The Urban-Rural Unemployment Gap in Kenya

BY
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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.

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DEDICATION

This research paper is dedicated to my Mum Lydia Kirika, Grandma Joyce Macharia and Grandpa Titus Macharia. Thanks a lot guys for your support, love, prayers and the sacrifice you have made to my academic life.

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ABBREVIATION AND ACRONYMS

AFDB	African Development Bank
FPE	Free Primary Education
ICPS	Inter-Censal Population Survey
ILO	International Labour Organization
KKV	Kazi Kwa Vijana
OECD	Organization of Economic Cooperation and Development
SSA	Sub Saharan Africa
UNDP	United Nations Development Programme
USA	United States of America

ABSTRACT

Open unemployment in Kenya is relatively high among urban residents compared to rural residents. This study examines urban-rural differences in the incidence of unemployment in Kenya. The study used cross sectional data from the Kenya Integrated Household Budget Survey 2005/06 to conduct econometric analysis of unemployment based on probit model. Further, using Fairlie (2003) decomposition technique, the study estimated the portion of the urban-rural unemployment gap due to differences in the regional distribution of observed individual and household characteristics and the portion due to differences in the returns (penalty) to observable characteristics.

Separate probit results of urban and rural areas show age, gender, marital status, household-headship and housing tenure to have negative and significant effects on the probability of unemployment. However, age, gender, marital status and household head have a stronger effect on the probability of unemployment in urban areas than in rural areas while housing tenure has a stronger effect on unemployment probability in rural areas than in urban areas. Household size and form four secondary education positively and significantly affect the probability of unemployment in urban areas. Additionally, the effect of secondary education and household size on the probability of unemployment is stronger in urban than in rural areas.

Chronic illness, primary education and university education are observed to have mixed and insignificant effects on the probability of unemployment in urban and rural areas. Form six secondary education and college education are only significant determinants of unemployment in urban areas. However in both urban and rural areas they negatively affect unemployment probability.

Probit results also indicated that urban residents were more likely than rural residents to be unemployed even after controlling for differences in individual and household characteristics. Decomposition results reveal that if urban and rural residents had the same distribution of individual and household characteristics, the urban-rural unemployment gap would be 31% larger. Regional differences in returns to observable individual and household characteristics accounted for 131% of the urban-rural unemployment gap. Differences in regional distribution of housing tenure and form four secondary education attainment were observed to respectively explain 20% and 11% of the urban-rural unemployment gap. Consequently, to reduce the unemployment gap, policy interventions should focus on promoting home ownership and vocational training for persons with form four secondary education.

CHAPTER ONE: INTRODUCTION

1.1 Background to the study

Unemployment in Africa particularly among youth and women is high (AFDB et al. 2012). In the year 2012, the unemployment rate defined as the ratio of unemployed to the labour force was 8.4% among females and 11.9% among the youth in SSA (ILO, 2014a). In North Africa, the unemployment rate in 2012 was estimated to be 17.2% among females and 23.8% among the youth (ILO, 2013). Unemployment in Africa is also relatively high among urban residents. In some African countries urban unemployment rate is 6 times higher than rural unemployment rate (AFDB et al. 2012).

The ILO defines unemployed persons as: *"Those above a specific age who during a reference period were: Not in paid employment or self-employment (not even for an hour) or are currently available for paid employment or self-employment during the reference period, or are seeking work by taking specific steps in a specified recent period to seek paid employment or self-employment"* (ILO, 1982, p. 4).

High unemployment rate is a concern for several reasons. First, unemployment is associated with social problems such as crime, drug abuse, and violence (O'Higgins, 1997; ILO, 2005). For example, high youth unemployment is partly blamed for the 2007/2008 Post Election Violence in Kenya (Waki Commission, 2008), and rising social disorder in Nigeria (Obumneke, 2012). Second, unemployment can have serious "scarring effect" on youth. Young persons who suffer long duration of unemployment tend to have higher risk of being unemployed as adults, poor physical health, low future wages and slow career progress (ILO, 2010; O'Higgins, 1997).

Third, unemployment is associated with costs and wastage of resources (ILO, 2013). On the one hand, individuals incur income loss, resulting in reduced consumption and possibly poverty. On the other hand, governments loose income tax revenue that the unemployed could have paid if they were working. In addition, the government may spend more on welfare. Moreover, public resources spent on education and health can fail to enhance productivity for lack of employment opportunities for a significant proportion of the labour force.

The ILO estimated the number of unemployed persons in the world in year 2013 to be 202 million, 5 million more than in year 2012 (ILO, 2014a). The largest increase in unemployment was in South and East Asia (45%) followed by SSA (18%). The smallest increase (1%) was in Latin America. The global unemployment rate was approximately 6% in year 2013. North Africa had the highest unemployment rate (12.2%) followed by Middle East (10.9%) while South Asia had the lowest unemployment rate (4.0%). The unemployment rate was 7.6% in SSA.

On the face of it, unemployment rate in SSA is not high compared to other regions of the world. However, national unemployment rates mask large disparities in unemployment within countries. Table 1 shows how unemployment is distributed between rural and urban areas in selected African countries based on available surveys. Uganda, Tanzania, Ethiopia, Rwanda, Kenya and Botswana, had higher urban unemployment rates than rural unemployment rates. Tanzania had the highest urban (Dar es Salaam) unemployment rate (31.5%) while Rwanda had the lowest urban unemployment rate (7.7%). Among the 6 countries, Botswana had the highest rural unemployment rate (13.5%) while Ethiopia had the lowest rural unemployment rate (1.2%). In contrast, rural unemployment rate was higher (24.2%) than urban unemployment rate (15.2%) in Nigeria.

Table 1: Urban and Rural unemployment rate in selected African Countries

Country	Urban Unemployment rate (%)	Rural Unemployment rate (%)	Source of Estimates
Uganda	12	1.7	Republic of Uganda (2003): Report on the Labour Force Survey
Tanzania	31.5****, 16.5**	7.5	Republic of Tanzania(2007): Integrated Labour Force Survey – 2006 Analytical Report
Kenya	19.9	9.8	Republic of Kenya (2008a): Labour Force Analytical Report.
Ethiopia	16.7	1.2	Federal Democratic Republic of Ethiopia (2012): ICPS 2012 Report
Rwanda	7.7	2.5	National institute of Statistics of Rwanda (2014): Thematic Report Labour Force Participation.
Botswana	16.6***, 23.5*	13.5	Botswana Central Statistics Office (2008): 2005/06 Labour Force Report
Nigeria	15.2	24.2	Nigeria National Bureau of Statistics (2010): National Manpower Stock and Employment Generation Survey

Notes:

1. The unemployment rates for Rwanda are calculated for persons of age 16 to 64 years while in the other six countries its persons between ages 15 and 64 years.

2. **** Dar es Salaam unemployment rate, ***cities and towns unemployment rate, ** other urban areas unemployment rate, *urban villages unemployment rate.

1.2 Population and Labour Force Participation Patterns in Kenya.

According to the 2009 population census, Kenya's population was approximately 38.6 million persons up from 28.6 million in the 1999 Census (Republic of Kenya, 2001; Republic of Kenya, 2010). This is 34.5% increase over the 10 year period. The urban population in 1999 was close to 10 million (34.8% of total population) and rural population was 18.6 million (65.2%). By 2009 urban population was about 12.5 million (32.3%) and rural population was 26.1 million (67.7%). So urban population increased by 24.9% and rural population increased by 39.8% over the 10 year period.

Table 2 shows that slightly over half of the population were of working age (persons aged between 15 and 64 years). Within a period of 10 years the total working age population increased by 37.7%. Adult (Persons who are 35 to 64 years) and youth (persons between ages

15 and 35 years) working age population increased by 45% and 34.2% respectively. The striking feature of Table 2 is that youth comprised 35% of Kenya's population and slightly over 65% of working age population. Therefore, for every adult of working age, there were 2 youth of working age.

Table 2: Distribution of working age population in Kenya by age groups (1999 and 2009)

Age group	1999 Census	Proportion (%)	2009 Census	Proportion (%)
15-19	3,403,178	11.9	4,169,543	10.8
20-24	2,832,918	9.9	3,775,103	9.8
25-29	2,259,503	7.9	3,201,226	8.3
30-34	1,685,922	5.9	2,519,506	6.5
Total (15-34)	10,181,521	35.5	13,665,378	35.4
35-39	1,419,012	4.9	2,008,632	5.2
40-44	1,033,491	3.6	1,476,169	3.8
45-49	838,828	2.9	1,272,745	3.3
50-54	684,806	2.4	956,206	2.5
55-59	460,016	1.6	711,953	1.8
60-64	409,228	1.4	593,778	1.5
Total (35-64)	4,845,381	16.9	7,019,483	18.2
Total (15-64)	15,026,902	52.4	20,684,861	53.6
Total Population	28,686,607	100	38,610,097	100

Source: Republic of Kenya (2001):1999 Population and Housing Census Volume1; Republic of Kenya (2010): 2009 Kenya Population and Housing Census Volume 1C.

Table 3 shows the spatial distribution of labour force and labour force participation rates in Kenya for persons aged 15-64 years based on the 2005/06 Kenya Integrated Household Budget Survey and 1998/99 Integrated Labour Force Survey. These are the latest available nationally representative surveys in Kenya. Labour force comprises both employed persons and unemployed persons seeking work (Riddell et al. 2002; Ehrenberg and Smith, 2012). Labour force participation rate is defined as an indication of the relative size of supply of labour in a country available to engage in the production of goods and services (ILO, 2014b).

Kenya's labour force increased from 12,326,232 persons in 1998/99 to 14,564,329 persons in 2005/06 an increase of 18.2% in six years. Over this period, urban and rural labour force increased by 2.35% and 26% respectively. However, the overall labour force participation

rate declined from 77.4% to 72.6%. Further, urban labour force participation rate was higher than rural labour force participation rate in both surveys. However, the urban-rural labour force participation gap declined from 12.8% in 1998/99 to 1.5% in 2005/06.

Table 3: Distribution of Labour Force Participation in Kenya by area of residence

Region	1998/99		2005/06	
	Number of Persons in Labour force	Labour force Participation Rate (%)	Number of Persons in Labour force	Labour force Participation Rate (%)
Urban	4,097,157	86.4	4,193,549	73.7
Rural	8,228,762	73.6	10,370,780	72.2
Total	**12,325,919**	**77.4**	**14,564,329**	**72.6**

Source: Republic of Kenya (2003): Report of 1998/99 Labour Force Survey; Republic of Kenya (2008a): Labour Force Analytical Report.

The problem is that, not all those in the labour force are engaged in employment. Some are unemployed and actively searching for work. The overall unemployment rate in Kenya was 14.6% in 1998/99 and 12.7% in 2005/06 (Republic of Kenya, 2003; Republic of Kenya, 2008a). This implies that slightly over one tenth of the labour force was unemployed nationally. However, the overall unemployment rate hides the uneven distribution of unemployment in Kenya. For example unemployment among urban dwellers, youth and women is a particular problem in Kenya. This can be observed in Table 4 which shows the distribution of unemployed persons and unemployment rates in Kenya by age group and area of residence (rural/urban) for the periods 1998/99 and 2005/06.

Rural unemployment rate was fairly stable at just below 10% in the two surveys. In contrast urban unemployment rate was 25.1% and 19.9% in 1998/99 and 2005/06 respectively. In rural areas unemployment is relatively high (15-20%) among the 15-19 year olds. In urban areas, the highest unemployment rate (47.3%) in 1998/99 was among the age group 20-24 while in 2005/06 it was the age group 15-19 that suffered the highest unemployment rate (45.5%).

Table 4: Unemployment in Kenya by age group and area of residence

Age group	1998/99				2005/06			
	Rural		Urban		Rural		Urban	
	Unemployed	Unemployment rate (%)	Unemployed	Unemployment rate (%)	Unemployed	Unemployment rate (%)	Unemployed	Unemployment rate (%)
15-19	129,845	15.9	140,372	47	217,448	19.6	134,909	45.5
20-24	185,859	15.1	347,218	47.3	313,226	18.6	291,941	35.8
25-29	93,412	8.6	198,267	25.1	181,609	11.6	207,138	22.8
30-34	82,147	8.2	103,780	14.3	87,884	6.4	66,476	9.8
35-39	71,710	6.5	68,437	12	66,895	6.1	55,830	10.6
40-44	72,025	8.3	41,140	11.2	53,385	4.9	38,877	10.5
45-49	43,806	5.6	44,790	14.7	41,932	5	22,704	7.8
50-54	31,990	5.5	34,849	18.9	27,913	4.1	10,753	7.1
55-59	32,360	8.1	31,875	40.6	21,080	3.8	5,270	5.3
60-64	28,786	8.0	17,953	45.2	8,818	2.3	2,206	4.2
Total (15-64)	771,941	9.4	1,028,681	25.1	1,020,189	9.8	836,105	19.9

Source: Republic of Kenya (2003): Report of 1998/99 Labour Force Survey; Republic of Kenya (2008a): Labour Force Analytical Report.

1.3 Unemployment Policies and Interventions in Kenya

The government of Kenya has addressed the problem of unemployment through various policies aimed at education, provision of credit, and direct job creation. Education policy interventions include Free Primary Education (FPE), Subsidized Secondary Education and policies aimed at university and vocational training institutions. As a result of Free Primary Education (FPE) policy, introduced in 2003 primary school gross enrolment rate increased from 88.2% in 2002 to 107.6% in 2007 (Republic of Kenya, 2009a).

To facilitate transition from primary to secondary education, Subsidized Secondary Education was introduced in 2008. The programme led to an increase in secondary school gross enrolment rate from 36.8% in 2007 to 49.3% in 2012 (Republic of Kenya, 2009a; Republic of Kenya, 2013a). In addition, the government also encouraged establishment and expansion of universities and training institutions to increase access to higher education. Between 2009 and 2012 the number of university students increased by 35.4% to stand at 241,000 and the number of students in vocational training institutions increased by close to 48% to stand at 158,000 (Republic of Kenya, 2013b).

Access to affordable credit has been identified as a bottleneck to enterprise development (Zepeda et al., 2013). To address this, the government has established special funds to increase access to credit to enable unemployed persons pursue self-employment. The funds are Youth Enterprise Development Fund, Women Enterprise Development Fund, and Uwezo Fund.

Youth Enterprise Development Fund was established in 2006 to provide young entrepreneurs with loans, business development services, marketing services and also to find employment for the youth (Republic of Kenya, 2006). The fund has financed over 157,000 youth enterprises to the tune of 5.9 billion shillings, trained over 200,000 young entrepreneurs on

business management and enabled thousands of young men and women to be employed overseas (Republic of Kenya, 2014). Another fund targeting the youth is Uwezo fund. Uwezo Fund was set up in 2013 to give business loans to youth and women to generate employment and fund community driven projects (Republic of Kenya, 2013b).

Lack of access to credit for women motivated establishment of the Women Enterprise Development Fund in 2007. The fund provides affordable credit to women to enable them start or expand their businesses (Republic of Kenya, 2007a). The fund has extended loans to 645,825 women amounting to 2.6 billion and trained 116,372 women on loan management and business management skills (Women Enterprise Development Fund, 2009).

Another measure taken to enable more Kenyans access affordable credit was the enactment of the Micro Finance Act of 2006. The Act provides the legal framework for the operations of Micro Finance Institutions and specifically deposit-taking microfinance business in Kenya (Republic of Kenya, 2007b). Since the Act became operational in 2008, nine licensed deposit taking micro finance institutions have been licensed in Kenya (Central Bank of Kenya, 2012).

Direct job creation interventions have also been implemented. These include Kazi Kwa Vijana and Kenya Youth Empowerment Programme. Kazi Kwa Vijana (KKV) was launched by the government in April 2009. Its aim was to employ young people in labour intensive public works like road maintenance, water harvesting and waste collection (Republic of Kenya, 2009b). During the first year of its implementation, 300,000 short term jobs were created (ILO, 2012). However, the programme was cancelled in 2011 after the World Bank halted its funding to the programme over corruption allegations (World Bank, 2011).

The Kenya Youth Empowerment Project was introduced in 2010 by the government with financial support from the World Bank to provide internship and job training for the youth (Republic of Kenya and United Nations Development Programme, 2010). As of November

2013, the number of persons who had completed their internship programme with various companies were 5,313 persons of whom 40% became employed immediately after completion (World Bank, 2013).

1.4 Research Problem

Despite various policies and interventions, open unemployment (refers to a situation where people are able and willing to work but there is no work for them) in Kenya is relatively high among youth and urban residents. In 1998/99 the rate of unemployment was 25.1% in urban areas and 9.4% in rural areas (Republic of Kenya, 2003). In 2005/06 urban unemployment rate was 19.9% compared to 9.8% in rural areas (Republic of Kenya, 2008a). Consequently, the adverse effects of unemployment such as scarring effect, income loss, drug abuse, crime and psychological problems are likely to be felt more in urban areas. A policy concern is how to target different groups of the open unemployed.

Previous studies of differences in unemployment among key population groups in Kenya (e.g. Wamuthenya, 2010; Vuluku et al. 2013) have devoted attention to gender distribution in unemployment. They examine the extent to which the gender gap in unemployment is due to gender differences in individual, household and human capital characteristics.

There is some evidence (e.g. Wamalwa, 2009) that the incidence of youth unemployment is significantly higher in urban than in rural areas. However, because the factors that explain this gap have not been empirically investigated, it is not clear whether the characteristics that make a person more likely to be unemployed are the same for urban and rural residents. Therefore, this study complements previous micro studies of unemployment in Kenya by addressing the following research questions:

a) Are the individual and household characteristics that influence rural persons probability of unemployment similar to those that influence the probability of unemployment for urban persons?

b) What proportion of the urban-rural unemployment gap is attributable to differences in the regional distribution of observed individual and household characteristics?

c) Which individual and household characteristics explain the urban-rural unemployment gap?

1.5 Research Objectives

The main objective of this paper is to examine differences in the incidence of unemployment between rural and urban residents in Kenya. The specific objectives of this paper are to:

a) Determine if individual and household characteristics that predict the probability of an individual being unemployed in rural areas are similar to those that predict the probability of an individual being unemployed in urban areas.

b) Determine the extent to which regional differences in the distribution of individual and household characteristics account for the urban-rural unemployment gap.

c) Identify individual and household characteristics that explain the urban-rural unemployment gap.

d) Derive policy implications

1.6 Justification of the Study

The Kenya Vision 2030 (Republic of Kenya, 2008b) proposes the development of a national integrated human resource strategy that aligns labour supply and labour demand. It also proposes implementation of policies that help minimize inequalities between groups of persons in income generating opportunities. Designing policies and programmes toward this goal requires knowledge about the profile of the unemployed. To the extent that factors that

predict probability of being unemployed in urban and rural areas differ, quantifying the contributions of these factors to urban-rural unemployment gap will provide policy makers with information for developing area specific policies towards unemployment.

Previous contributions to the empirical literature on differences in labour market outcomes in Kenya have mainly focused on wage differences between male and female workers (e.g. Kabubo-Mariara, 2003), and between urban and rural workers (e.g. Agesa and Agesa, 1999). This study will widen the scope of knowledge on differences in labour market outcomes in Kenya by examining differences in labour market quantity (unemployment) rather than wage differences.

1.7 Outline of the study

The rest of the paper is organized as follows: Chapter 2 reviews the theoretical and empirical literature on urban-rural differences in unemployment. The methodology used to analyze data is presented in Chapter 3. Chapter 4 presents and discusses the empirical results while chapter 5 summarizes and concludes the study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter presents a review of both theoretical and empirical literature that focus on determinants of regional disparities in unemployment. Sections 2.2 and 2.3 reviews theoretical and empirical literature respectively while section 2.4 provides an overview of the literature reviewed.

2.2 Theoretical Literature

According to Marston (1985), there are two possible explanations for the existence of regional disparities in unemployment. The disequilibrium explanation and the equilibrium explanation. Under the disequilibrium explanation, migration barriers and labour market rigidities explain how shocks are likely to cause unemployment differentials between regions to exist for some time.

Regions facing weak labour demand are likely to face high unemployment rates. The high unemployment rate is expected to make workers migrate out of the area to regions with strong labour demand. However, due to migration barriers such as high costs of migration, this does not happen. This results to a rise in unemployment rates in regions with weak labour demand above regions with strong labour demand. Consequently, regional differences in unemployment arise. In Kenya, costs of labour and capital mobility are not zero hence the migration barrier could explain the urban-rural differences in unemployment.

Institutional factors such as trade unions and wage bargaining can generate labour market rigidities, leading to disequilibrium. Trade unions introduce labour market rigidity through the wage setting mechanism, hence influencing unemployment rates. By demanding wages above the market clearing level (Elhorst, 2003), trade unions reduce labour demand and

increases labour supply resulting to unemployment. Unlike rural workers, many urban workers are represented by unions (Agesa and Agesa, 1999). This implies that persons in urban areas are more likely than those in rural areas to suffer labour union induced unemployment leading to urban-rural gap in unemployment.

The insider-outsider theory (Lindbeck and Snower, 2001) gives another explanation of wage rigidity and unemployment. According to the theory, wage bargaining is between the employer and the existing workforce (Insiders). Firms find it expensive to replace the existing workforce with new workers from among the unemployed due to the associated training costs (Riddell et al. 2002; Ehrenberg and Smith, 2012; Lindbeck and Snower, 2001). This provides insiders with bargaining power which they use to set their wages above the market clearing level (Riddell et al. 2002; Ehrenberg and Smith, 2012; Lindbeck and Snower, 2001). This results to less employment than would have occurred in the absence of insider power. Lower employment in sectors characterized by insider power will result to unemployment in the labour market as a whole. Most firms in Kenya are located in urban areas (Agesa and Agesa, 1999) thus the effect of insider power is likely to be strong in urban areas. The higher wages bargained by insiders cause an increase in urban unemployment rate. This results to urban-rural unemployment differences.

Another explanation of wage rigidity and unemployment is the notion of efficiency wages (Stiglitz, 1981). Firms pay workers wage above market clearing wage so as to enhance their productivity (Stiglitz, 1981; Riddell et al. 2002). Also, to discourage shirking by workers, firms raise the cost to workers of being in unemployment. The cost to workers of being fired depends on how long it will take them to find another job with the same pay. If the costs are high, workers will be more productive for fear of being unemployed. This reduces job opportunities for the excess labour resulting to high unemployment rates in the labour market as a whole. In Kenya, firms in urban areas could be paying high wages to their workers to

avoid shirking and absenteeism. Further, unemployment in urban areas is high. If fired, the employee is likely to face long duration in unemployment. Efficiency wage results to an increase in involuntary unemployment which may be more prevalent in urban than rural areas causing urban-rural unemployment differences.

According to the Equilibrium explanation of regional unemployment disparities, differences in unemployment rates between regions are due to varying endowments among regions (Marston, 1985; Lopez-Bazo et al. 2000; Lopez-Bazo and Motellon, 2012). Such endowments include wages, amenities, human capital and land. When endowments remain stable over time, the distribution of unemployment is not expected to change (Lopez-Bazo et al. 2000 and Lopez-Bazo and Motellon, 2012). Further, the equilibrium explanation hypothesises that in the absence of migration barriers, persons in areas with high unemployment rates are likely to migrate to areas with low unemployment rates (Marston, 1985; Lopez-Bazo et al. 2000; Lopez-Bazo and Motellon, 2012). However, incentives found in areas with high unemployment rates make them not migrate (Marston, 1985; Lopez-Bazo et al. 2000). These incentives include high wages and amenities that act as a compensating factor for high unemployment.

In Kenya, high unemployment rates and high average wages are observed in urban areas compared to rural areas (Agesa and Agesa, 1999). From the equilibrium theory, urban workers are expected to move to rural areas. However, the high wages in urban areas make them not to migrate. In contrast to the theory, the incentives attract persons from rural regions particularly persons who have high accumulation of human capital (Agesa and Agesa, 1999; Todaro, 1976). Also young persons are likely to migrate to urban regions due to the expectation of high earnings in future. This reduces rural labour force and increases urban labour force resulting to a fall in rural unemployment rate. Upon joining the urban labour

market, rural migrants are likely to become unemployed or underemployed. This results to an increase in urban unemployment rate resulting to regional differences in unemployment.

2.3 Empirical Literature

The theoretical literature reviewed indicates that individual and location characteristics influence hiring decisions by employers and hence influence unemployment levels. Empirical studies investigate how individual and location characteristics explain unemployment levels in different countries. Further, it extends the determinants of unemployment to include household characteristics. The main characteristics considered include age, gender, marital status, location, household headship, household size, existence of unemployed and employed family members in a household, racial background, housing tenure and economic status.

Age of an individual has been found to be an important determinant of unemployment probability. O' Higgins (1997), Baah-Boateng (2013) and Mourelo and Escudero (2013) using data for Europe, Ghana and Kenya respectively, used a probit model and observed that youth had a significantly higher probability of being unemployed than adults. Sackey and Osei (2006) point out that young people are likely to be unemployed because they have few labour market skills and low levels of education compared to adults. This phenomenon has been observed in Kenya (Wamalwa, 2009) and Ethiopia (Serneels, 2007). Further, Kingdon and Knight (2004) and O'Higgins (1997) argue that high youth unemployment is due to young persons preference of engaging in job search than work in an undesirable job. This fact has been empirically observed in Viet Nam (Van et al. 2005) and in Sri Lanka (Lang and Dickens, 1991). Also, youth have fewer financial commitments and high reservation wages due to ignorance on what their skills can command in the labour market compared to adults (O' Higgins, 1997; Kingdon and Knight, 2004; Lang and Dickens, 1991).

Demand side factors that affect youth unemployment probability are also important. According to O'Higgins (1997), the opportunity cost to firms of firing young people compared to older persons is low. This is because they embody low human capital investment and thus firing them involves a small loss to the firm.

With regard to Gender, empirical evidence show females are more likely to be unemployed than males (Azmat et al. 2006; Vuluku et al. 2013, Wamuthenya, 2010; Wamalwa, 2009; Van et al. 2005; Siala and Ammar, 2013). This may be because of low human capital accumulation, discrimination by employers and gender related occupational choices by women. In contrast, Mourelo and Escudero (2013) using the Kenyan data and Sackey and Osei (2006) using data for Ghana found that females were less likely than males to be unemployed. According to Sackey and Osei (2006) the reason why this is so in Ghana, is because most females in Ghana's labour force are self-employed (i.e. found in the retail sector which accommodates more persons and less in the formal sector).

Marital status, education, location, household status and health status are other important determinants of the probability of unemployment. Using data drawn from the 2005/06 Kenya Integrated Household Budget Survey, Wamalwa (2009), Vuluku et al. (2013) and Mourelo and Escudero (2013) observe that married persons are less likely than unmarried persons to be unemployed. A similar result was observed in South Africa (Kingdon and Knight, 2004) and in Ghana (Sackey and Osei, 2006). According to Wamalwa (2009) married persons are likely to be in much need of work to support their families and this makes them more likely to accept low paying jobs. Also, according to Kingdon and Knight (2004), employers are likely to hire married persons since they consider them trustworthy and mature unlike single persons.

The relationship between education and unemployment is not clear. In some countries, persons with high levels of education have low probability of unemployment. This finding is observed for Kenya (Wamalwa, 2009; Mourelo and Escudero, 2013; Vuluku et al. 2013; Wamuthenya, 2010); Ghana (Sackey and Osei, 2006); South Africa (Kingdon and Knight, 2004); and Ethiopia (Serneels, 2007). In other countries unemployment among the educated persons particularly among the youth is a major concern. Educated young persons in Viet Nam (Van et al. 2005), Tunisia (Siala and Ammar, 2013) and Sri Lanka (Lang and Dickens, 1991) are likely to have high unemployment probability. In Viet Nam, Van et al. (2005) explains that young educated persons are likely to continue searching for better jobs than accept jobs they consider undesirable.

The impact of a particular education level varies across countries. In Ghana (Sackey and Osei, 2006; Baah-Boateng, 2013), persons with basic education and secondary education are likely to face high unemployment probability compared to persons with no education. Also, persons with university education have a low probability of unemployment compared to persons with no education. In Kenya, Wamalwa (2009) observes that persons with secondary education have a higher probability of unemployment than persons with primary education while Mourelo and Escudero (2013) found that persons with secondary education have a higher probability of unemployment than persons with no primary education. In contrast, Vuluku et al. (2013) and Wamuthenya (2010) observes that Kenyans with secondary level education are less likely than those with less than primary education to be unemployed.

Unemployment probability has also been observed to vary by area of residence. It is high among urban residents compared to rural residents in Kenya (Wamalwa, 2009; Mourelo and Escudero, 2013); Ghana (Sackey and Osei, 2006; Baah-Boateng, 2013); South Africa (Kingdon and Knight, 2004); and Viet Nam (Van et al. 2005). Moreover, in some African countries, urban youth are 6 times more likely to be unemployed than rural youth (AFDB et

al. 2012). Sackey and Osei (2006) explain this to be due to high incidences of poverty in urban areas. Moreover, urban areas are increasingly receiving a growing number of educated youth, thereby causing a strain on the number of available jobs (Wamalwa, 2009).

A number of previous studies have found that poor health status increases unemployment probability. Wamalwa (2009) observed that in Kenya persons who are not physically handicapped (proxy for health status) are less likely to be unemployed compared to persons who are physically handicapped. In Ethiopia, Serneels (2007) used height for age and body mass index as proxies for health status. The two measures of health had negative and insignificant effect on the probability of unemployment. Van et al. (2005) observes that in Viet Nam persons having poor physical health and mental health are more likely to be unemployed compared to persons with good physical and mental health.

Household headship has been found to be an important determinant of unemployment (Wamuthenya, 2010). Sackey and Osei (2006) observed that in Ghana, household headship is associated with lower probability of unemployment. Similar results were found for South Africa (Kingdon and Knight, 2004). Heading a household comes with many responsibilities that require one to be working (Wamuthenya, 2010).

Previous studies have also found household characteristics such as household size, households economic status and household members unemployment status to be important determinants of unemployment probability. Wamalwa (2009) observed that in Kenya, an increase in household size increases a household member's unemployment probability. Similar results have been observed by Kingdon and Knight (2004) using data for South Africa. In contrast, Wamuthenya (2010) found that in Kenya, household size has no effect on the probability of unemployment.

With regard to economic status, Van et al. (2005) found that in Viet Nam, persons belonging to high and middle economic status are less likely to be unemployed compared to those from low economic status. This has also been found in Kenya (Wamalwa, 2009). Wamalwa (2009) hypothesises that this could be due to the fact that households that are better off invest more in their children employability characteristics such as education and health. Further, persons from well off households have access to good social networks that are likely to enhance their employability.

An individual is more likely to be unemployed if he/she is living in a household that has a family member who is unemployed (Mourelo and Escudero, 2013). Moreover, the sector of employment of the employed household member has an impact on ones unemployment probability. Using data for Ethiopia, Serneels (2007) observed that persons whose father is employed by the government or by the private sector had a higher unemployment probability than persons whose father was self employed. In contrast, Van et al. (2005) using data from Viet Nam observed that persons whose fathers are formally employed are less likely than persons whose fathers are unskilled workers to be unemployed.

A persons racial background is another determinant of unemployment probability. Using data for South Africa, Kingdon and Knight (2004) observed that non whites had a higher probability of unemployment. Similar findings have been made by O'Leary et al. (2005) for United Kingdom. This may be because of racial discrimination in employees hiring practices or because of prior discrimination in the schooling system.

The effect of home ownership on the probability of unemployment is not clear. In South Africa, Kingdon and Knight (2004) observed that among Africans, owning a house increased the probability of unemployment. In contrast, among Indians and whites, owning a house decreased the probability of unemployment. In Great Britain (O'Leary et al. 2005), persons

living in a house that is not theirs are more likely to be unemployed compared to persons living in their own houses.

The studies reviewed indicate differences in unemployment probability between persons of different gender, racial background, education background and residential location. A few empirical studies have examined the factors that explain group differences in unemployment probability by applying decomposition approach. Azmat et al. (2006) examined the gender gaps in unemployment in OECD countries. They found that, for European countries with high unemployment rates, low human capital accumulation amongst women explained their high unemployment rate compared to men. In Kenya, Wamuthenya (2010) used the 1986 Urban Labour Force Survey and the 1998/99 Labour Force Survey and Vuluku et.al (2013) used the 2005/06 Kenya Integrated Household Budget Survey to assess the contribution of differences in distribution of observable individual and household characteristics to the gender unemployment gap. The results show that differences in observable characteristics explain 81% -84% of the gender unemployment gap in urban areas (Wamuthenya, 2010), and 88.8% of the gender unemployment gap in both urban and rural areas (Vuluku et al. 2013).

Kingdon and Knight (2004) used data for South Africa to decompose the race gap in unemployment probability. The results showed discrimination explained a significant proportion of the race gap in unemployment (25% of the gap in unemployment between Whites and Africans, 40% of the gap in unemployment between Whites and Coloured and 37% of the gap in unemployment between the Whites and Indians).

With regard to regional disparities in unemployment in Germany, United Kingdom and Italy, Taylor and Bradley (1997) considered three determinants; unit labour cost, industrial mix (i.e. share of persons working within various sectors/industries in a region) and employment density (i.e. employment level per square kilometre). Unit labour costs explained a larger

portion of regional disparities in unemployment in Italy than in the other two countries. Further, industrial mix significantly explains regional disparities in unemployment in the three countries. Differences in employment density do not significantly explain disparities in regional unemployment in the three countries.

Differences in human capital characteristics between regions are expected to explain regional unemployment disparities. Highly skilled individuals are likely to conduct efficient job search and are less likely than unskilled persons to be laid off. This implies that regions endowed with highly skilled workers are likely to have low unemployment levels. Filiztekin (2007) used panel data for 1980 and 2000 census to investigate the causes of regional disparities in unemployment within urban areas and provincial areas in Turkey. The study found that human capital differences between regions substantially explained disparities in unemployment levels.

Previous studies on regional unemployment disparity mainly use an aggregate approach. The approach relates a regions unemployment rate to magnitudes of regional factors. However, the aggregate approach overlooks the effect of differences in individual and household characteristics to explaining a regions unemployment rate.

Few studies have been undertaken to ascertain if differences in the impact and distribution of individual and household characteristics explain regional disparities in unemployment. In Spain, Lopez-Bazo and Motellon (2012) used data from the Spanish Labour force Surveys to decompose differences in unemployment probabilities between low unemployment regions and high unemployment regions. Results show that a high proportion (70%-80%) of the regional gap in unemployment is explained by differences in the impact of observed individual characteristics while a small portion of the gap is explained by differences in distribution of observed individual characteristics across regions (20%-30%). In Great

Britain, O'Leary et al. (2005) using Quarterly Labour Force Survey observe that in successful regions (regions that have low unemployment rate compared to Great Britain unemployment rate), a high proportion of the differences in unemployment are explained by differences in the distribution of individual and household characteristics while in less successful regions (regions that have higher unemployment rates than Great Britain unemployment rate) a high proportion of the differences in unemployment probability are explained by differences in the returns to observed individual and household characteristics

2.4 Conclusion of literature review

Theoretical arguments identify wage rigidity and migration barriers as factors that explain how shocks cause regional unemployment differences. Further, theoretical literature establishes that individual and location characteristics influence a persons unemployment probability. The empirical literature identifies individual and household characteristics that predict the chances of being openly unemployed. This includes individual's age, gender, marital status, household-headship, health status, housing tenure, economic status and unemployment status of family members.

Open unemployment is also observed to be high among urban residents. However, the studies do not investigate whether the predictors of open unemployment in urban and rural areas are different. This paper will fill that knowledge gap by identifying factors that predict the probability of an individual being unemployed in rural areas and urban areas separately. A decomposition of the urban-rural unemployment gap was performed to measure the proportion of the gap explained by differences in the regional distribution of individual and household characteristics and the proportion that is unexplained (portion due to differences in the returns to observable characteristics).

CHAPTER THREE: METHODOLOGY

This chapter presents the methods and procedures used in analyzing the urban-rural unemployment gap. Section 3.1 presents the theoretical framework while section 3.2 presents the specification and estimation procedure of the unemployment probit model. Section 3.3 describes the decomposition of urban-rural unemployment gap. Section 3.4 describes data and variables used in the study.

3.1 Theoretical Framework

The theoretical framework of this study is based on the theory of job search (Ehrenberg and Smith, 2012; Fitzgerald, 1998). The job search theory is based on two assumptions (Ehrenberg and Smith, 2012). First, labour markets are characterized by imperfect information on jobs available and workers characteristics. Second, wages are associated with the characteristics of jobs and not with the characteristics of persons who fill the jobs. The theory hypothesises that human capital accumulation and reservation wages explain the probability of unemployment (Ehrenberg and Smith, 2012; Fitzgerald, 1998). Employers are likely to hire persons who possess minimum skills that a job demands at a given wage rate (Ehrenberg and Smith, 2012).

Workers with high reservation wages and high accumulation of human capital are likely to engage in intensive job search due to lack of information on various firms wage offer and hiring standard (Ehrenberg and Smith, 2012). Those who possess the minimum skills are likely to get a job offer. However, due to their rational behaviour, they are more likely to accumulate job offers and accept the job that offers wages equal to their reservation wages (Ehrenberg and Smith, 2012; Riddell et al. 2002). Therefore, rejecting more jobs offers increases their cost (duration) of unemployment, thus increasing their reservation wages and

consequently their unemployment probability (Ehrenberg and Smith, 2012; Riddell et al. 2002). Individual characteristics like age, gender, and education attainment are likely to influence human capital accumulation and reservation wages. Other characteristics that affect reservation wages include marital status, household status, household size and housing tenure (Borland, 2000). Therefore differences in individual characteristics are likely to influence regional differences in unemployment probability (Borland, 2000).

3.2 Econometric Model

3.2.1 Specification

Kenya can be divided into urban areas (T) and rural areas (R) in line with migration models for developing countries (Todaro, 1976). An individual i resides either in the rural area or in the urban area but not both. Let U_i be an observed binary variable denoting whether or not an individual is unemployed. Suppose, there is an unobserved variable U_i^* that generates the observed variable and is related to observed individual and household characteristics through the following structural model:

$$U_i^* = \delta_i X_{i +} \varepsilon_i \tag{1}$$

Where δ_i is the vector of coefficients, while X_i is the vector of individual and household characteristics. ε_i denotes an error term that is normally distributed and has zero mean and constant variance. U_i^* is linked to U_i by the following measurement equation (Long, 1997):

$$U_i = \begin{cases} 1 \; if \; U_i^* > 0 \; meaning \; the \; individual \; is \; unemployed \\ \\ 0 \; if \; U_i^* \leq 0 \; meaning \; the \; individual \; is \; employed \end{cases}$$

The probability of an individual being unemployed can be expressed as follows:

$$Prob(U_i = 1|X_i) = Prob\ (U_i^* > 0|X_i) \tag{2}$$

Since U_i^* is given by equation 1, it follows that equation (2) can be written as:

$$Prob(U_i = 1|X_i) = Prob\ (\delta_i X_i + \varepsilon_i > 0|X_i) \tag{3}$$

Subtracting $\delta_i X_i$ from each side of the inequality yields:

$$Prob(U_i = 1|X_i) = Prob\ (\varepsilon_i > -\delta_i X_i|X_i) \tag{4}$$

Since cumulative distribution function expresses the probability of a variable being less than some value, we must reverse the inequality. As a result,

$$Prob(U_i = 1|X_i) = Prob\ \left(\varepsilon_i \leq \delta_i X_i|X_i\right) \tag{5}$$

The right hand term is the cumulative distribution function of the error term distribution evaluated at $\delta_i X_i$. Assuming that the errors are normally distributed, equation (5) can be re-written into a probit model as follows (Long, 1997):

$$Prob(U_i = 1|X_i) = \Phi(\delta_i X_i) \tag{6}$$

Φ is the normal cumulative distribution function that restricts unemployment probability to lie between 0 and 1. Equation (6) shows that the probability of unemployment conditional on

individual and household characteristics is the cumulative distribution function evaluated at $\delta_i X_i$.

3.2.2 Estimation Procedure

The model in equation (6) can be estimated using the maximum likelihood method. The likelihood function is given as (Long, 1997):

$$L(\delta_i \,|U_i\,,X_i) = \prod_{U_i=1} \Phi(\delta_i X_i) \prod_{U_i=0} [1 - [\Phi(\delta_i X_i)]] \qquad (7)$$

Equation (7) indicates that the product is taken over those cases where $U_i = 1$ and $U_i = 0$ respectively.

The logarithmic transformation of equation (7) is the log likelihood function expressed as (Long, 1997):

$$\ln L\,(\delta_i|U_i,X_i) = \sum_{U_i=1} \ln \Phi(\delta_i X_i) + \sum_{U_i=0} \ln[1 - [\Phi(\delta_i X_i)]] \qquad (8)$$

Maximization of equation (8) with respect to δ_i yields consistent and efficient parameter estimates ((Long, 1997). However, the parameter estimates can not be interpreted as the characteristics effect on probability of unemployment. Only the sign can be interpreted directly. A positive sign implies that an individual is more likely to be unemployed while a negative sign implies that an individual is less likely to be unemployed.

The magnitude of a characteristics effect on unemployment is given by the marginal effect (Long, 1997). The interpretation of the marginal effect of continuous and categorical explanatory variables differs. The marginal effect of a continuous variable measures the

instantaneous rate of change which may or may not be close to the effect of a one unit increase in X_i on ($Prob(U_i = 1|X_i)$). Marginal effect for continuous explanatory variables is the partial derivative of equation (6) with respect to X_i (Long, 1997).

$$\frac{\partial \text{Prob}(U_i = 1|X_i)}{\partial X_i} = \frac{\partial \Phi(\delta_i X_i)}{\partial X_i} = \phi(\delta_i X_i)\delta_i \tag{9}$$

The marginal effect of a binary categorical variable shows how $Prob(U_i = 1|X_i)$ is expected to change when X_1 changes from 0 to 1 holding all other variables constant. The marginal effect for such a variable is given by Long and Freese (2005) as follows:

$$Prob(U_i = 1|X_i, X_1 = 1) - Prob(U_i = 1|X_i, X_1 = 0) \tag{10}$$

For categorical variables that have more than two possible values, the marginal effect of X_i shows the difference in the predicted probabilities for cases in one category relative to the reference category (Long and Freese, 2005).

3.3 Decomposition of urban-rural unemployment gap Probability

To determine the contribution of individual and household characteristics to the urban-rural unemployment gap a decomposition technique is required. However, the Standard decomposition approach developed by Blinder (1973) and Oaxaca (1973) to analyze racial and gender wage gaps in the USA is not applicable. This is because the method is only suitable for linear models. In this study, unemployment was modelled using a non-linear model.

Consequently, this paper used a decomposition technique proposed by Fairlie (2003). Fairlie (2003) used the technique to investigate factors that explain racial (white-black) differences in domestic ownership of computers in the United States of America. The technique is appropriate for non linear models that have binary outcomes such as logit and probit models.

This technique has been applied by Vuluku et al. (2013) to decompose gender gaps in unemployment and underemployment in Kenya. Challe (2013) also used the decomposition technique to investigate discrimination of the older labour force participants (persons aged 55-64) in employment in the French labour market.

Let the average probability of unemployment corresponding to urban areas (T) be described as follows:

$$\overline{Y}_i^T = \sum_{i=1}^{N^T} \frac{\Phi(X_i^T \hat{\delta}^T)}{N^T} \tag{11}$$

Also let the average probability of unemployment corresponding to rural areas be denoted as follows:

$$\overline{Y}_i^R = \sum_{i=1}^{N^R} \frac{\Phi(X_i^R \hat{\delta}^R)}{N^R} \tag{12}$$

Where $\overline{Y}_i^T$ represents the average probability of unemployment in urban areas while $\overline{Y}_i^R$ is the average probability of unemployment in rural areas. Also, N^T corresponds to the urban sample size whereas N^R is the rural sample size. $\hat{\delta}^T$ is the estimated coefficient of the characteristic in urban sample whilst $\hat{\delta}^R$ is the estimated coefficient of the characteristic in rural sample. Lastly, $\Phi(.)$ is the cumulative distribution function, following a normal distribution.

From equation (11) and (12) the difference in average probability of unemployment between urban and rural areas can be expressed as:

$$\overline{Y}_i^T - \overline{Y}_i^R = \sum_{i=1}^{N^T} \frac{\Phi(X_i^T \hat{\delta}^T)}{N^T} - \sum_{i=1}^{N^R} \frac{\Phi(X_i^R \hat{\delta}^R)}{N^R} \tag{13}$$

Using the parameter estimates of the probit model and the sample average of each individual and household characteristic the urban-rural unemployment gap is decomposed into two parts. The first part is due to differences in the observed characteristics and the second part is due to differences in the returns to observed characteristics.

To evaluate the contribution of each (or set of) individual and household characteristics to the overall urban-rural unemployment gap, equation (13) is decomposed as:

$$\overline{Y}_i^T - \overline{Y}_i^R = \left[\sum_{i=1}^{N^T} \frac{\Phi(X_i^T \hat{\delta}^T)}{N^T} - \sum_{i=1}^{N^R} \frac{\Phi(X_i^R \hat{\delta}^T)}{N^R} \right] + \left[\sum_{i=1}^{N^T} \frac{\Phi(X_i^R \hat{\delta}^T)}{N^R} - \sum_{i=1}^{N^R} \frac{\Phi(X_i^R \hat{\delta}^R)}{N^R} \right] \quad (14)$$

From equation (14), the first term in brackets correspond to that part of the gap that is due to group differences in the distribution of individual and household characteristics. In other words it measures the expected change in the unemployment probability gap if individuals in urban areas had the same distribution of characteristics as individuals in rural areas. It is referred to as the explained or observed part of the unemployment gap.

The second term corresponds to the portion of the gap attributed to differences in returns (or penalty) to observable characteristics. It measures the expected change in the unemployment probability gap, if the returns to individual and household characteristics in urban and rural areas were the same. This part can be referred to as the unexplained part or the unobserved part.

Thus, there are two sources to the urban-rural unemployment gap namely; differences in the average characteristics between urban and rural residents and differences in the returns (or penalty) to these characteristics.

3.4 Data and definition of Variables

The empirical analysis of this study is based on cross-sectional secondary data from the 2005/06 Kenya integrated household budget survey. The survey was conducted on 1,343 randomly selected clusters covering all districts in Kenya comprising 861 and 462 rural and urban clusters respectively (Republic of Kenya, 2007c). Each cluster comprised 10 households resulting to a total sample size of 13,430 households with Rift valley province having the highest allocation of households at 3,370 while North Eastern had the least allocation at 510. The survey instruments used were four questionnaires namely: A 21 module household questionnaire; 14 day household expenditure diaries to record consumption and purchases; a market price questionnaire; and a community questionnaire. The survey captured data on demographics, housing, education, health, fertility, deaths, agriculture, enterprise, energy, water and sanitation, credit, income transfers, recent shocks, expenditure and consumption amid others.

In data analysis, the paper uses data for the working age population of 15-64 years. The definitions of variables included in the specification of the probit model are reported in Table 5. Unemployed is the dependent variable while age, gender, marital status, chronic illness, education level completed, household head, household size and housing tenure are explanatory variables.

Description of Explanatory Variables

Age of individual

The probability of unemployment is expected to be high among young first time entrants in the labour force and then start declining with age in both urban and rural areas. This implies that the relationship between age and probability of unemployment is non-linear.

There are several reasons why this is so. First, young persons have few financial commitments compared to older persons and thus can engage in jobs search activities other than being employed in jobs that they do not desire (Kingdon and Knight, 2004; Sackey and Osei, 2006; Lang and Dickens, 1991; Van et al. 2005; O'Higgins, 1997). Also, young persons have higher reservation wages (Kingdon and Knight, 2004; Lang and Dickens, 1991; Van et al. 2005). In Kenya, the dominant sector in rural areas is the agricultural sector. The sector is characterized by low human capital requirement and low wages.

Consequently, young people find rural jobs undesirable. This makes them migrate to urban areas where they expect to find jobs in the formal sector that pay higher wages. The increase in the supply of labour in urban areas due to many young people entering the labour force may exceed available jobs hence unemployment.

Secondly, unlike older persons, younger persons lack experience and capital to engage in paid or self-employment and thus are likely to be unemployed (Wamalwa, 2009; Sackey and Osei, 2006).

Thirdly, from an employer's perspective, it is cheaper to fire young people than old people. This is because young people embody fewer skills, they embody lower levels of investment by firms in training and hence their loss to the firm is inconsequential (O'Higgins, 1997). Further, age is incorporated in the model to act as a measure of labour market experience (Wamuthenya, 2010; Sackey and Osei, 2006).

In this study, dummy variables for age intervals 15-24, 25-34, 35-44, 45-54, and 55-64 were constructed. Age intervals 25-34, 35-44, 45-54 and 55-64 are expected to have negative coefficients relative to age interval 15-24.

Gender

An individual's gender is also important in explaining his/her unemployment status. In rural areas, females may be more likely to be unemployed than males. This could be due to several factors. First, the percentage of rural males (67.2%) in primary school is lower than that of rural females (70.5%) (Republic of Kenya, 2008a). However, when girls get older, the percentage of rural males at secondary level, university level and other school levels was higher than that of rural females. This disparity could be as a result of customs and tradition that allocates domestic work and subsistence farming to women (Agesa and Agesa, 1999). Therefore, most rural households are not willing to incur costs interms of foregone contributions to farm and domestic duties by sending daughters to school (Agesa and Agesa, 1999). Thus, women in rural areas have low human capital accumulation (Vuluku et al. 2013; Azmat et al. 2006; Wamuthenya, 2010; Agesa and Agesa, 1999). Secondly, employers may be prejudiced against females and therefore prefer males over females (Azmat et al. 2006; Vuluku et al. 2013). The female dummy variable is expected to have a positive sign.

In urban areas, a greater proportion of males have secondary school education (37.5%), university education (3.9%) and other education levels (0.7%) than females (Republic of Kenya, 2008a). However, a greater proportion of females (52.6%) have primary school education than males (48.4%). Also, at all levels of education, male students have higher completion rates than females (Republic of Kenya, 2007c). As a result, females in urban areas have low human capital accumulation and hence are more likely to be unemployed than males. Also, the large pool of educated males and females in urban areas increases their unemployment probability. Finally, females are likely to be unemployed because of employer discriminatory attitudes against women present in urban areas (Azmat et al. 2006; Vuluku et al. 2013). The expected sign of female dummy variable in urban areas is positive.

Marital Status

Married persons are less likely to be unemployed compared to persons who are single. This is because married persons need to work so as to take care of their families (Klein, 1983; Kingdon and Knight, 2004; Sackey and Osei, 2006; Wamalwa, 2009). Also, married persons have low reservation wages (Kingdon and Knight, 2004).

Employers are also likely to hire married persons due to their superficial characteristics such as trustworthiness and maturity. Therefore, for both regions, the married dummy variable is expected to have a negative sign.

Chronic illness

Chronic illness was used as a proxy for poor health status. Individuals in good health increase the firm's productivity (Becker, 1962).This implies that persons who are healthy are less likely to be unemployed due to employers assumption that their productivity is high (Van et al. 2005; Wamalwa, 2009; Serneels, 2007). In rural and urban areas, persons who suffer chronic illness are likely to be unemployed. The coefficient of the variable chronic illness is expected to have a positive sign in both regions.

Education level completed

Persons with high levels of education are less likely to be unemployed. Employers prefer educated workers on several grounds. First, they possess skills more often demanded in an economy with continued technological progress (Elhorst, 2003). Secondly, they are less prone to layoffs and so exhibit more stable patterns of employment (Elhorst, 2003) and thirdly, they are easy to train and more productive (Elhorst, 2003; Wamuthenya, 2010; Kingdon and Knight, 2004).

Labour supply side considerations reveal that educated persons are likely to conduct efficient job searches (Elhorst, 2003). In both urban and rural areas, the probability of unemployment

is expected to decrease dramatically with education. Therefore, the variables primary education, form four secondary education, university education and college education are expected to have negative signs.

Table 5: Definitions of Variables

Variable	Variable Description
Unemployed	=1 if individual is unemployed, 0 if employed
Age	
15-24	=1 if individual is between ages 15 and 24, otherwise 0
25-34	= 1 if individual is between ages 25 and 34, otherwise 0
35-44	=1 if individual is between ages 35 and 44, otherwise 0
45-54	=1 if individual is between ages 45 and 54, otherwise 0
55-64	=1 if individual is between ages 55 and 64, otherwise 0
Gender	= 1 if individual is female, 0 if male
Marital status	= 1 if individual is married, otherwise 0
Chronic illness	= 1 if individual has a chronic illness, if not 0
Highest Education level completed	
Incomplete primary education	= 1 if individual has not completed primary education, otherwise 0
Primary education	= 1 if individual has primary school education as the highest level of education completed, otherwise 0
Form four secondary education	= 1 if individual has form four secondary education as the highest level of education completed, otherwise 0.
Form six secondary education	= 1 if individual has form six secondary education as the highest level of education completed, otherwise 0
College education	= 1 if individual has college education as the highest level of education completed, otherwise 0
University education	= 1 if individual has university education as the highest level of education completed, otherwise 0
Household-head	= 1 if individual is household head, otherwise 0
Household size	Total number of household members
Housing Tenure	= 1 if individual owns a house, otherwise 0
Location	= 1 if individual is an urban resident, 0 if rural resident

<u>Household-head</u>

Being a household head is likely to be negatively associated with probability of unemployment in both urban and rural areas. This is because the head of the household has

many responsibilities to undertake and thus when he/she is unemployed he/she engages himself to intensive job search unlike other household members (Kingdon and Knight, 2004; Serneels, 2007). Moreover, employers are more likely to hire household heads if they use household headship as a signal of unobserved productive characteristics (Wamuthenya, 2010). Household head dummy variable is expected to have a negative sign in both rural and urban areas.

Household size

The effect of household size on unemployment probability is ambiguous. In urban and rural areas the number of household members could either increase unemployment probability particularly for women by making them less flexible labour force participants (Kingdon and Knight, 2004, Wamuthenya, 2010) or it could decrease unemployment probability because of greater economic need and the consequent low reservation wage (Kingdon and Knight, 2004; Wamalwa, 2009). In both regions the variable household size is expected to have either a positive or a negative sign.

Housing Tenure

Housing tenure refers to tenancy status where a person either lives in his own house or resides in a house that he does not own (Republic of Kenya, 2007c). in urban areas, the effect of home ownership on unemployment is ambiguous. Home ownership acts as a proxy for household wealth. Wealthier persons have high reservation wages (Minimum acceptable wage to take a job) and hence are likely to be unemployed (Kingdon and Knight, 2004). It may also decrease the probability of unemployment as unemployed persons do not receive income hence may not own a house (Kingdon and Knight, 2000; O'Leary et al. 2005). In urban areas, the expected sign on owning a house is either positive or negative.

Also, in rural areas, the expected effect of owning a house on the probability of unemployment is ambiguous. On one hand, home ownership makes people immobile by increasing the cost of mobility and hence are less likely to migrate to other regions in case job openings arise. Therefore, home ownership increases the probability of unemployment in rural areas. On the other hand, home ownership is a function of unemployment. When this is the case, unemployment is negatively related to home ownership. Therefore, owning a house is expected to have a negative or a positive sign.

<u>Location</u>

Unemployment is identified to be an urban phenomenon. This can partly be explained by disequilibrium theories that explain how wage rigidities lead to unemployment. Institutional factors such as trade unions set wages above the market clearing level (Elhorst, 2003). This decreases labour demand and increases labour supply hence unemployment. Most urban workers are represented by trade unions hence urban areas are likely to suffer labour union induced unemployment (Agesa and Agesa, 1999). Other wage rigidities theories that explain why most persons in urban areas are likely to face unemployment include insider –outsider theory and the efficiency wages model.

Moreover, according to the equilibrium theory of unemployment, urban areas are likely to suffer long periods of unemployment due to the high wages paid in urban areas and amenities found in these areas which unemployed persons are unwilling to forego. In addition the high wages and amenities attract persons from rural areas to urban areas in the expectation of future high wages thus increasing unemployment levels in urban areas. The urban dummy variable is expected to have a positive sign.

CHAPTER FOUR: RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter is divided into three sections. Section 4.2 presents the descriptive statistics of all variables used in the analysis. Section 4.3 presents the findings of the probit model of unemployment to identify the determinants of unemployment and section 4.4 presents the decomposition results of the urban-rural unemployment probability gap.

4.2 Descriptive Statistics

Table 6 presents the summary statistics of the variables used in econometric analysis. The dependent variable is a binary variable indicating whether or not an individual is unemployed. There are mainly two definitions of the unemployed: The narrowly defined unemployed are those 'willing to work' and 'seeking work' and the broadly defined unemployed are the narrowly defined unemployed plus those 'not working' and 'not seeking work' (Kingdon and Knight, 2004). This paper used the narrow definition of unemployment.

The overall unemployment rate was 10.1% with urban unemployment rate (13.7%) being higher than the rural unemployment rate (8.2%). In both urban and rural areas, the unemployment rate among females (13.7% and 5.6% respectively) was lower than among males (14.2% and 13% respectively). The unemployment rates estimated in this study differ from the rates reported in the 2008 labour force analytical report. This is because, the report expanded the labour force to include homemakers who were 'willing to work' and 'sought work' (Republic of Kenya, 2008a).

The highest concentration of persons in the rural and urban sample was among those aged 25-34 while persons aged 55-64 comprised less than 10% of the samples. In both the urban sample (41.2%) and the rural sample (45.1%) females were fewer than males (59% in the

urban sample and 55% in the rural sample). Further, about 60% of persons in both the urban and rural sample were married. The proportion of males (64%) who were married in the urban sample was substantially higher than that of females (48.7%). Regarding chronic illness, less than 10% of persons in the urban and rural sample suffered chronic illness. Moreover, in both samples the proportion of females (10% in rural and 9% in urban) who suffered chronic illness was higher than males (6.4% in urban and 6.5% in rural).

Concerning education, a higher proportion of urban residents had higher levels of education compared to rural residents. There were fewer persons in the urban sample (18%) who had less than primary education compared to the rural sample (39.6%). Moreover, a higher proportion of urban residents had form four secondary education, form six secondary education, college education and university education than rural residents. However, the share of urban persons with primary education (33%) was smaller compared to that of rural persons (39%).

In both the urban and rural sample, females had lower levels of education than males. There were more females in the urban (20%) and rural sample (42%) that had incomplete primary education than males (16.7% and 38% respectively). Additionally, in both the urban and rural sample, the share of females with form four secondary education, form six secondary education, college education and university education was lower than that of males. However, a higher proportion of females had primary education than males in both the urban and rural sample.

The proportion of household heads in urban areas (54%) was higher than in rural areas (41.2%). Moreover, in both urban and rural areas, the share of male (71% and 56.3%) household heads was above that of females (30% and 56%).

Table 6: Summary Statistics

Variables	Rural Sample			Urban Sample			Full sample		
	Pooled	Male	Female	Pooled	Male	Female	Pooled	Male	Female
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
Unemployed	0.0824	0.104	0.0560	0.137	0.142	0.130	0.101	0.117	0.0790
Age									
15-24	0.272	0.295	0.244	0.249	0.231	0.274	0.264	0.273	0.253
25-34	0.274	0.275	0.274	0.360	0.358	0.362	0.303	0.304	0.301
35-44	0.209	0.194	0.227	0.227	0.230	0.222	0.215	0.207	0.226
45-54	0.151	0.144	0.159	0.123	0.135	0.106	0.142	0.141	0.142
55-64	0.0940	0.092	0.0963	0.0414	0.045	0.0360	0.0766	0.075	0.0775
Gender(Female)	0.451	-	-	0.412	-	-	0.438	-	-
Marital status (Married)	0.606	0.591	0.624	0.577	0.640	0.487	0.596	0.608	0.581
Chronic illness (yes)	0.08	0.064	0.10	0.075	0.065	0.090	0.078	0.0641	0.096
Highest Education level completed									
Incomplete primary education	0.396	0.377	0.421	0.180	0.166	0.201	0.317	0.297	0.343
Primary education	0.394	0.389	0.402	0.334	0.331	0.340	0.372	0.367	0.380
Form four secondary education	0.193	0.212	0.167	0.399	0.402	0.396	0.268	0.284	0.248
Form six secondary education	0.0082	0.011	0.0040	0.0278	0.033	0.0197	0.0154	0.019	0.00952
College education	0.0039	0.004	0.0032	0.00885	0.007	0.0108	0.00571	0.005	0.00587
University education	0.0049	0.006	0.0028	0.0495	0.060	0.0331	0.0213	0.026	0.0134
Household-head (Yes)	0.412	0.563	0.227	0.540	0.707	0.300	0.454	0.613	0.250
Household size	6.533	6.501	6.573	5.030	4.870	5.259	6.035	5.935	6.163
Housing tenure (Own house)	0.912	0.903	0.924	0.303	0.300	0.308	0.711	0.694	0.732
Location (Urban)	-	-	-	-	-	-	0.332	0.347	0.312

The average household size was approximately 6 members. Rural households had on average 6 members while urban households had approximately 5 members. Majority of rural residents (91%) owned houses compared to urban residents (30%). Moreover, in rural areas, a higher percentage of females (92%) owned houses compared to males (90%).

About one third of all persons in the full sample resided in urban areas compared to two thirds in rural areas. Further, 35% of males and 31% of females were urban residents. Therefore, a larger proportion of males (65%) and females (69%) resided in rural areas.

4.3 Incidence of unemployment in urban and rural areas

Equation (6) was estimated by maximum likelihood method to identify individual and household characteristics that predict the probability of an individual being unemployed for subsamples of urban areas, rural areas and pooled sample. Table 7 presents the binary probit estimates separately for males and females.

From the results, most of the coefficients of the dummy variables for age of individual are negative and significant (at 1% level of significance) hence, young labour force participants are more likely to be unemployed than adults. Consequently, persons in the age groups 25-34, 35-44, 45-54, 55-64 are less likely than persons aged 15-24 to be unemployed. Age dummy variables have stronger effects in the urban sample than in the rural sample. This may be due to rural-urban migration by young labour force participants than older persons. Moreover, age dummies have a bigger effect in the female sub-sample of the urban sample than in the male sub-sample. Similar findings have been reported by Vuluku et al. (2013) for Kenya and Kingdon and Knight (2004) for South Africa who found that the probability of unemployment decreases with age.

Results show females have a lower probability of unemployment than males. This is because; the coefficient of gender is significant (at 1% level significance) and has a negative sign. In

the urban sample, females had 4.76 percentage points lower probability of unemployment than males. This result is slightly higher compared to that of rural sample where the probability of unemployment for females compared to males is 4 percentage points lower. These findings are consistent with those of Sackey and Osei (2006) for Ghana and Mourelo and Escudero (2013) for Kenya who found that females had a lower probability of unemployment than males. However, the results contradict Vuluku et al. (2013), Wamuthenya (2010) and Wamalwa (2009) who found that Kenyan females had a higher probability of unemployment than males. This could be because these studies seem to have expanded the labour force to include homemakers who were 'willing to work' and 'sought work'.

Marital status has a negative coefficient at 1% level of significance in nearly all subsamples. This implies that married persons are less likely to be unemployed compared to persons who are not married. In the urban sample, the effect of marital status on the probability of unemployment is larger than in the rural sample. Married persons in rural and urban areas are 5.8 percentage points and 10.4 percentage points respectively less likely than unmarried persons to be unemployed. The unemployment probability of married females and males in urban areas was respectively 10.6 percentage points and 7.7 percentage points lower than for unmarried females and males respectively. Married females living in rural areas were 6.63 percentage points less likely than unmarried females to be unemployed. However, being married has an insignificant effect on the probability of unemployment among rural males. These results are similar to what has been reported for Kenya by Vuluku et al. (2013) and Wamuthenya (2010) who found that employers prefer married persons to unmarried persons as they consider them trustworthy.

Table 7: Marginal effects of the unemployment probit model

Variables	Full sample			Rural Sample			Urban Sample		
	Pooled Sample	Male sample	Female sample	Pooled sample	Male sample	Female sample	Pooled sample	Male sample	Female sample
Age 15-24 being the reference category									
Age 25-34	-0.0235***	-0.0118*	-0.0259***	-0.0145***	-0.00774	-0.0123***	-0.0433***	-0.0216**	-0.0657***
	(0.00412)	(0.00632)	(0.00460)	(0.00481)	(0.00792)	(0.00412)	(0.00815)	(0.0108)	(0.0122)
Age 35-44	-0.0376***	-0.00980	-0.0464***	-0.0241***	0.00106	-0.0250***	-0.0679***	-0.0299**	-0.104***
	(0.00481)	(0.00896)	(0.00468)	(0.00587)	(0.0120)	(0.00445)	(0.00881)	(0.0139)	(0.0112)
Age 45-54	-0.0414***	-0.0195*	-0.0434***	-0.0320***	-0.0170	-0.0238***	-0.0654***	-0.0285*	-0.0957***
	(0.00519)	(0.0103)	(0.00413)	(0.00612)	(0.0130)	(0.00406)	(0.00935)	(0.0165)	(0.00920)
Age 55-64	-0.0317***	-0.00717	-0.0399***	-0.0321***	-0.0197	-0.0249***	-0.0381**	0.0102	-0.0811***
	(0.00762)	(0.0148)	(0.00430)	(0.00739)	(0.0155)	(0.00341)	(0.0169)	(0.0303)	(0.0121)
Gender (1=female, 0=male)	-0.0412***	-	-	-0.0400***	-	-	-0.0476***	-	-
	(0.00364)			(0.00424)			(0.00715)		
Marital Status (1=married, 0=otherwise)	-0.0731***	-0.0370***	-0.0788***	-0.0579***	-0.0105	-0.0663***	-0.104***	-0.0773***	-0.106***
	(0.00532)	(0.00876)	(0.00688)	(0.00643)	(0.0108)	(0.00799)	(0.00979)	(0.0154)	(0.0137)
Chronic illness (1=yes, 0=no)	-0.00844	-0.0138	0.00292	-0.0102	-0.0143	-0.00133	-0.00520	-0.0128	0.0131
	(0.00714)	(0.0102)	(0.00922)	(0.00801)	(0.0127)	(0.00782)	(0.0143)	(0.0174)	(0.0244)
Effect of education with "Incomplete primary education" being the reference category									
Primary education	0.00759*	0.0163**	-0.00590	0.00542	0.00866	-0.00325	0.0109	0.0320**	-0.0153
	(0.00449)	(0.00648)	(0.00515)	(0.00470)	(0.00722)	(0.00424)	(0.0102)	(0.0138)	(0.0147)
Form four secondary education	0.0215***	0.0170**	0.0178***	0.0180***	0.0124	0.00924	0.0293***	0.0265**	0.0351**
	(0.00534)	(0.00733)	(0.00661)	(0.00635)	(0.00904)	(0.00620)	(0.0103)	(0.0131)	(0.0159)
Form six secondary education	-0.0325**	-0.0548***	0.00893	0.00387	-0.0240	0.0582	-0.0599***	-0.0761***	-0.00977
	(0.0128)	(0.0120)	(0.0297)	(0.0290)	(0.0293)	(0.0766)	(0.0184)	(0.0129)	(0.0535)
College education	-0.0220	-0.0331	-0.0117	0.0393	0.0155	0.0586	-0.0669***	-0.0646***	-0.0651**
	(0.0201)	(0.0277)	(0.0228)	(0.0498)	(0.0633)	(0.0763)	(0.0193)	(0.0224)	(0.0319)
University education	-0.0138	-0.0327**	0.0208	0.0369	-0.0299	0.211*	-0.0220	-0.0213	-0.0174
	(0.0120)	(0.0136)	(0.0235)	(0.0383)	(0.0313)	(0.121)	(0.0185)	(0.0216)	(0.0340)
Household-head (1=yes, 0= no)	-0.0590***	-0.134***	-0.0322***	-0.0366***	-0.118***	-0.0192***	-0.0999***	-0.175***	-0.0570***
	(0.00513)	(0.0115)	(0.00496)	(0.00602)	(0.0141)	(0.00467)	(0.0105)	(0.0211)	(0.0136)
Household size	0.00645***	0.00675***	0.00305***	0.00536***	0.00612***	0.00144**	0.00817***	0.00724***	0.00662***
	(0.000617)	(0.000877)	(0.000776)	(0.000682)	(0.00106)	(0.000664)	(0.00128)	(0.00157)	(0.00216)
Housing tenure (1=own house, 0=otherwise)	-0.0256***	-0.0171**	-0.0334***	-0.0513***	-0.0402***	-0.0644***	-0.0162**	-0.0138	-0.0164
	(0.00571)	(0.00789)	(0.00752)	(0.0106)	(0.0149)	(0.0146)	(0.00809)	(0.01000)	(0.0131)
Location (1=urban, 0=rural)	0.0487***	0.0589***	0.0286***	-	-	-	-	-	-
	(0.00542)	(0.00757)	(0.00666)						
Observations	18,034	10,435	7,599	11,443	6,513	4,930	6,591	3,922	2,669

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The indicator variable for having chronic illness is not statistically significant at conventional levels of significance. In addition, the sign on the coefficient is not consistent across the pooled sample and the subsamples. This finding supports studies that have found physical appearance of health is not a selection mechanism by employers (Serneels, 2007).

Education attainment levels have coefficients with mixed signs at conventional levels of significance. The variable primary education is not significant at conventional level of significance (1%, 5%, and 10%) in both the urban and rural sample. Moreover, in the two samples, the sign of the coefficient is not consistent. However, in the male sub-sample of the urban sample, persons with only primary level education had 3.2 percentage points higher likelihood of unemployment compared to those with less than primary level education.

Form four secondary education is statistically significant (1% level) and has a positive sign in the urban and rural sample. For urban and rural residents, having form four secondary education increases the likelihood of unemployment by 2.9 percentage points and 1.8 percentage points relative to having incomplete primary education. Additionally, in urban areas, the increase in unemployment probability of completing form four secondary education for females (3.5 percentage points) is higher than that of males (2.7 percentage points). Similar findings were reported for Ghana by Sackey and Osei (2006) and Baah-Boateng (2013) and for Kenya by Mourelo and Escudero (2013). In contrast, Vuluku et al. (2013) and Wamuthenya (2010) found that for Kenya, persons with secondary education had a lower probability of unemployment than persons with less than primary education.

The empirical results show that at 5% significance level, form six secondary education was negatively associated with the probability of unemployment in the urban sample. Moreover, urban persons possessing form six secondary education have 6 percentage points lower chances of unemployment than persons with incomplete primary education in the urban

sample. Urban males possessing form six secondary education had 7.6 percentage points lower probability of unemployment compared to males with incomplete primary education. Vuluku et al. (2013) observes similar findings for Kenya. However, in the rural sample, form six secondary education is found to be insignificant.

The university education coefficient has a negative sign and is statistically significant in the female sub-sample of the rural sample at 10% level of significance. Therefore, females residing in rural areas with university education are 21 percentage points less likely than rural females with less than primary education to be unemployed.

College education has a negative effect on the probability of unemployment in the urban sample at 1% level of significance. Persons residing in urban areas who have college education are approximately 7 percentage points less likely to be unemployed than persons with incomplete primary education. Also, males and females residing in urban areas possessing college education were 6.5 percentage points less likely than persons with incomplete primary education to be unemployed.

Household headship exerts a negative effect on the probability of unemployment on all the subsamples at 1% level of significance. Therefore, in both rural and urban areas, respondents who were household heads were less likely to be unemployed. The effect of household headship on the probability of unemployment is lesser in the rural sample (3.66 percentage points) than in the urban sample (9.9 percentage points). Household heads in urban and rural areas were 3.7 percentage points and 10 percentage points less likely to be unemployed than non household heads.

Further, in urban areas and rural areas, household headship reduces the probability of unemployment among males by a higher (17.5 and 11.8 respectively) percentage point than among females (5.7 and 1.9). These finding is similar to that of Sackey and Osei (2006) for

Ghana, Kingdon and Knight (2004) for South Africa and Wamuthenya (2010) for Kenya. These results could be because household heads have many responsibilities and hence are likely to engage in intensive job search when unemployed. Further, employers are likely to hire household heads due to their unobserved productive characteristics signalled by their family status.

With regard to the other household characteristics, household size positively affects the probability of unemployment and is significant at 1% significance level in almost all subsamples. In the rural and urban sample, an increase in household size by one member increases the probability of unemployment by 0.5 percentage points and 0.8 percentage points respectively. In both the urban and rural sample, household size increased the probability of unemployment among females (0.6 and 0.1 respectively) by slightly lower percentage point than among males (0.7 and 0.6). These results are comparable to what is observed by Wamalwa (2009) for Kenya and Kingdon and Knight (2004) for South Africa. This could be explained by the fact that larger household means heavier household duties and therefore higher reservation wages for persons with many household members. However, the results disagree with Wamuthenya (2010) findings for Kenya. She found household size to be an insignificant determinant of unemployment.

Housing tenure is significant in both the rural (at 1% level of significance) and urban sample (at 5% level of significance) and has a negative effect on the probability of unemployment. In both rural and urban areas, owning a house decreases the probability of unemployment by 5.1 percentage points and 1.6 percentage points relative to not owning one. The decrease in probability of unemployment from owning a home relative to not owning one for rural females (6.4 percentage points) is bigger compared to that of males (-4 percentage points). These results contradict those of Kingdon and Knight (2004) who found that for South Africa house ownership increased the probability of unemployment by 1.7 percentage points.

However, while house ownership increased the probability of unemployment among Africans, among Indians and whites house ownership reduced the probability of unemployment.

The empirical results also provide evidence that unemployment in Kenya is an urban phenomenon. The urban dummy variable has a positive and significant (1% level) coefficient. Urban residents are 4.8 percentage points more likely than rural residents to be unemployed. In addition, urban males and females were 5.9 percentage and 2.9 percentage points respectively more likely than rural males and females to be unemployed.

Similar findings have been found for Ghana, South Africa and Kenya. Urban residents in Ghana are 6.5 percentage points more likely to be unemployed than their rural counterparts (Sackey and Osei, 2006). In South Africa, residing in urban areas increases the probability of unemployment by 13.4 percentage points (Kingdon and Knight, 2004). In Kenya, being an urban youth increases the probability of unemployment by 16.6 percentage points (Wamalwa, 2009).

4.4 Explaining the urban-rural unemployment gap.

Appendix table 2 reports the estimates of the likelihood ratio test. The test rejects the null hypothesis that rural and urban probit regressions are the same signifying that (p value=0.0000) urban-rural differences in returns to observable characteristics exist. The rest of the gap is due to differences in observable individual and household characteristics.

The decomposition of the urban-rural gap in average probability of unemployment in the full sample and separately among males and females is based on probit regressions. The gap was decomposed into the part explained by differences in urban-rural distribution of individual and household characteristics (explained part) and the part that is due to urban-rural differences in returns (penalty) to these characteristics (unexplained part) based on Fairlie

decomposition technique (Fairlie,2003). Table 8 presents results of the decomposition based on coefficients estimated from the urban sample, urban female sample and urban male sample. This means that we are interested in establishing the contribution of each variable to the urban-rural unemployment gap from replacing urban distribution with the rural distribution of that variable while holding the distribution of the other variables constant.

Urban residents have a higher average probability of unemployment (0.131) compared to rural residents (0.076). The average unemployment probability gap between urban residents and rural residents is 0.0551. The explained part of the raw unemployment gap reveals that, if urban persons had the same distribution of all variables as rural persons, the urban-rural gap in unemployment would be larger by 31%. The portion of the gap that is unexplained was 131%. The reason why the unexplained part is greater than the total gap may be because the effect of most variables on the probability of unemployment in urban areas was stronger than in rural areas. Therefore, if the returns of all included variables in urban and rural areas was the same, the unemployment gap would reduce by 131%.

The urban-rural differences in gender, marital status, housing tenure and form four secondary education explain the unemployment gap. Differences in regional distribution of housing tenure and form four secondary education respectively explain 20% and 11% of the unemployment gap. Consequently, if the distribution of housing tenure in urban areas was replaced with that of rural areas while holding the distribution of the other variables constant, the raw urban-rural gap in unemployment would decrease by approximately 20%.

Regional differences in household size decreases urban-rural unemployment gap by 30%. Therefore, urban-rural gap in unemployment would be 30% larger if urban persons had the same distribution of household size as rural persons while constantly holding the distribution

of the other variables. Additionally, urban-rural differences in the distribution of household-headship, form six secondary education and college education lessens the gap.

Additional results reveal that differences in the average probability of unemployment among females residing between urban areas and rural areas was 0.0761. The explained portion of the raw urban-rural unemployment gap was 0.200 or 26%. This implies that if urban females had on average rural females characteristics, the unemployment gap would decline by roughly a quarter. Regional differences in the distribution of age, housing tenure, marital status and form four secondary education respectively explain 14%, 16%, 19% and 10% of the unemployment gap. Therefore, urban persons have an inferior distribution of these variables and hence if urban persons distribution of these variables was replaced with that of rural persons while controlling the other variables, the urban-rural unemployment gap among females would decrease.

The portion of the urban-rural unemployment gap among females attributed to differences in returns of individual and household characteristics was 74%. This implies that if the returns to all the included variables were the same in urban and rural areas, the unemployment gap would decrease by 74%. Regional differences in the distribution of household size among females lessen the unemployment gap by 17%. This implies that urban persons distribution of household size is superior to that of rural persons. Also differences in the regional distribution of household head university education and college education reduce the gap by 13%, 1%, and 1% respectively.

The average unemployment probability of males in urban areas (0.132) was more than the average unemployment probability of males in rural areas (0.093). The gap in the probability of unemployment was 0.039.

Table 8: Decomposition results of the urban-rural unemployment gap in Kenya

Sample used for Coefficients	Urban-rural unemployment gap		Urban female-rural female unemployment gap		Urban male-rural male unemployment gap	
	Urban sample	Contribution	Urban Female Sample	Contribution	Urban Male Sample	Contribution
Average urban unemployment probability	0.131	-	0.1288	-	0.132	-
Average rural unemployment probability	0.076	-	0.0527	-	0.093	-
Difference in probability	0.0551	100%	0.0761	100%	0.039	100%
Total explained Gap	-0.0171	-31%	0.0200	26%	-0.045	-115%
Total unexplained Gap	0.0722	131%	0.05608	74%	0.084	215%
Contribution to the gap from urban-rural differences in the following variables:						
Age 25-34	-0.00111*** (0.000366)	-2%	0.00289*** (0.000989)	4%	-0.00167** (0.000717)	-4%
Age 35-44	0.00143*** (0.000415)	3%	0.00751*** (0.00126)	10%	-0.00130** (0.000660)	-3%
Age 45-54	-0.000250 (0.000362)	-0%	0.000587 (0.000602)	1%	-0.000758 (0.000583)	-2%
Age 55-64	-0.000117 (0.000142)	-0%	-0.000461 (0.000349)	-1%	0.000161 (0.000440)	0%
Gender (1=female, 0=male)	0.000989*** (0.000347)	2%				
Marital Status (1=married, 0=otherwise)	0.00427*** (0.000537)	8%	0.0142*** (0.00270)	19%	-0.00466*** (0.000917)	-12%
Chronic illness (1=yes, 0=no)	1.75e-06 (3.97e-05)	0%	7.42e-05 (0.000167)	0%	8.03e-05 (0.000136)	0%
Primary education	-0.000314 (0.000266)	-1%	-5.10e-06 (0.000192)	-0%	-0.00198*** (0.000709)	-5%
Form four secondary education	0.00591*** (0.00189)	11%	0.00754** (0.00311)	10%	0.00492** (0.00220)	13%
Form six secondary education	-0.000604*** (0.000206)	-1%	-7.13e-05 (0.000391)	0%	-0.000871*** (0.000214)	-2%
University education	-0.000710 (0.000618)	-1%	-0.000407 (0.000810)	-1%	-0.000786 (0.000834)	-2%
College education	-0.000531*** (0.000191)	-1%	-0.000545* (0.000305)	-1%	-0.000502** (0.000241)	-1%
Household-head (1=yes, 0= no)	-0.0210*** (0.00212)	-38%	-0.0101*** (0.00273)	-13%	-0.0319*** (0.00326)	-82%
Household size	-0.0165*** (0.00279)	-30%	-0.0130*** (0.00450)	-17%	-0.0146*** (0.00343)	-37%
Housing tenure (1=own house, 0=otherwise)	0.0112** (0.00571)	20%	0.0119 (0.00965)	16%	0.00910 (0.00670)	23%
Observations	18,034		7,599		10,435	

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.10

Differences in the distribution of all included variables reduce the urban-rural unemployment gap among males by 115% while differences in returns to observable individual and household characteristics account for 215% of the total gap. Urban-rural differences in the distribution of housing tenure and form six secondary education respectively explained 23% and 13% of the unemployment gap. However, differences in the regional distribution of household-head and household size decreased the gap by 82% and 37% respectively.

CHAPTER FIVE: CONCLUSIONS AND POLICY RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the study, draws conclusions, derives policy implications and suggests an area of further study. Section 5.2 summarizes and concludes the study while section 5.3 provides policy implications. Section 5.4 provides a suggestion for further research

5.2 Summary and Conclusions

The estimated overall unemployment rate (10.1%) masks the uneven distribution of unemployment within Kenya especially between regions. The urban unemployment rate (13.7%) was higher than the rural unemployment rate (8.2%). Therefore, open unemployment among urban residents is a particular problem in Kenya.

The main objective of this study was to examine differences in the incidence of unemployment between rural and urban residents in Kenya. Specifically, the study identified determinants of open unemployment in rural and urban areas and for each gender. In addition, decomposition of urban-rural gap in unemployment of the full sample, and separately for males and females was performed. This was to determine the portion of the gap explained by differences in the regional distribution of individual and household characteristics and the portion attributable to differences in the returns of these characteristics.

Binary probit models were estimated using 2005/2006 cross sectional data for the full sample, urban sample, and rural sample. Further, separate probits of unemployment for males and females were estimated. The estimation results show that individual characteristics and

household characteristics such as age, gender, marital status, education level, household-headship, housing tenure and household size are important predictors of unemployment probability in rural and urban areas. The variables age, gender, marital status, education level, household-headship, and household size have a bigger effect on the probability of unemployment in urban areas than in rural areas. In contrast, housing tenure had a stronger effect on the probability of unemployment in rural areas compared to urban areas.

When the analysis is disaggregated by gender the results show that age, marital status, education, household-headship, education level and household size were significant determinants of unemployment among females. Among males, marital status, household-headship, housing tenure, education and household size were key determinants of unemployment.

The results of decomposing the urban-rural unemployment gap reveal that if urban and rural persons had the same distribution of all the variables included, the urban-rural gap in unemployment would increase by approximately a third. Differences in regional distribution of gender, marital status, housing tenure and form four secondary education explained the unemployment gap. In contrast, differences in regional distribution of household-headship, form six secondary education, college education and household size reduced the unemployment gap.

Other decomposition results indicate that roughly a quarter of the urban female-rural female unemployment gap is explained by differences in regional distribution of individual and household characteristics. Differences in regional distribution of age, housing tenure, marital status and form four secondary education increased the unemployment gap. On the contrary, differences in regional distribution of household size, university education, college education and household head reduced the unemployment gap.

Decomposition of the urban-rural unemployment gap among males revealed that if males from urban areas had the same distribution of individual and household characteristics as rural males, the unemployment gap would increase by approximately one and a seventh. Differences in regional distribution of housing tenure and form four secondary education explained the unemployment gap. However, household headship and household size reduced the gap.

This study is important for two reasons. First, this study has broadened the scope of knowledge on differences in labour market outcomes in Kenya by investigating differences in labour market quantity (unemployment) as opposed to wages where most of the empirical literature on labour market outcomes have mostly focussed. Second, the study has quantified the contribution of individual and household characteristics to the urban-rural unemployment gap in the full sample, and separately among females and males. Therefore this paper will suggest specific policies that will help in reducing the urban-rural unemployment gap.

5.3 Implication of the Study

The decomposition results disclosed that differences in the regional distribution of housing tenure and form four secondary education explained the unemployment gap. Therefore, policies proposed by this research target urban person's ability to own houses and the urban unemployed who hold form four secondary education as the highest level of education. These policy interventions would also reduce the urban-rural gap in unemployment among females and males.

If the distribution of home ownership in urban areas was same as in rural areas, the urban-rural unemployment gap would reduce by a fifth. The government should therefore encourage urban home ownership by coming up with policies that reduce the costs of owning a house in urban areas. These costs include high production costs of building materials and

the high interest rates charged on mortgages. Also, considering that home ownership acts as a proxy for wealth, there is need to ensure urban persons become wealthy by increasing their incomes through policies that promote wealth creation.

To also reduce the gap, urban persons with form four secondary education should be encouraged to pursue vocational training so as to acquire soft skills needed in the labour market (Republic of Kenya, 2008a). Also vocational training plays a major role in promoting entrepreneurship in terms of both attitudes and skills (Republic of Kenya, 2008a). Thus, the government should develop a policy that will reduce fees charged by urban institutions that offer vocational training. Besides, the government should develop capacity of vocational institutions situated in urban areas by ensuring that they are properly equipped and that trainers are properly remunerated.

5.4 Suggestion of Further Research

This study has investigated individual and household characteristics that predict the probability of unemployment in rural and urban areas. From the results, the probability of unemployment is observed to decline with age. As a result older persons (persons aged 25-64 years) tend to have labour market advantage than younger persons (persons aged 15-24). This finding raises the question; does discrimination in terms of age exist in the Kenyan labour market? In order to come up with an appropriate answer, there is need to investigate the factors that explain youth-adult differences in the incidence of unemployment in Kenya.

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APPENDICES

Table 1: Determinants of unemployment: Probit results

Variables	Full Sample			Rural Sample			Urban Sample		
	Pooled	**Male**	**Female**	**Pooled**	**Male**	**Female**	**Pooled**	**Male**	**Female**
Age 15-24 acts as the reference age									
Age 25-34	-0.198***	-0.0866*	-0.319***	-0.141***	-0.0589	-0.242***	-0.284***	-0.148*	-0.434***
	(0.0363)	(0.0473)	(0.0585)	(0.0486)	(0.0613)	(0.0836)	(0.0552)	(0.0757)	(0.0831)
Age 35-44	-0.349***	-0.0725	-0.703***	-0.252***	0.00787	-0.593***	-0.512***	-0.216**	-0.875***
	(0.0517)	(0.0683)	(0.0883)	(0.0686)	(0.0889)	(0.128)	(0.0796)	(0.109)	(0.125)
Age 45-54	-0.424***	-0.152*	-0.828***	-0.372***	-0.137	-0.693***	-0.550***	-0.212	-1.065***
	(0.0697)	(0.0873)	(0.135)	(0.0907)	(0.113)	(0.185)	(0.110)	(0.138)	(0.203)
Age 55-64	-0.317***	-0.0533	-0.908***	-0.396***	-0.163	-1.052***	-0.288*	0.0653	-0.932***
	(0.0978)	(0.114)	(0.242)	(0.127)	(0.144)	(0.407)	(0.157)	(0.187)	(0.326)
Gender(1=female, 0=male)	-0.343***			-0.384***			-0.310***		
	(0.0309)			(0.0416)			(0.0473)		
Marital status (1=married, otherwise 0)	-0.537***	-0.255***	-0.774***	-0.490***	-0.0778	-0.895***	-0.608***	-0.468***	-0.651***
	(0.0360)	(0.0578)	(0.0592)	(0.0499)	(0.0794)	(0.0854)	(0.0531)	(0.0851)	(0.0841)
Chronic illness (1=yes, 0=no)	-0.0710	-0.106	0.0323	-0.102	-0.116	-0.0246	-0.0333	-0.0905	0.0777
	(0.0630)	(0.0841)	(0.0998)	(0.0861)	(0.111)	(0.147)	(0.0933)	(0.130)	(0.139)
Effect of education with Incomplete primary education as the reference category									
Primary education	0.0602*	0.115***	-0.0678	0.0500	0.0641	-0.0595	0.0673	0.203**	-0.0966
	(0.0352)	(0.0445)	(0.0601)	(0.0430)	(0.0529)	(0.0786)	(0.0618)	(0.0834)	(0.0951)
Form four secondary education	0.163***	0.118**	0.186***	0.155***	0.0889	0.151*	0.180***	0.173**	0.211**
	(0.0382)	(0.0488)	(0.0632)	(0.0507)	(0.0627)	(0.0911)	(0.0610)	(0.0828)	(0.0922)
Form six secondary education	-0.336*	-0.608**	0.0935	0.0350	-0.210	0.595	-0.537**	-0.968**	-0.0630
	(0.178)	(0.238)	(0.289)	(0.255)	(0.303)	(0.511)	(0.263)	(0.451)	(0.360)
College education	-0.207	-0.296	-0.151	0.291	0.107	0.598	-0.668*	-0.722	-0.615
	(0.226)	(0.317)	(0.340)	(0.303)	(0.407)	(0.505)	(0.364)	(0.515)	(0.529)
University education	-0.121	-0.287*	0.199	0.277	-0.274	1.268***	-0.152	-0.157	-0.116
	(0.116)	(0.150)	(0.193)	(0.237)	(0.362)	(0.396)	(0.141)	(0.177)	(0.245)
Household-head (1=yes, 0=no)	-0.483***	-0.822***	-0.444***	-0.357***	-0.800***	-0.447***	-0.598***	-0.895***	-0.392***
	(0.0425)	(0.0621)	(0.0812)	(0.0610)	(0.0882)	(0.134)	(0.0601)	(0.0876)	(0.104)
Household size	0.0518***	0.0485***	0.0345***	0.0499***	0.0458***	0.0260**	0.0513***	0.0483***	0.0409***

	(0.00492)	(0.00624)	(0.00870)	(0.00635)	(0.00792)	(0.0118)	(0.00796)	(0.0103)	(0.0132)
Housing tenure(1=Ownhouse, otherwise 0)	-0.195***	-0.119**	-0.336***	-0.375***	-0.259***	-0.670***	-0.105*	-0.0949	-0.105
	(0.0414)	(0.0536)	(0.0676)	(0.0632)	(0.0842)	(0.102)	(0.0540)	(0.0706)	(0.0864)
Location (1=urban, 0=rural)	0.361***	0.392***	0.298***						
	(0.0372)	(0.0468)	(0.0636)						
Constant	-1.059***	-1.221***	-0.863***	-0.973***	-1.147***	-0.576***	-0.575***	-0.706***	-0.581***
	(0.0835)	(0.108)	(0.135)	(0.115)	(0.147)	(0.197)	(0.119)	(0.159)	(0.176)
Observations	18,034	10,435	7,599	11,443	6,513	4,930	6,591	3,922	2,669

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 2: Log Likelihood Ratio Test Results

Null hypothesis: Urban Probit Model = Rural Probit Model

Alternative hypothesis: Urban Probit Model ≠ Rural Probit Model

LR chi2(15) =   88.15
Prob > chi2 =   0.0000

Model	Observations	Null	Model	Degree of Freedom
Full	18,034	-5713.038	-4767.801	17
Urban	6,591	-2562.161	-2044.494	16
Rural	11,443	-3080.23	-2679.232	16