorb all those searching for jobs.

Table 6: Distribution of employees in occupations by sex.

Occupation		Female	Male	Total
Legislators, Senior officials	Count	4	66	70
	Row %	5.7	94.3	100
	Column %	0.4	2.1	1.7
Professionals	Count	12	101	113
	Row%	10.6	89.4	100
	Column%	1.2	3.2	2.7
Technicians and associates professionals	Count	279	466	745
	Row%	37.5	62.6	100
	Column%	27.0	15.0	18.0
Clerks, Service workers and Market sale workers	Count	287	619	906
	Row %	31.7	68.3	100
	Column%	27.8	19.9	21.9
Skilled agricultural and fishery workers	Count	65	263	328
	Row %	19.8	80.2	100
	Column%	6.3	8.5	7.9
Craft and related workers	Count	27	395	422
	Row %	6.4	93.6	100
	Column%	2.6	12.7	10.2
Plant and Machine operators and Assemblers	Count	13	338	351
	Row %	3.7	96.3	100
	Column%	1.3	10.9	8.5
Elementary occupations	Count	347	865	1,212
	Row%	28.6	71.4	100
	Column%	33.6	27.8	29.2
Total	Count	1,034	3113	4,147
	Row%	24.9	75.1	100
	Column%	100	100	100

Source: Own computation based on 1998/99 LFS

A summary of the results of cross tabulation between sex and occupation of the individuals in the sample data is shown in table 6. The table shows that overall; males are

overrepresented in wage employment (75.1%) as compared to females (24.9%). From the table, it can be seen that male and female employees are clustered in different occupations. Female employees dominate in elementary occupations 33.6%; clerks, service workers and market sale workers 27.8%; and the Technicians and associate professionals 27%. Male employees dominate in occupations that are high paying such as Legislators, Senior officials and managers 2.1%; and Professionals 3.2%.

The Duncan and Duncan Dissimilarity index for measuring occupational segregation for the data which indicates the proportion of the male (female) that would have to change occupations in order to maintain the sex ratio of each occupation equal to the sex ratio of the labour force as a whole was computed using percentages from table 6. The computation was done as follows;

$$D = \sum_{j=1}^{j} \left| F_j / F - M_j / M \right| .100 . \frac{1}{2} \quad \text{.....(1)}$$

Where (D) is the Duncan and Duncan Dissimilarity index , Where j= total number of occupations, F_j = number of women in occupation j. F= number of female workers in overall labour force, M_j = number of individuals in the comparison group (men) in occupation j. M= number of male workers in overall labour force. D= percentage of the labour force that should change the occupations to yield the perfect correspondence between the sex ratio of each occupation and the sex ratio of the overall labour force.

Therefore:

$$D = |(0.4 - 2.1)| + |(1.2 - 3.2)| + |(27.0 - 15.0)| + |(27.8 - 19.9)| + |(6.3 - 8.5)| + |(2.6 - 12.7)| + |(1.3 - 10.9)| + |(33.6 - 27.8)|$$

$$= (1.7 + 2.0 + 12.0 + 7.9 + 2.2 + 10.1 + 9.6 + 5.8) * \frac{1}{2}$$

$$= 25.7$$

This computed value (25.7%) shows that there is some element of occupational segregation in the labour market. In order for the labour force to be integrated, 25.7 percent of the labour force should change their occupations to yield the perfect correspondence between the sex ratio of each occupation and the sex ratio of the overall labour force.

These findings suggest that Kenya like other developing countries exhibits occupational segregation. However, the dissimilarity index (D) for Kenya of 25.7% is less than that observed in some industrial countries such as Germany 40% and United Kingdom 33%. This conforms to studies by Blau and Ferber (1992) which found an index of 44 % in Latin America and 42% in the Caribbean using the Duncan Index. This result indicates that the level of segregation is higher in these countries. The (D) value varies from 0, when no differences between male and female occupational distributions meaning complete integration and a maximum of 100, which implies complete segregation.

Table 7: Mean and standard deviation of male and female wages

Item	N	Minimum	Maximum	Mean	Std. Deviation
Total wages	4,147	100	250,000	5,202	7702
Male wages	3,113	100	250,000	5,508	8498
Female wages	1,034	210	50,000	4,278	4406

Results of the descriptive statistics (Table 7) also show that the basic salary of female employees is Kshs. 4,278 while that of males is Kshs. 5,508. This implies that on average, a male wage is 28.8% above their female counterparts. Coupled with the low levels of female representation in the higher-level jobs such as those of legislators, chief executives and senior managers, the skewed salary structure compounds the inequality in employment and income distribution in the country. The data in table 7 also shows that the highest wage female employee in the sample had a basic salary of only one-fifth (Kshs. 50,000) of that earned by the male counterpart (Kshs. 250,000).

From the results in Table 7, it is evident that the gross pay of the female wage earners in the sample has relatively low dispersion (Kshs.4, 406) from its mean as compared to that of the males. This means that majority of the females have their total pay at just about their mean level of Kshs. 4,278. A two sample T-test with unequal variances was also conducted (Appendix II). The mean wage for male (1) was found to be Kshs 5508 and for female (0) was kshs 4278. The difference between the two is -1231. The standard error for the difference is 204.9 which is significant at 5% significance level. The test suggests a rejection of the null hypothesis of Ho: diff=0. We can therefore conclude that on average, male wages are significantly higher compared to those for the female counterparts.

4.2 Breusch-Pagan test for Heteroscedasticity

Estimating a regression using OLS in the presence of heteroscedasticity renders the OLS estimator to be inefficient and have invalid inferences based on the conventional test statistic, though is unbiased and consistent. The null hypothesis assumes error term is homoscedastic while the alternative hypothesis assumes it is heteroscedastic.

Heteroscedasticity test was conducted and the p- value of the F-statistic in the male wage equation was found to be statistically significant at one percent level, indicating that the error term is not homoscedastic while the female equation didn't exhibit the problem of heteroscedasticity. In the male equation, heteroscedasticity in the error terms was corrected using the Stata econometric package by adding robust to the regression.

4.3 Ramsey RESET Test

Ramsey's Regression specification error test (RESET) is used to test for the choice of the functional form. The null and alternative hypotheses of the test are:

H_0: $\varepsilon \sim N(\mu,\sigma^2)$

H_1: $\varepsilon \sim N(\mu,\sigma^2)$; $\mu \neq 0$

The p-value (0.3925) of the F-statistics in the male equation is not significant at either the 1% or 5% significance levels and therefore we do not reject the null hypothesis where the disturbance is presumed to have a normal distribution with zero mean and constant variance. This shows that there is no problem of omitted variables. The model is, therefore, correctly specified. In the female wage equation the p-value of 0.0145 shows that although at one percent level there is no variable omission, at five percent level there is.

4.4 Regression Results

Table 8: OLS regression results of male and female wage equations including occupation variable (Dependent Variable: Ln wage)

Variables	Male wage equation	Female wage equation
Dependent variable	Ln Male wages	Ln Female wages
	Robust Coeff (t-stat)	Robust Coeff (t-stat)
Age	0.0652* (7.10)	0.0682 * (-3.85)
agesquared	-0.0007* (-5.92)	-.0008* (-3.08)
dmarried	0.1455* (3.98)	.1536* (3.46)
occ1	0.7220* (6.29)	0.5933** (2.19)
occ2	0.5702* (5.06)	.9085 * (5.00)
occ3	0.3266* (8.15)	.2629* (4.17)
occ5	-0.4135* (-6.59)	-.5399* (-4.38)
occ6	0.1421* (3.30)	-.1614 (-0.99)
occ7	0.1806* (4.17)	.2139 (1.38)
occ8	-0.3504* (-8.78)	-.5144* (-6.91)
educ1	-2.4781* (-14.43)	-3.2716* (-11.18)
educ2	-1.0894* (-8.72)	-1.2374* (-6.85)
educ4	0.2798 (1.60)	.3899*** (1.84)
Cons	7.744 (43.01)	7.747 (24.42)
No. of observations	3113	1034
R^2	0.4639	0.5451
F-stat (p-value)	204.82(0.0000)	116.63 (0.0000)
Breusch-Pagan test p- value	0.0072	0.0016
Ramsey RESET test p-value	0.2771	0.0051

Significant at 1% level, ** significant at 5% level, * significant at 10% level*

Table 8 gives the regression results of both male and female wage equations when occupation variable is included in the model. From the table, the R- squared values of 0.4639 and 0.5451 for both male and female respectively show that up to 46 percent of the variations in log of male wages are explained by variables while 55 percent of the variations in log of female wages are explained by the model. The probability value for F-statistic of 0.0000 implies that the variables are jointly significant at one percent significance level. This means that the variables included in the model jointly explain changes in the wages.

Age is positive and statistically significant at one percent level of significance for both male and female wage equation. The coefficient for age squared is negative and statistically significant for both male and female wage equations at one percent level of significance. Age and age squared have the expected positive and negative signs for both male and female wage equations respectively. The coefficients are significant and consistent with theory implying that participation in the labour market increases as age increases but at a decreasing rate, reflecting on inverted u-shape profile with age. The findings are consistent with earlier studies (Mariara 2003)

The coefficient for dmarried is positive and significant for both male and female wage equation at one percent level of significance. The positive and statistically significant coefficient of dmarried for both male and female can be attributed to the fact that, those married have to work hard to provide for the family. The roles and responsibilities of married male and female explain why this category has pressure of looking for a job in order to provide for the family.

Occupation 4 has been used as the reference category and hence dropped from the model. The coefficients for occupation 1, 2, and 3 in the male wage equation and positive and significant at one percent level while in the female wage equation, the coefficient for occupation one is positive and significant at 10% level and those for occupation 2 and 3 are positive and significant at 1% level. The findings indicate that those in high ranking occupations one, two and three are likely to earn more than those in occupation4.The coefficient for occupation 5 for both male and female equations is negative and statistically significant at 1% level. This shows that those in occupation 5 earn less than those in occupation 4

The positive and statistically significant coefficient of occupation 7 in both male and female equations is contrary to expectations. The coefficients for both male and female in occupation 8 are negative and statistically significant; this shows that those in occupation 8 earn less than those in occupation 4

Those with education level 3 have been used as the reference category. The negative and statistically significant coefficient for those with education level 1 and 2 show that those with no formal education and primary education (education 1) and those with secondary education level 2 (educ2) earn less than those with education level 3 (undergraduates) at 1% level of significance. The coefficient for women in education level 4 is positive and significant at 10% level while that for men is not significant.

These finding are consistent with previous studies which found education as an important determinant of differentials in earnings and participation in the labour market. (Bigsten and Horton 1997; Appleton et al.,1990; Mwabu and Everson 1997).

Table 9: OLS regression results of male and female wage equations excluding Occupation variable

Variables	Male wage equation	Female wage equation
Dependent variable	Ln male wages	Ln female wages
	Coeff (t-Stat)	Coeff(t-stat)
Age	.0721*	.0796*
	(7.34)	(4.27)
agesquared	-.0008*	-.0009*
	(5.55)	(-3.45)
dmarried	0.2127	0.1872*
	(4.13)	(4.13)
educ1	-4.2122*	-5.9504*
	(19.00)	(-17.94)
educ2	-1.5508*	-1.5702*
	(-10.83)	(-8.94)
educ4	0.3992**	0.5028**
	(2.20)	(2.11)
Cons	7.726	6.782
Number of observations	3113	1034
R^2	0.3947	.4916
F-stat (p-value)	329.31	160.43
Breusch-Pagan test p- value	.0089	0.0246
Ramsey RESET test p-value	0.3027	0.0066

*Indicates significant at one percent level ** indicates significant at 5% level

Table 9 gives the regression results for both male and female wage equations with occupation variables excluded from the model. The coefficients for age and age squared are similar to those obtained when occupation was included in the regression model.

The coefficient for dmarried in the male wage equation is not significant while that for the female wage equation is positive and significant at 1% level.

The coefficient for education level 1 and 2 is negative and significant at one percent level for both male and female equations. These results are consistent with those obtained in table 8 when occupation variable is included in the regression model. This shows that those with education level 1 and 2 earn less than those with education level 3

(undergraduates).The positive and statistically significant coefficient of education level 4 shows that those with higher qualifications earn more compared with those in education level 3 which is the comparison category. These results shows that although at 1% level education level 4 is not significant at 5% level it is.

The value of R- squared in table 8 and 9 are compared to assess the effect of occupation on wages. A comparison of the values of R- squared obtained in both male and female wage equations shows that when occupation variable is included in the model, the R-squared value for male and female wage equations are 0.4639 and 0.5451 respectively. On the other hand, when the regression is done with occupation variable excluded from the model, the values of the R-squared for both male and female wage equations are 0.3947 and 0.4916 respectively.

From the results, the value of R- squared in the male equation is less than the value of R squared in the female wage equation both when occupation is included and excluded from the model. Similar results are obtained in the female wage equation in which case the value of R-squared is found to be higher when occupation is included in the model compared to when it is excluded.

Based on these results, it can be observed that occupation variable has an effect on wages because its inclusion in the regression influences the value of R-Squared. The R-squared value measures the strength of the relationship between occupation and wage. Exclusion of occupation variable reduces the value of R- squared, we can therefore conclude that this variable has an effect on the wage of both male and female.

Table 10: Decomposition of wage gap (Oaxaca Method)

	occ1	occ2	occ3	occ4	occ6	occ7	occ8	full
Mean log of male wages	9.19	9.19	8.88	8.30	8.31	8.39	7.73	8.23
Mean log of female wages	9.26	9.11	8.70	8.11	7.70	8.08	7.31	7.96
Wage gap	**-0.07**	**0.08**	**0.18**	**0.19**	**0.61**	**0.31**	**0.42**	**0.27**

Source: own computations based on 1998/99 LFS data

Decomposing the wage gap indicates that the mean log of wages for men are higher compared to the mean log of female wages except for occupation one (1). The wage gap for occupation 1 is negative. This may be attributed to the few women who are likely to be in this category of occupation. Overall, the wage gap increases from occupation 2 to occupation 6. These results indicate that the wages for men are more compared to women in these occupations. The wage gap for the full sample indicates that men earn more than the female.

Table 11: using the female wage structure

Female wage structure $(\beta_m - \beta_f)\overline{X_f}$

	Occ1	Occ2	Occ3	Occ4	Occ6	Occ7	Occ8	full
Contribution of Characteristics	-0.018	0.011	0.088	0.051	0.193	0.101	0.071	0.03
% of contribution	25.7	13.7	48.9	26.8	31.6	32.6	16.9	11.1
age	0.001	-0.001	-0.002	-0.003	-0.009	-0.005	-0.004	0.001
age squared	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
dmarried	-0.009	0.011	0.030	0.026	0.076	0.039	0.051	0.002
educ1	-0.019	0.023	0.036	0.054	0.171	0.090	0.083	-0.032
educ3	0.001	-0.007	0.020	-0.002	0.016	0.005	-0.005	0.019
educ4	0.008	-0.015	0.004	-0.024	-0.060	-0.029	-0.054	0.041
Contribution of returns	-0.052	0.069	0.092	0.139	0.417	0.209	0.349	0.24
% of contribution	74.3	86.3	51.1	73.2	68.4	67.4	83.1	88.9

Source: Own computation based on 1998/1999 LFS

Using the female wage structure, 25.7% of the wage gap is attributed to contribution of characteristics in occupation 1 while 74.3% is attributed to the contribution of returns. In

occupation two 86.3% of the wage gap is attributed to returns while 13.7 % is attributed to contribution of characteristics. Overall, it can be observed that the contribution to the wage gap from returns is more for all the occupations compared to the percentage of contribution of characteristics.

Table 12: Using the male wage structure

Male wage structure $\beta_m(X_m - X_f)$

	Occ1	Occ2	Occ3	Occ4	Occ6	Occ7	Occ8	full
Contribution of Characteristics	0.040	0.031	-0.168	-0.11	0.141	0.135	-0.081	0.401
% of contribution	57.1	38.8	93.3	57.9	23.1	43.5	19.3	51.9
age	0.001	0.003	-0.009	-0.005	0.007	0.006	-0.004	0.017
age squared	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
dmarried	0.004	0.003	-0.017	-0.011	0.015	0.014	-0.008	0.056
educ1	-0.015	-0.011	0.063	0.042	-0.053	-0.051	0.030	-0.151
educ3	0.021	-0.015	-0.089	-0.058	0.074	0.071	-0.043	0.205
educ4	0.028	0.020	-0.118	-0.077	0.099	0.094	-0.057	0.276
Contribution of returns	-0.11	0.049	0.348	0.3	0.469	0.175	0.501	-0.13
% of contribution	42.9	61.8	6.7	42.1	76.9	56.5	80.7	48.1

Source: own computation based on 1998/99 LFS data

Similar results are obtained when the male wage structure is used to decompose the wage gap except that in this case the percentage contribution of characteristics is fluctuating in terms of the contributions from the characteristics and returns. For instance using the male wage structure in occupation one, 57.1% of the difference in mean log of wages for both male and female is attributed to characteristics while 42.9% is attributable to returns

Overall, the contribution attributed to characteristics for the full sample is 51.9% while that due to returns is 48.9%. Comparison of the results obtained in both cases indicates that there are variations in the contributions attributed to characteristics and that due to

returns in both the male and wage structures. According to (Mariara 2003) Neumark's (1988) found the contribution of characteristics and discrimination for both male and female wage structures. Although the percentage in contributions due to characteristics and returns may not be similar, atleast there is some evidence of discrimination in the labour market in Kenya. This finding conform with other studies which attributed gender differentials in the labour market to both discrimination and differences in endowments and characteristics which include educational attainment, age, marital status, skills and experience.

CHAPTER FIVE

5.0 CONCLUSION AND POLICY RECOMMENDATIONS

5.1 Conclusion

This chapter summarizes the study findings and outlines policy implications based on the results of the study. The study had three main objectives first, to examine whether occupational segregation exists in the labour market, secondly, to assess the effect of occupations on wage discrimination in the labour market and finally based on the findings to draw policy recommendations. The results of measures of occupation segregation indicate that occupation segregation exists in the labour market as the computed value of the Duncan and Duncan index of dissimilarity is found to be 25.7%. Measures of occupational segregation are typically based on constructed indices that determine the extent of differences in the distribution of male and female workers across occupational categories in any economy. For any segregation index, if the distribution of males and females across the selected occupational categories is the same, then the index will have a minimum value (which is typically zero). On the other hand, if males and females are completely segregated (i.e there are no occupational categories shared by both men and women) then the index will reach its maximum value (which is usually one).

The regression results indicate that both education and occupation are important in influencing wage discrimination. Differences in endowment factors play an important role in affecting the gender wage differentials within occupations. The differences in the value of the R squared for both male and female equations show that dropping occupation from the model significantly affects the wages. The results of the wage decomposition

show that there are some differences between the components of characteristics and returns using the male and female wage structures. The statistical significance of the occupation variables at the one percent and five percent levels suggests the importance of the variable in explaining the observed wage gap and discrimination in the Kenyan labour market.

5.2 Limitations of the study

There are three main limitations for this study both of which are data related. First, data to be used was collected eleven years ago; a lot may have changed during this period in terms of socio-economic characteristics. Secondly, sampling and non-sampling errors. The non- sampling errors may have arisen as a result of both the enumerator and the respondents not understanding some of the concepts thereby giving inaccurate information. This problem can be dealt with by cleaning the data. Thirdly, occupation specific data is limited and respondents may not be free to disclose information on wages, it is therefore important to improve on data collection along this line for in depth analysis.

5.3 Policy recommendations

In order to eliminate the labour market rigidities that lead to inequality between men and women in the labour market, the study recommends that policies that encourage women to work in occupations dominated by men be put in place. The government should also promote policies that are directed at promoting equal pay within occupation or policies that are aimed at reducing the within occupation earnings discrimination and to provide training programmes to extend the career ladders confronting women. Additionally, the Government should give incentives to girl child to encourage them develop their careers

in school and in other training institutions in order to prepare them to take up occupations that are otherwise dominated by men. Parents should also be sensitized against prioritizing education for boys and instead treat both sex equally. Measures aimed at reducing inequalities in women's pay and improving women's status in the labour market should be pursued.

5.4 Areas for further research

The findings from this study revealed that occupational segregation exists in the labour market but did not endeavor to establish the causes of the segregation. I propose that further research is necessary in this area.

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Appendices

Appendix: I

Ramsey RESET test using powers of the fitted values of minwage

Ho: model has no omitted variables
F (3, 3096) = 1.29
Prob > F = 0.2771

This result indicates that we fail to reject the null hypothesis that the model has omitted variables and conclude that the model is correctly specified.

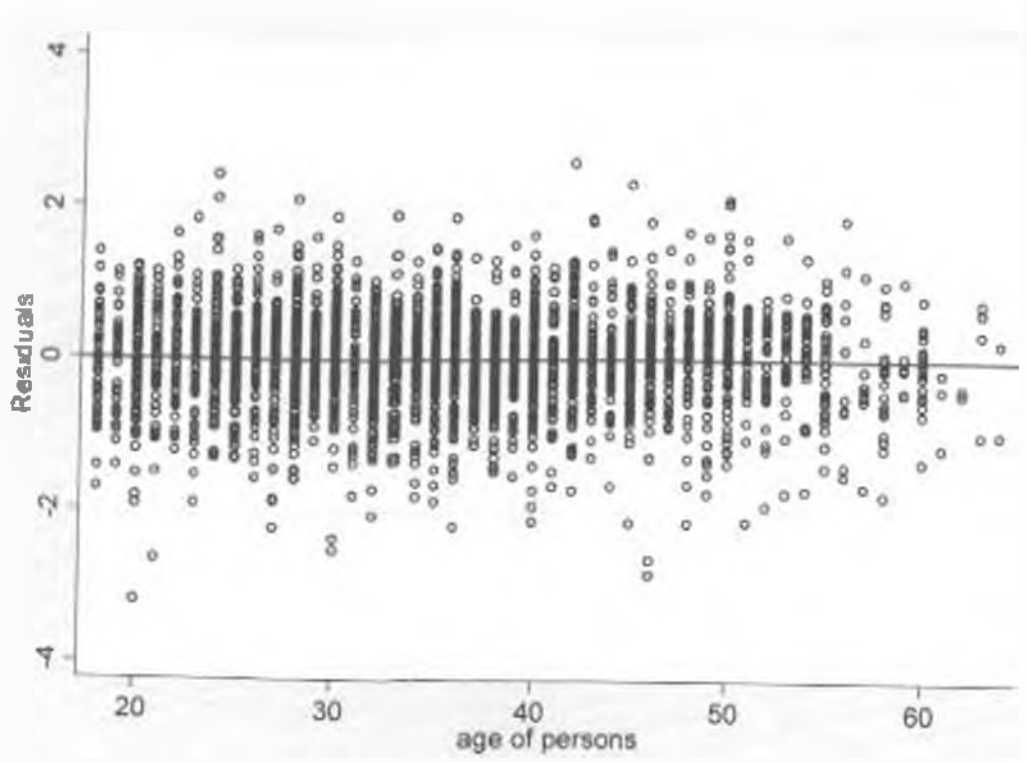
Appendix II: Two-sample t test with unequal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
0	1034	4277.833	137.0328	4406.41	4008.938	4546.727
1	3113	5508.419	152.3068	8497.847	5209.787	5807.051
Combined	4147	5201.588	119.6055	7702.261	4967.097	5436.079
diff		-1230.586	204.8789		-1632.283	-828.889

diff = mean(0) - mean(1) t = -6.0064
Ho: diff = 0 Satterthwaite's degrees of freedom = 3426.11

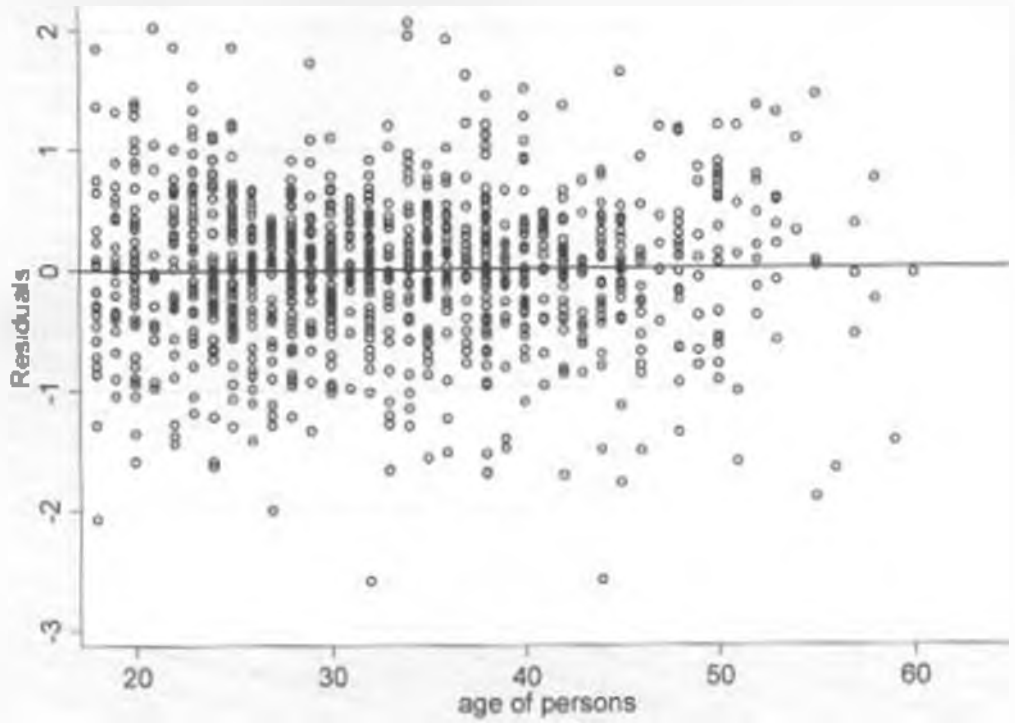
Ha: diff < 0 Ha: diff = 0 Ha: diff > 0
Pr(T < t) = 0.0000 Pr(|T| > |t|) = 0.0000 Pr(T > t) = 1.0000

Figure 1: Distribution of residuals for age in mlwage equation without robust standard errors.



The symmetric distribution of residuals for age variable shows a variance of mean zero, constant variance.

Figure 2: Distribution of residuals for age in flwage equation with robust standard errors.



The symmetric distribution of residuals for age variable shows a mean of zero. constant variance.