GENDER DIFFERENCES IN UNEMPLOYMENT AND UNDEREMPLOYMENT IN KENYA

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DECLARATION

This research paper is my original work and has not been presented for an academic award or any kind of award in any university. Secondary sources used in the research paper have been duly acknowledged.

Signed..... Date 8/11/2012

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This research paper is submitted for examination with our approval as University Supervisors.

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2012

DEDICATION

This study is dedicated to my dear parents the late Mr. Jackson Vuluku, thank you for every sacrifice you made for me to get an education, Mrs. Esther Chebet Vuluku; no words will ever thank you enough for every sacrifice made for us and especially for me. To both of you I am glad God gave me you as parents and I appreciate the support, love, guidance and discipline you instilled in me that has made me who I am today.

ABSTRACT

Unemployment and underemployment in Kenya have been increasing as the working age population increases. The economy has not been able to create adequate jobs to absorb the labour market entrants in gainful employment. This study analysed the determinants of open unemployment and underemployment by gender. The gender gap in both these labour market outcomes was decomposed to identify factors that explain it. A probit regression model for each outcome was estimated separately for male and female using data drawn from the Kenya Integrated Household Labour Survey 2005/06.

The descriptive statistics indicate that under employment and unemployment was higher among female than male. The probit regression shows that after controlling for differences in personal and household characteristics, the probability of being unemployed or underemployed was still higher among females. Both household and individual characteristics such as human capital, marital status, region of residence, non-labour income and age were found to be significant determinants of unemployment and underemployment.

The decomposition results show that 88.8% of the unemployment gap between women and men is accounted for by difference in individual and household characteristics while 11.2% is accounted for by difference in the coefficients. In addition, 5.4% of the underemployment gap is accounted for by individual and household characteristics and 94.6% is by difference in the coefficients. The key factors determining this gap are region of residence, age, education level, marital status and effects of shocks. Policy makers are bound to benefit from this study in making policies that bridge the gap between men and women in the labour market.

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All in all, I take full responsibility of any errors and omissions made in this research paper.

TABLE OF CONTENT

LISTS OF TABLES

CHAPTER ONE

INTRODUCTION

1.1 Background and study context

Imbalance between demand and supply of labour is a characteristic of many labour markets. When labour supply outstrips labour demand, available labour resource is not fully utilized. The underutilisation of labour not only leads to loss of output, but also imposes costs on affected individuals and their families. Underutilisation of human resources can take two forms: open unemployment and underemployment. The distribution of labour underutilisation is also important. For example, gender differences in the incidence of labour underutilisation may provide an indication of the extent of gender discrimination (see World Bank, 2012). Such differences in labour market outcomes are also important in their own right as they have implications for poverty and distribution of income. Consequently, one of the major challenges faced by developing countries is how to create an enabling environment that recognizes gender roles and responsibilities in economic development (Republic of Kenya, 2008). This challenge has motivated strategies that aim to address gender disparities in access to economic opportunities.

Eliminating, or at least narrowing gender differences in access to economic opportunities is widely accepted as a route to economic growth and development (Morrison et. al. 2007). However, gender equality does not imply that women and men are the same. It means that they have equal value and should be given equal treatment. Gender equality can enhance economic growth through a number of channels (Morrison et. al., 2007). First, marginal returns to schooling for women frequently exceed those for men. This suggests that the economic growth impacts of girls' education may be greater than that of boys' education. It implies that

eliminating male-female differentials in schooling attainment would have positive impact on economic growth. In addition, female education has nonmonetary benefits such as increased labour market participation, better child education and health to aid human capital accumulation for future economic growth.

Secondly, gender equality may promote economic growth through increased efficiency in the allocation of production inputs. Barriers to female employment in some occupations can result in inefficient labour allocation. So removing such barriers can yield better allocation of labour and increased output.

1.2 Gender and Labour Market Outcomes

According to the International Labour Organisation (ILO) (2012), the estimated global unemployment rate was 6.2% in 2009 in 6.3% in 2010 and 5.7% in 2007. Table 1.1 shows the number of unemployed globally between 2000 and 2011. The total number of unemployed persons increased from 170.7 million in 2007 to approximately 197.3 million in 2009-2011. While the trend is replicated for male, female, adult and youth, the number of unemployed male are more than the unemployed female.

Table 1.1: Unemployment in the world (millions)

YEAR	2000	2005	2006	2007	2008	2009	2010	2011*
Total	175.5	187.5	180	170.7	176.4	197.7	197.3	197.2
Male	101.8	106.2	103.1	97.6	101.4	115.3	113.2	113.5
Female	73.6	81.3	76.9	73	75	82.4	84.1	83.7
Youth	73.4	78.7	75.5	70.7	71.6	76.3	75.8	74.7
Adult	102	108.8	104.5	99.9	104.8	121.4	121.5	122.5

Source: ILO, Global employment trends 2012* Preliminary estimates.

Table 1.2: Unemployment Rates by sex world and regions (%)

Males	**2000**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011***
World	6.1	5.8	5.6	5.2	5.4	6	5.8	6
Developed economies and European union	6.3	6.6	6.1	5.5	6	8.7	9.1	9
Central and South-Eastern Europe (non-EU) and CIS	10.6	9.4	9.2	8.6	8.6	10.6	9.8	9.4
East Asia	4.9	4.6	4.5	4.3	4.8	4.9	4.7	4.9
South-East Asia and the Pacific	5.1	6	5.7	5.3	5.2	5.2	4.5	4.7
South Asia	4.4	4.2	4.1	3.6	3.5	3.7	3.5	3.7
Latin America and the Caribbean	7.3	6.4	6.1	5.6	5.3	6.4	5.9	6.6
Middle East	8.8	9.3	9	8.4	8.6	8.2	8.1	8.8
North Africa	11.5	9	8.2	8.1	7.5	7.3	7.4	8.8
Sub-Saharan Africa	8.5	7.8	7.7	7.6	7.6	7.7	7.7	7.9
Females								
World	6.6	6.6	6.2	5.8	5.9	6.4	6.5	6.7
Developed economies and European union	7.3	7.3	6.7	6.1	6.2	7.9	8.4	8.5
Central and South-Eastern Europe (non-EU) and CIS	11	9	8.8	8	8.1	9.7	9.2	9.1
East Asia	3.8	3.4	3.3	3.1	3.6	3.6	3.5	3.6
South-East Asia and the Pacific	4.9	7	6.6	5.8	5.5	5.2	5.2	5.4
South Asia	4.6	5.7	4.4	4.3	4.2	4.4	5	5.1
Latin America and the Caribbean	10.8	10.1	9.8	9	8.6	9.6	9.1	9
Middle East	18.9	19.3	19.3	18.6	18.9	18.7	18.5	20
North Africa	20.8	19.6	18	16.1	16	16.5	16.4	20.1
Sub-Saharan Africa	10	9	8.9	8.8	8.8	8.7	8.7	9.1

Source; ILO, Global employment trends 2012,* Preliminary estimates

Table 1.2, illustrates the world and region unemployment rates by sex. The table shows that unemployment rates decreased between 2000 and 2007. However, the trend reversed from 2008 and unemployment hovered around 6% between 2009 and 2011. This is true for developed economies and other regions except East and South Asia, sub-Saharan Africa and North Africa where the rates were almost constant.

According to the 1999 population census the Kenyan population was 28,686,607, males being 49.52% and females 50.48% (Republic of Kenya, 2010). In the 2009 population census (see Republic of Kenya, 2010) the total population was 38,610,097, an increase of 25.70% over the ten-year period. In Kenya, the working age population defined as those aged 15 – 64 years grew to 53.57% of the total population in 2009 from 52.38% in 1999 (see table 1.3). Table 1.3 also shows that majority (66.06%) of the working age population in Kenya is youthful (15– 34 years) and a large number lying in age group 20 – 24.

Persons in working age are either active economically (labour force) or not active. According to the 2005-06 labour force analytical report, the inactive population was 5.3 million persons in addition, 68.2% of the inactive populations were full time students and 8.4% were persons who reported that they did not need work (Republic of Kenya, 2008). The economically active population consists of the number of people employed and self employed plus those unemployed but ready and able to work (Republic of Kenya, 2008). As of 2005-06 Kenya had 12.7 million employed persons and 1.9 million unemployed persons. According to Republic of Kenya (2008) the labour force participation rate, defined as the percentage of the working age population who are economically active was 72.6% in 2005-06. The male labour force participation rate was 75.7% compared 69.7% for females. The highest participation rates were for the age group 35 – 39 and 40 – 44 and the lowest in the age group 15 – 19.

Table 1.3: Kenya's working age population by sex and age 2009 and 1999

	August 2009 Census			August 1999 Census		
Age Group	**Total population**	**Male**	**Female**	**Total population**	**Male**	**Female**
15 – 19	4169543	2123653	2045890	3403178	1681984	1721194
20 – 24	3775103	1754105	2020998	2832918	1328529	1504389
25 – 29	3201226	1529116	1672110	2259503	1094909	1164594
30 – 34	2519506	1257035	1262471	1685922	840692	845230
35 – 39	2008632	1004361	1004271	1419012	695263	723749
40 – 44	1476169	743594	732575	1033491	516502	516989
45 – 49	1272745	635276	637469	838828	419841	418987
50 – 54	956206	478346	477860	684806	344639	340167
55 -59	711953	359466	352487	460016	223691	236325
60 -64	593778	295197	298581	409228	194513	214715
Working age	**20,684,861**	**10180149**	**10504712**	**15026902**	**7340563**	**7686339**

Source; Statistical abstract 2010, 2006

Table 1.4, shows the distribution of unemployment rate in Kenya in 2005/06. The unemployment rate is computed as the percentage of unemployed persons to the total labour force (Republic of Kenya, 2008). The data shows that unemployment is highest in the age group 15- 24 and 20-24. In addition unemployment is higher among females than males. For example, in the rural areas male unemployment rate is 16.8% as compared to 20.3% for female in the age group 20–24. Urban unemployment rates are higher than rural unemployment rates but still, the unemployment rates in the rural areas are not negligible. Gender unemployment gap exists in both rural and urban areas. The female–male gap is widest between the age group 20 -24 in both rural and urban areas.

Table 1.4: Unemployment rate by sex, region and age 2005/06

Age Group	Rural			Urban			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
TOTAL	9.5	10.2	**9.85**	15	25.9	**19.9**	11.2	14.3	**12.7**
15 – 19	18.2	21.2	**19.7**	42.3	47.8	**45.5**	22.4	27.7	**25**
20 – 24	16.8	20.3	**18.55**	30.1	40.8	**35.8**	21	27.3	**24.2**
25 – 29	11.1	12.1	**11.6**	17.3	29.1	**22.8**	13.5	17.9	**15.7**
30 – 34	5.6	7.2	**6.4**	6.8	14.3	**9.8**	6.1	9.2	**7.5**
35 – 39	6.7	5.7	**6.2**	7.2	14.7	**10.6**	6.9	8.3	**7.6**
40 – 44	5.2	4.7	**4.95**	9.2	12.3	**10.5**	6.4	6.4	**6.4**
45 – 49	4.3	5.6	**4.95**	6.3	10.4	**7.8**	4.9	6.5	**5.7**
50 – 54	4.5	3.8	**4.15**	6.4	8.5	**7.1**	4.9	4.4	**4.7**
55 -59	4.8	2.8	**3.8**	4.9	6.2	**5.3**	4.8	3.2	**4**
60 -64	3.9	0.8	**2.35**	5.6	1.4	**4.2**	4.2	0.8	**2.5**

Source; Labour Force Analytical Report 2008

Table 1.5 shows unemployment rates by gender and age from 1998/99 to 2005/06. From the table, it is evident that total unemployment rates decreased from 14.6% in 1998/99 to 12.7% in 2005/06. In the two time periods, unemployment is highest in the age group 15 – 24 after which it gradually decreases with age. However, for the 1998/99 data the decline is observed only for the rates to increase between age group 40 -44 then 60- 64.

The gender unemployment gap is highest between the age groups 15 – 39. This gap, from the table, reduces from the age of 40 – 59. In the 1998/99, dataset the rate is almost double for female as compared to male in all age groups.

Table 1.5: Unemployment rates by age and sex, 1998/99 and 2005/06

	1998/99			2005/06		
Age group	Male	Female	Total	Male	Female	Total
15 – 19	21.80	26.40	24.30	22.40	27.70	25.00
20 – 24	19.00	33.90	27.10	21.00	27.30	24.20
25 – 29	8.20	21.60	15.50	13.50	17.90	15.70
30 – 34	4.80	16.80	10.80	6.10	9.20	7.50
35 – 39	5.00	11.80	8. 40	6.90	8.30	7.60
40 – 44	7.80	10.60	9.10	6.40	6.40	6.40
45 – 49	4.90	12.50	8.20	4.90	6.50	5.70
50 – 54	6.30	11.10	8.70	4.90	4.40	4.70
55 -59	14.20	12.70	13.50	4.80	3.20	4.00
60 -64	7.50	15.70	11.70	4.20	0.80	2.50
TOTAL	9.80	19.30	14.60	11.20	14.30	12.70

Source; 1998/99 Labour Force Survey; Labour Force Analytical Report 2008

Underemployment is another dimension of labour underutilisation. According to Republic of Kenya (2008) a person is underemployed in paid or self employment if they are involuntarily working less than normal duration of work determined for the activity and they are seeking or available for additional work. The length or/and productivity of underemployed person's work is

below their full employment potential. Such workers work shorter hours or engage in lower skilled jobs as an alternative to being openly unemployed (Republic of Kenya, 2008).

In Kenya a person is said to have time related underemployment if they work less than 28 hours a week Republic of Kenya (2008). Wilkins and Wooden (2011) argue that time related underemployment might arise from supply side constraints. In this case, an employee is willing to supply more hours but poor health or child care responsibility (especially for females) makes it difficult. Underemployment may also be due to demand side constraints whereby the worker is unable to get extra hours from the current employer. Of the total working population in the 2005/06, Kenya Integrated Household Budget Survey, over 20% were underemployed. In the 1998/99 Integrated Labour Force Survey only 4.8% of the working population were underemployed. The data for the two time periods portrays a large increase in underemployment rates. Moreover, in 2005/06, 55.4% of the underemployed were female mainly affecting those in rural areas.

Kenya has put in place a number of interventions to improve women status and promote gender equality. Thus is in line with the third Millennium Development Goal; to promote gender equality and empower women, (UN, 2010). Her development blue print, the vision 2030, aims to increase literacy levels of men and women from 64% and 59% respectively to 70% (Republic of Kenya, 2010). Human capital acquired by women is enhanced to match that of men to allow equal access to economic opportunities requiring literacy.

The vision 2030 also mainstreams gender equity in all aspects of society stating that this will be addressed by making fundamental changes in four key areas; opportunity, empowerment, capabilities and vulnerabilities (Republic of Kenya, 2007). The employment Act of 2007 (Republic of Kenya, 2007) declares and defines fundamental rights of employees including matters of discrimination, forced labour and sexual harassment.

According to the Constitution of Kenya (section 27:3) women and men have the right to equal treatment including the right to equal opportunities in political, economic, cultural and social spheres (Republic of Kenya, 2010). There is for example affirmative action to ensure 30% representation of women at all decision-making levels (Republic of Kenya, 2010). There are also specific measures to promote gender parity in various sectors. An example is the Government directive allowing girls to be admitted to public universities with entrance cut off points two points lower than boys (UNDP, 2009).

The government has also developed a gender and development policy which advocates for empowering both men and women to be equal partners in development and for an affirmative action to address gender disparities (Republic of Kenya, 2010). Efforts have been made to integrate women issues in national development and establish institutional mechanisms to promote the development of women. In the public service, affirmative action provides that women constitute 30% of all new recruitment. At the local levels, women leaders are incorporated in important development forums such as Constituency Development Fund and Constituency Bursary Fund (Republic of Kenya, 2008).

Self-employed women or those wishing to start businesses can access credit from the Women enterprise fund set up by government in August 2007. It is one of the flagship projects under the social pillar in vision 2030. This intervention demonstrates government's commitment in realising MDG 3.

The fund provides business support service such as capacity building, marketing, and promotion of linkage and infrastructure support. In the 2009/2010 financial year Ksh. 440 million was received by the fund to lend to women (Republic of Kenya, 2011). In 2011 the fund emerged as the winner of the MDGs Award for outstanding achievement in promoting Gender Equality and Women Empowerment.

1.3 Research Problem

Underutilisation of available labour resources is a major challenge in Kenya. Unemployment remains a major problem and it has a gender dimension. As described in the background, the incidence of unemployment is higher among females than among men. Female unemployment is a key indicator of the extent to which females lack labour market opportunities to generate income (UNDP, 2010). Underemployment among the employed has also increased and has a gender dimension as well. Both unemployment and underemployment are key indicators of labour underutilisation (Sackey and Osei, 2007). They are of concern because of the costs they impose on the individual and the economy in terms of the lost output, economic and psychological costs.

However, despite the documented gender disparities in labour utilization in Kenya, the socio-economic factors associated with these disparities are still unclear. Gender disparities in labour utilization may have several possible explanations. Human capital theory postulates that education of women is positively related to the likelihood of employment (Becker, 1962). The theory of labour market discrimination suggests that employers may be prejudiced against women (Becker, 1957). Furthermore, social, cultural and structural barriers could negatively influence female participation in the labour force (Suda, 2002). Institutional forces like labour unions and minimum wages, and other labour regulations may have greater adverse effect on female than male employment.

1.4 Research Questions

From the foregoing this research paper addressed the following questions:

1. What are the characteristics of the open unemployed by gender?
2. What are the characteristics of the time related underemployed by gender?

3. To what extent can gender difference in education and other individual and family characteristics explain gender difference in unemployment?
4. To what extent can gender differences in education and other individual and family characteristics explain gender difference in underemployment?

1.5 Research Objectives

The main objective of this study was to examine gender differences in unemployment and underemployment in Kenya. Specifically, the study sought to:

1. Analyse determinants of open unemployment by gender
2. Analyse factors behind time-related underemployment by gender
3. Decompose the gender gap in underutilisation of labour to identify factors that explain it
4. Draw policy implications from the study results.

1.6 Justification of the Study

The analysis of gender differences in unemployment and underemployment is justified on several grounds. First, gender differences in labour market outcomes such as unemployment and underemployments are becoming increasingly important indicators of the extent to which females participate in economic activities (Wilkins and Wooden, 2011). In Kenya, there are ongoing policy efforts that can benefit from results of the study, for example the Vision 2030.

Second, previous studies of gender differences in labour market outcomes in Kenya and Africa in general focus on gender wage differentials (e.g. Kabubo-Mariara, 2003; Glick and Sahn. 1997, Schultz and Mwabu. 1998). While Wamuthenya (2010) focuses on gender differences in unemployment in Kenya, the analysis was restricted to urban samples from the 1998/99 Labour

Force Survey. This current study extended the scope to focus on both urban and rural labour markets in Kenya.

Third, the present study used a more recent data set drawn from the 2005-06 Kenya Integrated Household Budget Survey. While the 1998-99 survey was carried out at a time of economic crisis characterized by slow economic growth, the household budget survey was carried out at a time of improved economic situation. Fourth, the study will focus on a second dimension of labour underutilisation - underemployment, which has become important in recent years.

Finally, in order to formulate suitable employment policies, that reflect equality as reflected in Kenya's development agenda, there is need to keep abreast of the gap between the male and female unemployment rates. Besides the policy statements of the Kenyan government like; the Convention on Elimination of all forms of Discrimination against Women (CEDAW).

The vision 2030 Medium Term Plan (MTP) identify the need to address gender concerns for sustainable development by ensuring equity in access to social political and economic opportunities in line with MDG no. 3.

1.7 Outline of the Research Paper

The rest of the research paper is organised as follows; Chapter 2 reviews the theoretical and empirical literature on gender and incidence of unemployment and underemployment. Methods of the study are presented in Chapter 3. Chapter 4 presents the findings while chapter 5 concludes and draws implications for policy recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter presents the review of both theoretical and empirical literature. It focuses on studies about the determinants of unemployment and underemployment for both male and female. Section 2 reviews the theoretical literature while Section 3 reviews the empirical literature. The final section presents an over view of literature review.

2.2 Theoretical literature review

The labour market can be described in terms of labour demand by employers and labour supply by workers, with equilibrium given by the intersection of the labour demand and labour supply (Hirsch, 2007). This is the neoclassical view. However, the labour market does not always behave like the markets of other goods and services. Imbalances between the demand and supply of labour are not only observed and may be persistent leading underutilisation of labour (Wilkins and Wooden, 2011).

Human capital theory is based on neoclassical theory (Aurora, 2002). The theory implies that the productivity of employees depends on the amount invested in them both on and off the job, their motivation and intensity of their work (Becker, 1962). Unemployment among unskilled workers can exceed unemployment among skilled workers since they have more specific human capital (Becker, 1962). There are many unique features of the labour market that constrain or limit the applicability of the neoclassical framework. More especially because the assumptions of the perfect market competition on which it rests are ideal. On the other hand, gender differences in unemployment rates across demographic groups are related to difference in human capital; more

education is associated with lower unemployment (Ashenfelter and Ham 1979). The human capital theory thus predicts higher unemployment for women and men with less human capital accumulation.

Household allocation of investment in human capital may differ by gender. The society may be putting more value on boys than girls. Boys are provided education before girls and expected to be great achievers than girls (Maathai, 2006). Mammen and Christina, (2000) argue that girls might fare badly within households because in poor credit-constrained families, siblings must compete for resources and boys have the advantage, possibly because investments in boys yield higher future returns to parents than do investments in girls.

Gender gap in unemployment may also be due to difference in labour market attachment between men and women. This leads to difference in human capital accumulation (Azmat et. al., 2006). Low levels of human capital make the gap between marginal product when in work and the reservation wage small. In addition, organisations that reduce labour turnover or employ on contract basis may increase the gender gap if women have a higher outflow rate from employment than men; with reduced hiring rate, the gap is magnified. The outflows of women maybe due to family responsibility say young children, special children or the fact that men are supposedly breadwinners and should provide.

Another likely cause of the gap in unemployment and underemployment may be discrimination. This could be done through disparities' in hiring rates between males and females who maybe equally productive. However, with laws passed concerning this matter it may be exercised through differential hiring rates.

Labour market institutions such as trade unions set wages by rules and not through the price mechanism. Wage setting through rules forms part of the labour market legislation, which

constitutes various laws that the government uses to govern the labour market processes and hence determine labour market outcomes. There are laws, for instance, which specify minimum wage rates and govern the process by which trade unions acquire bargaining rights and the procedures by which they and employers engage in collective bargaining (Hirsch, 2007). By not hiring workers with lower levels of capital higher unemployment rates are observed for the less educated and inexperienced. In the Kenyan context, this would mainly affect women especially in the rural areas where the majority of population resides.

Psacharopoulos et al. (1989) argues that supply and demand for labour change during the process of development. In the early stages of industrialization agricultural sector to loses its importance as the main employer of women. Given that industries expand slowly as compared to contraction of agriculture, the result is an initial increase of female unemployment but the situation reverses with the expansion of service and government sectors. Labour shortages lead to higher availability of part-time jobs and higher wages for women giving rise to a U-shaped pattern of female employment in the process of development.

2.3 Empirical literature review

Studies on the issue of unemployment and underemployment have been done sing various methods and estimation procedures. Probit and logit regression are the most commonly used techniques with some employing multinomial logit analysis. Few of these studies, though, do a decomposition of the unemployment or underemployment female-male gap. Most of the studies have focused on European countries with few focusing on Africa. Some of the studies are reviewed below.

Focusing on Ghana, Sackey and Osei (2006) use probit model to study unemployment and underemployment is the human resource underutilisation. They found that in certain industries

there is an association between poverty and underemployment. Rural areas were also found to have high underemployment rates with the type of economic activity also influencing it. Females were more likely to be underemployed. Demographics, firm size and education are found to be the main determinants of unemployment. Higher education is associated with low probability of being unemployed. However the authors do not go further to make a decomposition of the gap between female and male in both unemployment and underemployment.

With reference to Australia, Wilkins, (2006) explores factors associated with underemployment. The individuals labour force status is modelled using multinomial logit models. Employment history, family background and labour market conditions are the characteristics examined. The study finds unemployment and underemployment to have common determinants. Age, education attainment labour market history and disability are the key determinants. Occupation, industry and number of jobs held in the previous year determine probability of underemployment.

The extent to which disparities individual characteristics and structural factors account for the gender gap in unemployment in urban Kenya has been studied by Wamuthenya (2010). Using cross sectional data and Blinder- Oaxaca decomposition technique it was found that the unemployment gap is attributed to composition effect, which accounted for 84% of the gap in 1986 and 81% of the gap in 1998. The most important factor in determining the gender gap appears to be household headship.

Differences in the incidence of household headship between men and women accounting for 71% of the observed unemployment differential in 1986 and 91 per cent in 1998. Vulnerability of women to unemployment is higher than men because of differing personal and human capital endowments, which favour men. Based on the decomposition framework used, about 16 to19 per cent of the employment gap may be directly attributed to gender-based discrimination.

The focus of the study, though, is primarily on the urban areas of Kenya. This may not give a true unemployment gap since rural Kenya experiences substantial unemployment rates. In addition, underemployment is not considered. This is a notable gap since majority of women reside in the rural areas and may be the most affected with underemployment.

Kingdon and Knight (2000) have studied gender and racial difference in the incidence of unemployment in South Africa. Cross sectional data was analysed to examine the extent of employment discrimination. The incidence of unemployment was separated into two: entry into unemployment and duration of unemployment. The raw race-gap in the probability of unemployment is decomposed into explained and unexplained components.

Young uneducated Africans living in homelands and remote areas are particularly vulnerable to unemployment. They found rural unemployment rates to be higher than urban rates which could be explained by historical policies restricting mobility. The very long duration of unemployment among a high proportion (68%) of the unemployed suggested that the demand-side of the labour market is responsible for a good part of the black-white unemployment gap. It was concluded that racial differences in unemployment incidence are not due to the poorer productive characteristics of the African, coloured, and Indian groups as compared to the whites in South Africa.

Azmat et al. (2006) use panel data to estimate a probit model of being unemployed in OECD countries. In many of the European countries, with high unemployment rates, the female unemployment rate was substantially above that of male. The decomposition results suggest that human capital differences and labour market institutions can explain a large part of the gender gap in unemployment rates. Attitudes toward male and female unemployment are key to explaining the gap in countries where unemployment is high. Countries with large gender gap in unemployment rates tend to have larger gender gap in both flows from employment into

unemployment and from unemployment into employment. This may be done by compressing wages or acting to the disadvantage of groups with lower levels of labour market attachment. The impact of human capital differences on unemployment rates dominates.

Robert and William (1997) examine trend in unemployment among white and black men for the period 1880 to 1990.Using probit model and the standard Blinder–Oaxaca decomposition the study examines how racial characteristics have contributed to change in unemployment rate gap. The characteristics include region, industry and education. The findings on decomposition revealed that literacy levels explain the black- white unemployment gap. The racial gap was higher for the literate blacks than the illiterate. The literate black faced discrimination in hiring. Regional demand gaps adversely affected blacks. Regional difference had significance on unemployment gap between 1940 and 1960 mainly due to migration. After 1960 less of the unemployment race gap is explained by the decomposition.

Jana and Terrell (2007) analysed gender difference in unemployment in the Czech Republic, Germany, Poland and Russia. The study was motivated by the observation that in the post communist labour markets unemployment rates increased from zero to double digits. Moreover, gender differences in unemployment varied greatly across the communist countries. The unemployment gap was decomposed into six transition flows between labour market status. A further examination of the flows is done using a gender specific multinomial logit model.

It was found that the higher unemployment rate among women was primarily because women are less likely than men to leave unemployment for a job. This is prevalent for the married women in the Czech Republic. The single are likely to leave employment for unemployment. Age and education are found to be important in explaining flows of both men and women in all these economies. The less educated have high unemployment rates and the direction of flows

being similar for education and age. Supply side factors like unemployment benefits may explain why women stay longer in unemployment. On the demand side employers may prefer men to women employees because hiring women is made costly by labour codes.

A study on correlates of underemployment among business school graduates from a Canadian university has been done by Burke (1997). Anonymous questionnaires were used to collect data on self reported underemployment. The estimation was then done using probit regression analysis. Age, career satisfaction and job involvement of the graduates was found to be highly correlated with underemployment. Female are also found to have high underemployment than male since part time work, where women are mostly engaged, is a precondition for underemployment. Contrary, work situation characteristics were unrelated to underemployment. However the findings may be biased since only one university was considered making the sample non representative.

2.4 Overview of literature review

Gender differences in unemployment may be explained by various factors from theory. One of the explanations given is difference in human capital. From the neoclassical theory, in which the human capital theory is embedded; unemployment is found to be high among those with less human capital. On the other hand, labour market institutions can also influence the rates of unemployment. They include trade unions which fight for minimum wages and other conditions of the employees. This in return curtails demand for labour. Sociological factors are another explanation of the unemployment gap between male and female. The perception of the society towards gender especially in African communities has left women dragging behind in the development agenda. This is reflected from their low human capital acquisition, no right to own property and other cultural factors that discriminate against them.

The probit model has been used in the study of unemployment by various researchers. However, given this method, unemployment among males and females is looked at in a pooled model. The assumption is that factors influencing male unemployment/underemployment also affect female unemployment/underemployment. This is not the case as men and women are different in many individual or family characteristics. Few studies in the African context have decomposed the gap in human resource underutilisation based on gender and race.

This study extended the literature on unemployment in Kenya in several ways. First, unlike the limited evidence available this study considers gender difference in unemployment in both rural and urban Kenya. Second, the study analyses the determinants of underemployment gender gap. Thirdly, the analysis uses the most recent data set collected in the 2005/06 Kenya Integrated Household Budget Survey.

CHAPTER THREE

RESEARCH METHODS AND PROCEDURES

1.0 Introduction

This chapter presents the empirical research methodology used in the study. The first section presents the model specification. Section 2 outlines the method used to decompose the gender unemployment and underemployment gap, Section 3 discusses the data sources and variable definition.

1.1. Model specification

1.1.1 Unemployment

Let U^* denote a latent variable that measures the individuals' propensity to be unemployed. It is assumed to be a linear function of individual family and regional characteristics(X). This can be written as:

$U_i^* = X_i\beta + \varepsilon_i$ ..... *(1)*

$U_i^* = 1$ if $U_i^* > 0$ *meaning the individual is unemployed*

$U_n^* = 0$ if $U_i^* \leq 0$ *meaning the individual is not unemployed*..... *(2)*

However U^* is not observable instead we observe $U=1$ if the individual is unemployed and $U=0$ if the individual is not unemployed.

The probability of being unemployed conditional on individual, regional and family characteristics can be written as in (3) where Φ is the standard normal Cumulative Density Function.

$\Pr(U=1|X) = \Phi(X\beta)$..... *(3)*

1.1.2. Underemployment

Similarly, let M^* denote a latent variable that measures the individuals' propensity to be underemployed. It is assumed to be a linear function of individual family and regional characteristics (Z). This can be written as

$M_i^* = Z_i \mu + \varepsilon_i$ ..... *(4)*

$M_i^* = 1$ if $M_i^* > 0$ *meaning the individual is underemployed*

$M_i^* = 0$ if $M_i^* \leq 0$ *meaning the individual is not underemployed*..... *(5)*

The probability of being underemployed conditional on individual, regional and family characteristics can be written as in (6) where Φ is the standard normal Cumulative Density Function.

$\Pr(M=1|Z) = \Phi(Z, \mu)$ ..... *(6)*

1.1.3 Estimation

A probit regression model was estimated for male and female separately in both unemployment and underemployment and the parameters estimated using maximum likelihood estimation.

1.2 Decomposition of the gender unemployment (underemployment) gap

Using the extended Blinder-Oaxaca decomposition technique (Fairlie, 2003), the gap between male and female unemployment and between male and female underemployment were decomposed. The estimated results from the probit specification used to decompose the gap into that part that is due to group differences in the individual characteristics of the determinants and the other part due to the coefficients of the parameters.

The female-male unemployment gap can be expressed as:

$$U^{*}_{f} - U^{*}_{m} = \Phi(X_f \beta\hat{}_f) - \Phi(X_m \beta_m) \quad (7)$$

Where U^{*}_{f} and U^{*}_{m} are the predicted unemployment probabilities for females and males respectively. X_f and X_m are the vectors of individual characteristics for females and males respectively. Equation (7) was decomposed as

$$U^{*}_{f} - U^{*}_{m} = \Phi(X_f \beta\hat{}_f) - \Phi(X_m \beta_m) = [\Phi(X_f \beta_f) - (X_m \beta_f)] + [\Phi(X_m \beta_f) - \Phi(X_m \beta_m) \quad (8)$$

The first term in brackets corresponds to the part of the gap that is due to group differences in distributions of X, while the second part corresponds to the portion due to differences in the coefficients determining the levels of unemployment.

The predicted underemployment gap is decomposed following the same procedure but represented as M^{*} in place of U^{*}.

$$M^{*}_{f} - M^{*}_{m} = \Phi(X_f \beta_f) - \Phi(X_m \beta_m) \quad (9)$$

Decomposing equation (9) we get;

$$M^{*}_{f} - M^{*}_{m} = \Phi(X_f \beta_f) - \Phi(X_m \beta_m) = [\Phi(X_f \beta_f) - \Phi(X_m \beta_f)] + [\Phi(X_m \beta_f) - \Phi(X_m \beta_m) \quad (10)$$

The decomposition will be done separately for male and female.

1.3 Data Source and Variable Definitions

The study makes use of cross-sectional secondary data from the Kenya Integrated Household Budget Survey for the period 2005/06. The survey was done in all districts of Kenya in 1343 randomly selected clusters and data collected over a twelve month period. 13,340 households were considered in the sample. The data is representative across all provinces. For instance, the households allocated in the largest province, Rift valley, is 3370 with North eastern having 510 households.

Data cleaning and screening was done to come up with the final data that met the requirements of the study. To make the data suit the purpose of this study, we first selected sub sample for the working age population. The task also included selecting only variables that were relevant for the unemployment and underemployment models as well as doing any needed transformation on the same.

The study considered data for the working age population, 15 – 64. Various individual characteristics like age, gender, education and marital status were measured using the data to determine their effects on unemployment gap and underemployment given gender. The variables measured were unemployment and underemployment as the dependent variables. The independent variables include;

Age

The age of an individual is important in determining their labour force status. This depends on the common activities that are expected to take place at a certain age in life. It is expected that male and female of the same age possess different characteristics and responsibilities. Age may also capture work experience. Five dummy variables were created from the working age starting with the age group 15-24, 25-34, 35-44, 45-54 and 55-64. Age group 15-24 was the reference group during estimation.

Marital status

From literature reviewed it is observed that being single or married affects the flows in and out of employment. This was measured to see if the same applies for Kenya. A dummy variable was used where being married took a value of 1 and 0 otherwise.

Gender

One of the possible explanations for unemployment is the sex of the unemployed. From literature

females are expected to fare on poorly than men in employment. This could be because of individual characteristics, discrimination or prejudice. Male took the value of 1 and female 0.

Human capital

Theory states that education levels explain a great deal of the labour force status of an individual. The higher the educational level the lower the unemployment or underemployment. This was measured to find out if the same holds for Kenya. Like age, five dummies were generated according to the highest education level completed. Those who had less than primary education were used as the reference group. The other groups were primary level, secondary, form six and university level.

Shocks experienced

Shocks may have an impact on labour market outcomes. Since shocks are unexpected occurrences, they end up destabilizing a person. Examples include having a family member incapacitated, fire, death, lose of a salaried guardian or birth in a household. This may cause an individual to devote less time to work or move from employment to unemployment. Those who had experienced a shock of any kind took the value of 1 and 0 otherwise.

Non-labour income

The variable was used as a proxy for wealth. This is important in determining human capital acquisition or in influencing the decision to work or not and for how long to work. Presence of non-labour income took the value of 1 and 0 otherwise.

Region (rural or urban)

The area of residence was found to be an important determinant in human resource underutilisation. It is observed that those persons who reside in urban areas have more advantage when it comes to human resource utilization. This may be because of the exposure they get or the fact that urban areas have more work opportunities. Rural residence took the value of 1 and 0 for urban residence.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF RESULTS

4.1 Introduction

This chapter presents the empirical findings of the study; Section 2 presents summary statistics of all variables used. The probit estimates for unemployment model are presented in Section 3 followed by probit estimates for underemployment in Section 4. In Section 4.3, 4.4, and 4.5 results are presented that could explain the gender gaps observed. Section 5 presents the decomposition results for both unemployment and underemployment gender gaps respectively.

4.2 Summary statistics

Table 4.1 shows the summary statistics of the variables used in the analysis of this study. From the table, it is evident that only 12.75% of the active working age population was unemployed. Male unemployed (12.15%) was lower than female unemployed (14.45%). On the other hand, underemployment is prevalent at 13.44% in general and female are the most affected at 17.29% as compared to the male at 11.99%.

A third of the sample of working age population (WAP) was aged 25 to 34 years and the representation of older people declined moving up age groups. Males have more youthful persons whereas females have higher proportions of older individuals (9% aged 55 to 64 as opposed to 6% among male). Nearly a third (31%) of the working age population had primary level of education with a quarter having secondary education; 24% of the WAP had below standard seven primary school education the proportion of which was higher among females than males. Those with post secondary education were less than 1% out of whom males were more. 60% of all individuals in the sample were male and 52% of the male sample married.

Table 4.1: Summary statistics

Variable	Mean Full Sample	Mean Males Sample	Mean Females Sample	Min	Max
Unemployed	.1275549	.1215992	.1445035	0	1
Underemployed	.1344927	.119956	.1729149	0	1
Age group (25-34)	.3028646	.311317	.2897188	0	1
Age group (35-44)	.1864576	.1799537	.1965729	0	1
Age group (45-54)	.1330857	.1313069	.1358524	0	1
Age group (55-64)	.0744524	.0644104	.0900703	0	1
No education (less than std7)	.2446063	.2368062	.2567979	0	1
Primary level education	.3194058	.3279281	.3061511	0	1
Secondary level education	.2325629	.2516104	.2029355	0	1
Form 5and6 level education	.0103855	.0142946	.0043058	0	1
University education	.0023385	.0031075	.0011424	0	1
Gender (1=male, 0=female)	.6086523	1	0	0	1
Marital status (1=married, 0=other)	.5212777	.5019014	.5515719	0	1
Non-labour income (1=presence, 0=other)	.1244197	.1173513	.135413	0	1
Shock effects (1=affected, 0=other)	.5288009	.5024578	.5697715	0	1
Region (1=rural, 0=urban)	.6474776	.6285101	.6769772	0	1
Regions of residence with Nairobi being reference					
Central	.1510024	.1398949	.1682777	0	1
Coast	.0622098	.0632239	.0606327	0	1
Eastern	.2277245	.232273	.2206503	0	1
North Eastern	.008838	.0109046	.0056239	0	1
Nyanza	.1859761	.1815357	.1928822	0	1
Rift Valley	.261357	.2791118	.2337434	0	1
Western	.0783383	.069778	.091652	0	1

About 53% had experienced shocks of various types (such as famine, death, a recent birth et cetera) a finding that was higher among female sub-sample. Rural residents were more

represented than urban residents especially among the females. The distribution of the sample by province of residence was such that, 15% came from Central province, 6% Coast, 22.8% Eastern, 0.08% North Eastern, 19% Nyanza, 26% Rift Valley and 7.8% Western provinces.

4.3 Determinants of Unemployment and Underemployment

Two probit estimations were done: the first one for the underemployment model and the second for the unemployment model but using similar independent variables. Results are displayed in tables 4.2 and 4.3 respectively.

4.3.1 Probit Estimates for the Determinants of Unemployment

The log-likelihood values of the estimated model are -4381.38, -3071.87 and -1208.79 for the pooled, males and female models respectively. The log-likelihood ratio test shows that the null hypothesis that all the regression coefficients of explanatory variables are zero is rejected. The p values show that the test statistics are significant at 1%. This shows that the model with predictors fits the data better than the intercept only model.

From the pooled model, gender has a negative coefficient (-0.005) implying that male have a lower chance than female of being unemployed. Similar findings have been reported by Wamalwa (2009) and Wamuthenya (2010). The coefficients of age dummies are found to be significant determinants of unemployment at 1% in the pooled and female model.

Table 4.2: Marginal effects of estimated coefficients for the unemployment model

	Full Sample	Male Sample	Female Sample
15-24 being the reference age group			
Age group (25-34)	-0.0310031***	-.006081	-0.07828***
Age group (35-44)	-0.05859***	-.024131*	-0.10839***
Age group (45-54)	-0.06979***	-.0460183***	-0.09542***
Age group (55-64)	-0.07523***	-.0554302***	-0.10992***
Effect of education with "No Education" being the reference category			
Primary level education	-0.00163*	.0143238**	-0.05935***
Secondary level education	0.042864***	.0212519***	0.068506***
Secondary forms 5and 6	0.079283***	.0490234*	0.162322**
University education	-0.06979**	-	0.113674**
Gender (1=male, 0=female)	-0.00502	-	-
Marital status (1=married, 0=other)	-0.10192***	-.1230925***	-0.07503***
Non-labour income	-0.0348***	-.0182342**	-0.06194***
Shock effects (1=affected, 0=other)	0.051587***	.065055***	0.014775**
Region (1=rural, 0=urban)	.039673***	.0305258***	0.063916***
Regions of residence with Nairobi being reference			
Central	-0.03877***	-.0769109***	0.043474*
Coast	0.079098***	.0704818**	0.018242
Eastern	-0.02418*	-.0381912**	-0.02548
North Eastern	0.345287***	.2652813***	0.502051***
Nyanza	-0.00716	-.0203327	-0.01763**
Rift Valley	0.020929	-.0052228	0.063658**
Western	0.037158***	.01291	0.058825*
N	12735	9431	3264
LR chi-square	907.75***	798.19***	287.16***
R-squared	0.0939	0.1150	0.1062
Log Likelihood	-4381.3761	-3071.8789	-1208.7881

***, **, * denote that significance is established at 1% level, 5% level and 10% level respectively.

The male model has mixed significance[1]. This is consistent with findings of Jana and Terrell, (2007). The magnitude of the change is observed to increase with age both in the pooled and male model while the female model has mixed magnitudes. For example age group 45-54 where the marginal effects are 0.031, 0.0061 and 0.078 for the pooled male and female models respectively. This finding is more pronounced among male than among female active working age population. This means that age decreases unemployment and that it differs by gender whereby decrease in likelihood of unemployment is higher among older male active working age population.

In the pooled model, education levels have mixed effects on chances of unemployment. Relative to lack of education, primary education reduces the probability of unemployment by 0.002. Secondary level education increases the probability of unemployment by 0.04 and advanced (A) levels increase probability of unemployment by 0.08 while university education reduces unemployment by 0.07. The effects are the same across different gender but at university level, the decline in probability of unemployment is high at 0.11 than in the total sample. These results are in line with the human capital theory and the findings of Azmat et al., (2006), Sackey and Osei, (2006), Kingdon and Knight, 2000.

Marital status is found to be a significant determinant of unemployment at 1% in the three models and it has a negative coefficient. In the total sample, male and female models, the probability of unemployment, for the married, is 0.10, 0.12 and 0.07 respectively. Being married therefore decreases unemployment with a high magnitude for females than males.

Holding other factors constant, receipt of non-labour income is associated with lower probability of unemployment. Significantly, Probability of unemployment is reduced by 0.034. The decrease

[1] No coefficient was estimated for University dummy variable in male sample due to lack of observations.

in probability of unemployment among males is 0.018 while among females it is 0.006. It is likely that, presence of different revenue streams may provide households with better education and help them open up opportunities for employment. Such prospects are lower for people with a single labour income source. This favours males than females (Mammen and Christina, (2000).

The effect of shocks is to increase the probability of unemployment; this time by 0.51.This increase is significant in all the models at 1% for pooled and male and 5% for female. The presence of a shock increases the probability of being unemployed by 0.065 for male and 0.015 for female. It is possible that female commune under strong social protection systems such as mutual groups, hence mitigating against negative shocks.

Holding other factors constant, the region of residence significantly affects unemployment, this was presented by previous studies like Kingdon and Knight, 2000. Rural residents experience 0.039 higher probability of unemployment as compared to urban residence. Male in rural areas have lower probability of unemployment than female rural residents (that is 0.031 compared to female 0.064).

The province of residence gives mixed significance in determining unemployment. Residence in central province has 1% significance in the pooled and male model with negative coefficients. Although the probability of unemployment in Central province is lower than in Nairobi by 0.039. Male have a much lower probability, 0.077, of being unemployed. On the other hand females in Central province have a 0.043 higher probability of being unemployed. Living in the Coast, North Eastern and Western provinces increases the unemployment probability in all the models but levels of significance are mixed coefficients with the pooled and females showing probability of unemployment increases by 0.029 and 0.0636 respectively. Male, on the other hand, have a 0.52 lower probability of unemployment.

4.3.2 Probit Estimates for the Determinants of Underemployment

The table 4.3 reports the marginal effects of underemployment after probit regression. The log-likelihood values of the estimated model are -1408.03, -3054.90 and -4520.51 for the pooled, males and female models respectively. The log-likelihood ratio test statistic shows that the null hypothesis that all the regression coefficients of explanatory variables are zero is rejected. Again the pooled model fits the data better than the restricted model.

Gender is significant at 1% as a determinant for underemployment (see column 1). Being a male decreases the probability of underemployment by 0.0528.The pooled, male and female models have a log-likelihood ratio test of 618.12, 385.3 and 278.83 respectively significant at 1%. Again the pooled model fits the data better than the restricted model.

Age groups 25 to 34 and 35 to 44 have 0.049 and 0.0065 higher probability of underemployment respectively in the pooled model compared to 15-24 year olds. Age effects are significant in the separate regressions. Male probabilities of being underemployed decline from the age group 35- 44 to the end of the working age. On the other hand female underemployment increases with age from the entry level at 0.061 by 0.11 in the 55-64 age group and is significant at 1% in all age groups. Thus while underemployment increases with age among female it increases with age only among young males. It could be that as female grow older they have greater family responsibilities which reduces their working time.

Male with primary level education have lower probability of underemployment (0.025) as opposed to the increase (by 0.0596) in underemployment rates among female. Hence female have a higher chance of underemployment. Underemployment probability is lower among those with secondary level education by 0.0544 in the pooled model, 0.0428 in the model for male and 0.0698 in the female model.

Table 4.3: Marginal effects of estimated coefficients for underemployment model

Independent Variable	MODEL		
	Both gender	Male	Female
Age group (25-34)	0.0409209***	0.032782***	0.060157***
Age group (35-44)	0.006586	-0.02645***	0.10406***
Age group (45-54)	-0.0074828	-0.02756***	0.070842***
Age group (55-64)	-0.0030959	-0.01982*	0.114622***
Primary level education	-0.0074122	-0.02489***	0.059675***
Secondary level education	-0.0544054***	-0.04283***	-0.06981***
Form 5and6 level education	0.0025006	-0.00531	0.018156
University education	-0.0194141	-0.02513	-0.02336
Gender (1=male, 0=female)	-0.0582231***		
Marital status (1=married, 0=other)	-0.003567	-0.00714	0.018926
Non-labour income	-0.0349954***	-0.00929	-0.09379***
Shock effects (1=affected, 0=other)	0.0446237***	0.049553**	0.03696***
Region (1=rural, 0=urban)	0.0725714***	0.056913**	0.106085***
Central	0.011301	0.032886	-0.05241*
Coast	0.0454637**	0.037695	0.046156
Eastern	0.0713806***	0.080368***	0.039078
North Eastern	0.127185**	0.155603**	0.038353
Nyanza	0.0803964***	0.091913***	0.033706
Rift Valley	-0.0190592	-0.01584	-0.03704
Western	0.122069***	0.11586***	0.112999**
N	12220	8915	3305
L R statistics	618.12***	385.30***	278.83***
Pseudo R-squared	0.0640	0.0593	0.0901
Log Likelihood	-4520.5182	-3054.9016	-1408.0308

***, **, * denote that significance is established at 1% level, 5% level and 10% level respectively

This is consistent with the findings of Wilkins (2006) and Sackey and Osei (2006).The effect of education on underemployment is not significant above secondary school level but it is seen to have a negative relationship with underemployment.

Marital status reduces the probability of underemployment for the male as well as in the pooled model. Married females have a 0.0189 higher probability of being underemployed. This could be explained (as earlier mentioned) by having to take up more house hold duties once they get married.

The study used receipt of non labour income, as a proxy for wealth in a household, to ascertain its effects on the decision to work and for how long or not to work. Findings revealed, holding other factors constant, that receipt of non-labour incomes decrease the probability of being underemployed by 0.0349, 0.0092 and 0.0937 in the pooled, male and female models respectively. It is likely that, wealth would provide household members with better education and other opportunities to enable them get more stable employment opportunities. Male may still hold on to full employment, even with other income, due to their responsibility to provide for their households.

The effect of shocks is to increase underemployment. This increase is significant in all the models estimated. The presence of a shock increases the probability of being underemployed by 0.0446 for both gender 0.0495 for male and 0.0369 for female. Again this lower probability for female may be explained by the fellowship women have in social groups that help them adapt better to shocks.

The region of residence significantly affects underemployment, assuming all other factors constant. For both gender, persons in rural areas have a 0.0725 higher likelihood of being underemployed as compared to 0.0569 and 0.1069 higher chances of being underemployed among male and female, respectively. As such, rural residence predisposes one to higher underemployment.

Generally underemployment increases in all provinces, ceteris paribus, except for female in central decreasing by 5.24% and pooled male and female models in the Rift Valley by 1.90% 1.58% and 3.70% respectively.

4.4. Decomposition of the gender unemployment gap and underemployment gap

After the probit estimation, the Fairlie decomposition technique was used. The technique computes the difference in predicted probability of the dependent variable occurring between the two groups, male and female, and quantifies the contribution of group differences in the independent variables to the outcome differential.

Table 4.4 presents the decomposition results based on the male coefficients. This means that if the females were given the characteristics of males we are interested to know what the unemployment or underemployment probability will be.

The female have a higher probability of unemployment at 0.14522 as compared to males at 0.12005. the male-female gap in predicted probability of unemployment is 0.02516 and the total explained males-females gap of unemployment is 0.02235 (88.8% of the gap).This implies that individual characteristics are key in explaining the gender gap in unemployment. Only 12.2% of the gap is unexplained and therefore determined by difference in the coefficients.

There is mixed significance of variables in explaining the gender gap in unemployment. Age group level of education, marital status, region of residence, non labour income, province of residence and effects of shocks are found to be significant at different levels.

Higher education levels, non- labour income, and region of residence are the explanatory variables that reduce the unemployment gender gap. Whereas marital status, effects of shocks, residing in all other provinces except North-Eastern increases the gap. Education levels give mixed results in explaining the gap. Secondary education increases the gap while primary level

and post secondary education reduces the gap. This may imply that for males and female jobs that require less educational skill gives them equal opportunity.

Like in the unemployment case, the female predicted probability of underemployment is higher (0.1779) than that of male (0.1187). The difference in the gap explaining predicted probability of underemployment between male and female is 0.05923 with the total explained males-females gap of underemployment at 0.0032 (5.41% of the gap).

Lower age groups, low education levels, non-labour income, region of residence and residing in some provinces (i.e. Central, Eastern and North Eastern) reduces the gender underemployment gap. However, marital status, higher levels of education, age groups above 45, effects of shocks and residing in the provinces not mentioned earlier increases the underemployment gap.

Table 4.4 Gender unemployment and underemployment gap

Independent Variables	MODEL	
	Unemployment (Male coefficients)	Underemployment (Male coefficients)
Age group (25-34)	9.85e-05	-0.00014
Age group (35-44)	-0.00041***	-0.00035**
Age group (45-54)	0.00061***	0.001061**
Age group (55-64)	0.000867***	0.000175**
Primary level education	-0.00048*	-8.5e-05
Secondary level education	0.001602***	-0.00212***
Form 5and6 level education	-0.00061*	0.000103
University education	0	0.000081
Marital status(1=married, 0=other)	0.008645***	0.000453
Non-labour Income	-0.00109**	-0.00041
Shock effects(1=affected, 0=other)	0.009313***	0.003997***
Region (1=rural, 0=urban)	-0.00401***	-0.00553***
Central	0.002786***	-0.00054
Coast	0.001759***	0.000338*
Eastern	0.001376**	-0.00041
North Eastern	-0.00034	-3.95e-06
Nyanza	0.001867	0.001577*
Rift Valley	0.00018	0.000902
Western	0.000238	0.004088**
Total explained gap	0.02235366	0.00320734
gap in the probability (G=1- G=0)	0.02516991	0.05923587
Probability (G=1)	0.12005068	0.11867639
Probability (G=0)	0.14522059	0.17791225

G=1, G=0 denotes male and female respectively, ***, **, * denote that significance is established at 1% level, 5% level and 10% level respectively

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATION

5.1 Summary of findings and conclusion

The national unemployment rate in Kenya dropped from 14.6% in the 1998/99 Labour Force Survey to 12.7% in the year 2005/06 Kenya Integrated Household Budget Survey. However, specific groups (youth and women) have high unemployment rates underemployment on the other hand increased from 4.8% in the 1998/99 Labour Force Survey to 20% in the Kenya Integrated Household Survey. The main objective of this study was to examine gender differences in unemployment and underemployment in Kenya. Specifically, the study sought to analyse determinants of open unemployment and those of time-related underemployment by gender. Further a decomposition of the gender gaps was done to identify factors explaining it.

The method of probit regression analysis was used to estimate a non linear probability model. This is owing to the fact that the dependent variables considered are binary. The estimation was done for the pooled model, with male and female observations pooled, then a separate estimation for male and female observations done.

Findings from the study show that there is higher unemployment and underemployment among females than male. Age, education level, marital status, non-labour income, shocks, region and province of residence are significant determinants of either unemployment, underemployment or both. Age, marital status and non-labour income were found to reduce unemployment. Effects of shocks and region of residences increases unemployment. Education level completed, and province had mixed results in determining unemployment. Marital status and non-labour income

reduces underemployment. On the other hand, effects of shocks and region of residence increase underemployment. Education levels and province of residence shows mixed results.

The predicted probability of unemployment after decomposition was 0.12 for male and 0.14 for female. Underemployment had 0.11 as predicted probability for male and 0.17 for female. The decomposition results show 88.8% of the unemployment gap as explained and 5.41% of the underemployment gap explained. The key contributors to reducing the gap are region of residence, non-labour income and education level. Whereas marital status, effects of shocks, age and province of residence increases the gap.

5.2 Policy recommendations

From the decomposition results region of residence (rural or urban) reduces the male-female gap in unemployment and underemployment. With the devolved government structure, passed in the new constitution, the government should endeavour to make it work so that regional difference would not be a reason for human resource underutilisation.

Non-labour income also reduces the male-female gap in both unemployment and underemployment. The government should therefore encourage wealth creation by providing financial and infrastructural reinforcement to her citizens. This could be through empowering the community financially, creating markets for their output and good road infrastructure especially in rural Kenya.

Effects of shocks were found to be significant in increasing the female-male gap in the probability of unemployment and underemployment. The government should intervene to avert Some of this shocks like lower crop yield due to floods or crop disease. In this case the areas which are prone to floods, for instance, could have dams build to harvest water during heavy rain

seasons and use it for crop production during the dry season. Proper research on crop disease and pest control should be funded by the government.

Having secondary education reduces the male-female unemployment and underemployment gap. This would mean that if more female attained secondary level education they have a better chance to compete with their male counterparts. The government can thus create jobs that target such levels of education at the entry level and encourage higher educational attainment. This can be done by bonding the sponsored employees for a certain period of time after completion of the funded programme.

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APPENDIX

Table 1: Probit Coefficients for Unemployment (Full Sample)

unemployment	Coef.	Std. Err.	Z	P>z
Age group (25-34)	-0.178724	0.036696	-4.87	0
Age group (35-44)	-0.382063	0.053997	-7.08	0
Age group (45-54)	-0.495079	0.065601	-7.55	0
Age group (55-64)	-0.609842	0.114927	-5.31	0
No education (less than std7)	-0.009045	0.037362	-0.24	0.809
Primary level education	0.225544	0.039436	5.72	0
Secondary level education	0.359255	0.105371	3.41	0.001
Form 5and6 level education	-0.562997	0.458475	-1.23	0.219
University education	-0.027651	0.034039	-0.81	0.417
Gender (1=male, 0=female)	-0.578222	0.038458	-15.03	0
Marital status (1=married, 0=other)	-0.214355	0.049519	-4.33	0
Non-labour income (1=presence, 0=other)	0.281373	0.032285	8.72	0
Shock effects (1=affected, 0=other)	0.219843	0.032739	6.72	0
Central	-0.239272	0.087608	-2.73	0.006
Coast	0.363065	0.093037	3.9	0
Eastern	-0.141065	0.085739	-1.65	0.1
North Eastern	1.138142	0.144144	7.9	0
Nyanza	-0.04044	0.086657	-0.47	0.641
Rift Valley	0.112776	0.082474	1.37	0.171
Western	0.186522	0.095556	1.95	0.051
constant	-1.05662	0.087758	-12.04	0

Table 2: Probit Coefficients for Unemployed (Male Sample)

unemployment	Coef.	Std. Err.	Z	P>z
Age group (25-34)	-0.036795	0.0444205	-0.83	0.407
Age group (35-44)	-0.1548511	0.0655754	-2.36	0.018
Age group (45-54)	-0.3245404	0.0780787	-4.16	0
Age group (55-64)	-0.4391805	0.1248129	-3.52	0
No education (less than std7)	0.084226	0.0432396	1.95	0.051
Primary level education	0.1234942	0.0483802	2.55	0.011
Secondary level education	0.2525947	0.121659	2.08	0.038
Form 5and6 level education	0	(omitted)		
University education	-0.7296127	0.0476268	-15.32	0
Gender (1=male, 0=female)	-0.1162509	0.0596852	-1.95	0.051
Marital status (1=married, 0=other)	0.3764586	0.0390094	9.65	0
Non-labour income (1=presence, 0=other)	0.1839827	0.0393835	4.67	0
Central	-0.6220497	0.1168839	-5.32	0
Coast	0.3486918	0.1158376	3.01	0.003
Eastern	-0.2514624	0.1098104	-2.29	0.022
North Eastern	0.9641243	0.1682709	5.73	0
Nyanza	-0.1289577	0.1094724	-1.18	0.239
Rift valley	-0.0316163	0.1059079	-0.3	0.765
Western	0.0742354	0.1207826	0.61	0.539
constant	-1.032284	0.1099882	-9.39	0

Table 3: Probit Coefficients for Unemployed (Female Sample)

unemployment	Coef.	Std. Err.	Z	P>z
Age group (25-34)	-0.4303938	0.0704474	-6.11	0
Age group (35-44)	-0.7378917	0.1049162	-7.03	0
Age group (45-54)	-0.6779238	0.1327354	-5.11	0
Age group (55-64)	-1.054199	0.3425969	-3.08	0.002
No education (less than std7)	-0.3180516	0.0783125	-4.06	0
Primary level education	0.3229226	0.0734765	4.39	0
Secondary level education	0.6020526	0.2321235	2.59	0.009
Form 5and6 level education	0.4482453	0.6067871	0.74	0.46
University education	-0.4028024	0.0717647	-5.61	0
Gender (1=male, 0=female)	-0.3612137	0.0926365	-3.9	0
Marital status (1=married, 0=other)	0.0738618	0.0616986	1.2	0.231
Non-labour income (1=presence, 0=other)	0.3114299	0.0622735	5	0
Central	0.2020782	0.1393798	1.45	0.147
Coast	0.087146	0.1745912	0.5	0.618
Eastern	-0.132891	0.1448072	-0.92	0.359
North Eastern	1.48999	0.306398	4.86	0
Nyanza	-0.0916945	0.1554856	-0.59	0.555
Rift Valley	0.2927314	0.1370277	2.14	0.033
Western	0.2591804	0.1640713	1.58	0.114
constant	-0.968002	0.14457	-6.7	0

Table 4: Probit Coefficients for the Underemployed (Full Sample)

underempemployed	Coef.	Std. Err.	z	P>z
Age group (25-34)	0.198	0.0397	4.98	0
Age group (35-44)	0.0327	0.0505	0.65	0.517
Age group (45-54)	-0.038	0.0575	-0.66	0.506
Age group (55-64)	-0.016	0.0802	-0.2	0.845
No education (less than std7)	-0.038	0.0352	-1.07	0.286
Primary level education	-0.293	0.041	-7.15	0
Secondary level education	0.0125	0.1082	0.12	0.908
Form 5and6 level education	-0.104	0.2426	-0.43	0.669
University education	-0.272	0.0323	-8.41	0
Gender (1=male, 0=female)	-0.018	0.0355	-0.5	0.614
Marital status (1=married, 0=other)	-0.191	0.0468	-4.09	0
Non-labour income (1=presence, 0=other)	0.2221	0.0321	6.91	0
Shock effects (1=affected, 0=other)	0.3652	0.0326	11.21	0
Central	0.0555	0.0965	0.58	0.565
Coast	0.2061	0.1035	1.99	0.046
Eastern	0.3246	0.0934	3.47	0.001
North Eastern	0.4944	0.186	2.66	0.008
Nyanza	0.3545	0.0941	3.77	0
Rift Valley	-0.098	0.0933	-1.05	0.292
Western	0.4867	0.1023	4.76	0
constant	-1.363	0.0967	-14.09	0

Table 5: Probit Coefficients for Underemployed (Male Sample)

underemployed	Coef.	Std. Err.	z	P>z
Age group (25-34)	0.1749918	0.0483224	3.62	0
Age group (35-44)	-0.1552915	0.0655052	-2.37	0.018
Age group (45-54)	-0.1639919	0.0713176	-2.3	0.021
Age group (55-64)	-0.1172404	0.0981421	-1.19	0.232
No education (less than std7)	-0.1420612	0.0428808	-3.31	0.001
Primary level education	-0.2520707	0.0500923	-5.03	0
Secondary level education	-0.0298886	0.1193095	-0.25	0.802
Form 5and6 level education	-0.1530418	0.2725359	-0.56	0.574
University education	-0.0393764	0.0460975	-0.85	0.393
Gender (1=male, 0=female)	-0.0526211	0.0567716	-0.93	0.354
Marital status (1=married, 0=other)	0.2673976	0.0392663	6.81	0
Non-labour income (1=presence, 0=other)	0.3163616	0.0400425	7.9	0
Central	0.1687917	0.1338059	1.26	0.207
Coast	0.1879708	0.1435572	1.31	0.19
Eastern	0.3906785	0.1302688	3	0.003
North Eastern	0.6154391	0.2236869	2.75	0.006
Nyanza	0.4306655	0.1304559	3.3	0.001
Rift Valley	-0.0895619	0.130241	-0.69	0.492
Western	0.4956891	0.1405158	3.53	0
constant	-1.598455	0.1327732	-12.04	0

Table 6: Probit Coefficients for Underemployed (Female Sample)

underempemployed	Coef.	Std. Err.	z	P>z
Age group (25-34)	0.2421067	0.0740309	3.27	0.001
Age group (35-44)	0.3899126	0.0837846	4.65	0
Age group (45-54)	0.2682786	0.1040497	2.58	0.01
Age group (55-64)	0.4054545	0.1494272	2.71	0.007
No education (less than std7)	0.2397444	0.066146	3.62	0
Primary level education	-0.3134858	0.0748962	-4.19	0
Secondary level education	0.0736224	0.2723404	0.27	0.787
Form 5and6 level education	-0.1036159	0.5542921	-0.19	0.852
University education	0.0790673	0.0591178	1.34	0.181
Gender (1=male, 0=female)	-0.4679037	0.0859332	-5.44	0
Marital status (1=married, 0=other)	0.1566593	0.0585882	2.67	0.007
Non-labour income (1=presence, 0=other)	0.4401633	0.0594915	7.4	0
Central	-0.2397357	0.1464931	-1.64	0.102
Coast	0.1801691	0.154805	1.16	0.244
Eastern	0.1573798	0.1415655	1.11	0.266
North Eastern	0.1499337	0.3669994	0.41	0.683
Nyanza	0.1351183	0.1463475	0.92	0.356
Rift Valley	-0.1624234	0.1398964	-1.16	0.246
Western	0.4040823	0.1561819	2.59	0.01
constant	-1.456442	0.1466912	-9.93	0