

Accounting for the Gender Gap in Urban Youth Unemployment in Africa: Evidence from Kenya

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Abstract

Using a decomposition framework and Kenyan data from 1986, 1998 and 2005, this study analyzes the factors associated with the likelihood of unemployment among the urban youth labour force and the disproportionately higher vulnerability to unemployment among female youth compared to male youth. Overall, the results indicate that household-headship, training, marital status and being male as opposed to being female are significantly correlated with the likelihood of being unemployed. Level of formal education appears less important while experience appears to be more important for female youth.

After controlling for potential endogeneity of training results indicate that access to training/skills could help to diminish overall youth unemployment by about 58% and by 53% and 51% for females and males, respectively. The decomposition analysis indicates that the observed gender gaps in youth unemployment are largely explained by differences in average characteristics between female and male youth. Household-headship exerts the most positive effect in widening the differential. Over time, the combined positive effect of human capital variables declines sharply, thus narrowing the gap. Marital status increasingly limits young women from being employed, thus widening the gap. Overall, the analysis provides limited justification for employment discrimination in the youth labour market along gender lines.

Key words: Youth, unemployment, gender, decomposition analysis

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1.0 Background

Worldwide, the current youth employment crisis is characterized by unprecedented levels of youth un(der) employment, lower quality of jobs available for the youth, long periods transitioning from school to work, and discouragement and detachment from the labour market.

From a broad perspective, youth unemployment in Africa is much higher (21%) than the world average (14.4%) – the youth population in sub-Saharan Africa (SSA) was estimated at 138 million people in 2002–2003, with 28.9 million (or 21%) of them unemployed, making it the second highest rate in the world (ECA, 2005). Africa's youth population is growing rapidly, which is a major factor in worsening youth unemployment. Africa's high fertility rates are declining at a much slower speed than in the rest of the world. Based on current economic growth rates, future increases in the youth labour force will exert great pressure on the labour market. The United Nations Economic Commission for Africa's Economic Report on Africa 2005 (UNECA, 2005) estimates a growth of 28.2% between 2003 and 2015 in Africa's labour force – this compares to a meagre 3.8% growth for South-East Asia and a decline of about 3.1% in industrialized economies. This unprecedented rise in the youth population and the resultant growth of young people entering the labour market will further limit employment creation efforts ((ECA/UNECA, 2005)). At an estimated growth rate of roughly 30%, SSA will also be the only continent where adult and youth labour forces will develop at parallel rates. This will produce additional adverse ramifications for the youth labour market ((ECA/UNECA, 2005)). The severity of the problem is particularly exacerbated by the growing proportion of young people aged 15–24 in Africa's population ((ECA/UNECA, 2005)).

The size of the Kenyan labour force has progressed much faster compared to the growth of formal sector jobs. The private (formal) and informal sectors, which are seen as key drivers for generating employment, have been sluggish in engendering real jobs. In addition, the structural adjustment reforms that have characterized the Kenyan economy over the last couple of decades have been implemented at the same time as negative changes in employment, incomes and poverty have taken place.

In general, Kenya's economic trajectory has been variable, with a much better performance in the early 1970s and then worsening further in the 1980s after the implementation of the structural adjustment programmes, which took place at the same time as external and internal shocks. This led to a particularly bad situation in

1990–2002, characterized by a poor real GDP growth rate, low employment formation, sharp increases in unemployment and poverty, and negative changes in the urban employment structure marked by reduced formal sector employment (public and private) and rapid intensification of informal sector employment (Wamuthenya 2010a and 2010b). Alongside these negative trends, the economy is still not able to generate enough jobs for a swiftly growing and educated labour force.¹

Notwithstanding this somewhat grim picture, current development debates, e.g., the African Development Bank's (ADB) 2014 country strategy paper on Kenya for 2014–2018, seem to suggest that the Kenyan economy is positively “emerging and transforming politically and economically after 50 years of independence marked by mixed political and economic performance” (ADB, 2014, p.1). An impressive recent growth performance of 3.7% (yearly average GDP) in the last five years is predicted to rise to 6–6.5% over the next three years, with the potential for the economy to develop into one of the leading economies in Africa in terms of growth (AfDB, 2014). However, the AfDB argues that the country is following rather than leading Africa's growth impetus: “... its economic growth has not been sufficiently inclusive as evidenced by persistent high levels of poverty and regional disparities, limited access to basic services, high inequality and unemployment, with youth, women and other vulnerable groups particularly hard-hit. The country's Gini coefficient of 47.7 compares less favourably to the other main economies in the region: e.g. Ethiopia 29.8, Tanzania 37.6 and Uganda 44.3” (AfDB, 2014, p.8).

As such, the main challenge faced by Kenya today is that of creating economic growth that is more inclusive to effectively diminish poverty country-wide. Other related challenges include large skills gap and rapid urbanization (30% of the population resides in urban centres compared to 16% two decades ago) implying the urgent need to create job opportunities in cities (notably for the youth). The AfDB report (2014) emphasizes a need to develop skills for the emerging labour market of an economy that is undergoing rapid transformation, such as Kenya.

1.1 Trends in urban unemployment in Kenya and the associated gender gaps

Starting with all persons included in the standard labour force age, 15–64, the statistics displayed in Table 1 indicate a massive increase in overall unemployment in urban areas from 7% in 1977, to 16% in 1986, and 25% in 1998. In 2005, the unemployment rate was lower, at 20%. At the same time, male unemployment rose from about 7 per cent in 1977, to about 12 per cent and 13 per cent in 1986 and 1998, respectively, and to about 15 per cent in 2005; there is therefore a very small change during 1986–2005. The increase in the female unemployment rate was substantial at about 6 per cent

¹ For further insights on the SAPs and the evolution of Kenya's labour market, see Wamuthenya, 2010a.

in 1977, 24 per cent in 1986, 38 per cent in 1998, and lower in 2005 at about 25 per cent. The gender differentials in unemployment trends are therefore considerably large and from this, one could infer that a greater part of the increase in overall urban unemployment would seem to have been driven by the tremendous increase in female unemployment. Essentially, the elevated level of unemployment in urban areas has been mainly the result of the large share of unemployed women, which is far higher than that of males. Against this background, the gender gap in unemployment increased from 1 percentage point in 1977 to 12 percentage points in 1986 and to 25 in 1998, before dropping by 15 percentage points in 2005, all against women.

Table 1: Total urban unemployment rate (%) and by gender, age 15-64

Unemployment Rate*	Year			
	1977	1986	1998	2005
Entire Urban	7	16	25	20
Male	7	12	13	15
Female	6	24	38	26
Gap in unemployment rate	1	-12	-25	-11

Source: Own computation from the LFS data (1977, 1986, 1998/99) and various government reports.

The unemployment rate refers to the number of unemployed persons as a proportion of the labour force.

The standard definition of the youth as provided by the United Nations (UN) refers to persons aged 15 to 24. However, each country adopts its own definition contingent on cultural, institutional and political factors (O'Higgins 1997). In Kenya, the youth comprises persons in the age bracket 15 to 29 (Republic of Kenya, 2006). This paper adopts the Kenyan definition of the youth and covers persons in the labour force aged 15 to 29, including discouraged workers.

Turning to urban youth unemployment, the problem of unemployment affects both adults and the youth. However, it is more serious among the youth and the rates were 78%, 65%, and 68% in 1986, 1998 and 2005, respectively (Table 2). What is even more striking in Table 3 is a persistent and high gender imbalance in youth unemployment, even in 1998 where the gender gap in youth employment appears to have closed. This yields a higher incidence of female youth unemployment in comparison with that of male youth of about 42% versus 24% in 1986, 49% versus 24% in 1998, and 50% versus 27% in 2005. Therefore, from 18% in 1986, the gender disparity in youth employment has remained quite high at 25% in 1998 and 23% in 2005 (see last row of Table 3).

Table 2: Unemployment in the labour force (%), urban areas: adults versus youth (%)

Year Category	1986 Adult*	Youth**	Total	1998 Adult*	Youth**	Total	2005 Adult*	Youth**	Total
Share (%)	22	78	100	35	65	100	32	68	100

Source: Own calculations 1998 and 1986 LFS data. Data for 1977 are no longer available

Note: * represents age 30–64; ** represents age 15–29

Table 3: Youth in the labour force by status and gender (%), urban areas

LF status	1986			1998			2005		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Employed	34	66	100	50	50	100	47	53	100
Incidence employed (a)	58	76	69	51	76	61	50	73	60
Unemployed	54	46	100	76	24	100	71	29	100
Incidence unemployed (b)	42	24	31	49	24	39	50	27	40
Total (a + b)	100	100	100	100	100	100	100	100	100
Gender gap in unemployment	-18			-25			-23		

However, the above figures should be read with caution as the task of determining youth unemployment in Africa is somewhat complicated owing to the difficulty in determining those who may be actually unemployed (or inactive) but at the same time engaged in illegal activities (such as prostitution, theft and drugs), which are not in the visible informal sectors. Young persons engaged in such activities do so for survival and may not necessarily disclose the nature of their work – they are likely to report themselves to be working in the informal sector as self-employed, casual workers, unpaid family workers or as inactive. As such, their employment status would be close to unemployment rather than under-employment or inactive. How to measure underemployment and illegal employment remains a difficult issue. Kondylis and Manacorda's (2008) study on youth joblessness in Tanzania, states that one of the ways of coping without work is by engaging in informal work that is unrecorded in the Labour Force Survey (LFS) data. As a result, the measures of unemployment and joblessness tend to overstate the nature of the problem in Tanzania. Another way of coping with joblessness in Tanzania is engaging in hazardous activities and prostitution – although these are not captured in the LFS data, data based on victimization rates indicate high rates of property crime and robbery. Citing evidence from the US, Kondylis and Manacorda (2008) observe that criminal behaviour (particularly among youth with poor prospects in the labour market), is a response to poor opportunities (quality and quantity) in the labour market.

In the Kenya, there is growing concern for a rampant increase in youth (and

children's) involvement in criminal activities and prostitution (especially in the sex trade in coastal areas). However, reliable data for estimating the magnitude of such work are lacking. In most other developing countries (as in the Tanzanian case above), such activities are captured under informal sector employment. Consequently, the scale of open unemployment is likely to be underestimated; Fox and Gaal (2008) observe that higher urban informal employment is likely to emerge instead of open unemployment. This implies that (un)employment figures would change if such activities were properly accounted for. This caveat should be kept in mind when defining who is actually unemployed and therefore in the interpretation and discussion of the correlates of unemployment reported in this study.

Note that although unemployment (the number of unemployed persons as a proportion of the labour force) and the associated gender disparity affect both urban and rural areas, the focus of this study is on urban unemployment, justified by the fact that unemployment is more pronounced in urban areas. Furthermore, the urban unemployment rate has increased more rapidly than that of rural unemployment: from 7% in 1977, to 16% in 1986 and 25% in 1998, while the unemployment rate was lower at 20% in 2005. Also, the gender gap in unemployment in rural areas is marginal compared to urban areas.²

2.2 Research problem

While youth joblessness is now a global concern, the discussions date back to the 1970s for Africa as documented in a famous ILO (1972) pilot study on Kenya. This study and more recent ones acknowledge the prevalence of gender inequality in youth unemployment (to the disadvantage of females).³ However, systematic evidence (across time) of the underlying factors associated with young women's higher disproportionate susceptibility to unemployment compared to their male counterparts is lacking. To contribute to this gap in the research, this study uses the most recent data to identify the parameters correlated with the likelihood of youth unemployment (individuals in age group 15–29⁴) in the urban areas of Kenya, and

2 Trends in overall rural unemployment rate: 7.2%, 9.4% and 9.8% for 1988/9, 1998 and 2005/6, respectively. Rural female unemployment rate: 0.1%, 10.4% and 10.2% for 1988/9, 1998 and 2005/6, respectively. Rural male unemployment rate: 0.4%, 8.3% and 9.5% for 1988/9, 1998 and 2005/6, respectively.

3 Recent studies on youth unemployment in Kenya include Kiiru et al., 2013 and Wamalwa, 2009. For other regions in Africa: Kabbani and Kothari, 2005, on the Middle East and North Africa, Lam et al., 2008, Leibbrandt and Mlatsheni, 2004, and Mlatsheni and Rospabe, 2002, on South Africa. More general studies include Wambugu et al., 2009 and O'Higgins, 2001. Assaad et al., 2000 on Egypt, Kingdom and Knight, 2001a and 2001b on South Africa, and Lachaud, 1994, on West Africa.

4 Previous analysis by Wamuthenya (2010c) emphasizes the gender gap in unemployment among all persons in the labour force age (15–64) and is restricted to the 1986 and 1998 sample period. This paper provides a more rigorous analysis of urban youth unemployment exclusively and extends to the 2005 sample period (most current data). In terms of rigor, Wamuthenya's previous work does not include the training variable, which has an important policy connotation. This paper considers the true effect of

the sources of its large and persistent gender imbalance.

The paper attempts to address the following research questions: what are the characteristics of unemployed youth in the labour force? How do these characteristics differ over time and by sex? What factors are associated with young women's greater vulnerability to unemployment than males, i.e., the gender gap in youth unemployment? Related to this last question, and the key focus of the current study, is whether this vulnerability is linked to different observable characteristics between males and females (endowment /compositional effect) or the way in which the characteristics are rewarded differently in the labour market.

The underlying principles of the study stem from the idea that certain categories of people are more likely to assume specific labour force states (in this case, employed or unemployed) than others once they have decided to participate in the labour market (O'Leary et al., 2005). Consequently, variations in the distribution between groups (in this case of males versus females) will to a certain extent determine the distribution of the labour force population between these two labour force states. This is referred to as the characteristic or the composition effect (endowment effect). From a different angle, the structural effect (valuation/returns/behavioural effect) quantifies the extent to which comparable persons settle into distinct labour force states. This behavioural effect is partially attributable to differences in demand for labour and in tastes, preferences and cultural factors that have a distinct male/female dimension. Thus, this component reflects the part played by demand-side influences in accounting for gender differences in labour force outcomes (O'Leary et al., 2005).

This study applies this conceptual thinking to analyze the gender differences in the incidence of youth unemployment in 1986, 1998 and 2005. To achieve this, a probit model is estimated first to inform how the characteristics of male and female youth are linked to their probability of being unemployed. To disentangle the gender gap in unemployment into characteristic and behavioural effects, an extension of the Blinder-Oaxaca decomposition technique is applied. The analysis is based on cross-sectional LFS data from the above three periods. Given the nature of the LFS data available, this paper focuses on the supply side of the labour market.⁵

the training variable, i.e., the causality between training and the unemployment rate, thus controlling for the potential endogeneity of the training variable. For the 1998 and 1986 samples, some descriptive statistics and estimates of this paper appear somewhat similar. This is largely because most of the labour force comprises the youth (age 15–29) compared to the adult population (for instance 65% and 78% of the labour force was composed of the youth in the 1998 and 1986 samples, respectively, and 68 per cent in 2005; see Table 2). As such, the estimates and the sample statistics of persons in the labour force age group (15–64), and for males and females separately, may be taken as representative of the youth (age 15–29), as they are the majority of the labour force. Even after controlling for youth unemployment alone for the 1986 and 1998 sample periods, some of the parameter estimates differ from those used in the current paper. For instance, previous work does not control for the separate effect of university and secondary education, but combines them in one category.

5 The decision to participate in the labour market entails two interrelated aspects of decision making by the jobseeker and the employer. From the supply side, the jobseeker makes a choice about how to

2.3 Research objectives

The broad research objective of this study is to empirically analyze the factors correlated with the incidence of youth unemployment in the urban areas of Kenya, as well as the sources of its large and persistent gender imbalance. Specifically, the study aims to:

1. descriptively examine the characteristics of unemployed youth in urban areas and how these characteristics differ over time and by sex;
2. empirically assess the characteristics associated with youth unemployment in the urban areas of Kenya;
3. identify the variables associated with female youth's lower likelihood of being employed than male youth – i.e., the gender unemployment gap; and
4. draw policy implications for reducing youth unemployment in Kenya and its associated gender gap.

2.4 Significance of the study

A study on youth unemployment issues is important because of its huge social and economic consequences – possible repercussions come at a cost to the economy, society and the individual. Jobless youth unable to find work may resort to survival alternatives to make a living. These may include criminal activities in the informal sector – migrants moving from rural to urban areas who find no work in the cities often have limited social networks (ECA, 2005). As they become frustrated with no job prospects, some may resort to prostitution, criminality and drug industries to survive. The rise in criminal activity, drug addiction and prostitution among young unemployed migrants is partly a result of the combined effects of a lack of social networks and insufficient job opportunities (UNECA, 2005).

The most direct impact on the economy of an unproductive youth labour force is lost output in terms of goods and services (Nwankwo and Ifejiolor, 2014). "Youth joblessness also implies missed opportunities in the use of human resources to produce goods and services. In addition, smaller tax revenues result from a smaller tax base for income tax and indirect taxes such as value added tax. A further implication is related to security. An increase of one percentage point in the ratio of people aged 15–29 to people aged 30–54 increases the likelihood of conflict such as civil unrest or war by 7 per cent. Higher crime rates also have a direct economic cost in terms of loss of foreign direct investment. For example, foreign investors have cited crime as the most serious deterrent to investing in South Africa." (ECA, 2005, p.168). Thus,

apportion their time, while from the demand side the employer makes the choice to offer employment to a job seeker. A person's decision to engage in gainful work is thus determined by this interface of supply and demand dynamics. The applicable LFS data lack information on employer characteristics.

engaging the unexploited potential of an out-of-work young generation could serve as an essential advantage for economic development (YEN-WA, 2008 and Bellemare and Poulin-Simon, 1994).

In SSA, the economic effect of HIV/AIDS is very serious. Furthermore, the health burden of HIV/AIDS on GDP in SSA is closely linked to unemployed youth (UNECA, 2005 and ILO, 2004). According to the ECA, of the SSA youth population in 2003, 6.9% women and 2.1% men were HIV positive. This translates to 4.76 million women and 1.44 million men of which a major share is presumably comprised of jobless youth – this group is in greater danger of being infected with HIV/AIDS compared to their employed counterparts.⁶ In SSA, jobless young women are more susceptible to contracting HIV infection than young men – about 75 per cent of young people in SSA who were HIV positive in 2003 were women (ECA, 2005)⁷.

The social cost of youth unemployment in SSA is significant – it is an unaffordable price with huge implications for public expenditure (UNECA, 2005; Brenner 1979). The health condition of young people affects their employment situation in that being infected with the HIV virus, for example, can lead to becoming ultimately ill with HIV-related opportunistic infections and diseases. This can lead to increased absence from work, reduced productivity and the likelihood of getting hired, as well as increased illicit activities (and therefore insecurity).

This study endeavours to contribute to the existing literature on youth unemployment in the context of developing countries. Specifically, the paper contributes to an understanding of the gender unemployment gap among the youth by decomposing the gap into compositional and behavioural components.

In addition to contributing to policies on youth unemployment, the empirical findings of this study may be of wider applicability to other developing countries.

The rest of the paper is organized as follows: Section 3 provides a review of the literature; Section 4 gives the conceptual framework and methodology, and Section 5 shows the data, related descriptive statistics and estimation variables. Results for the correlates of youth unemployment and for the decomposition of the gender gap in youth unemployment are presented in Sections 6 and 7, respectively. Section 8 provides conclusion and policy recommendations.

6 This is linked to persistent behavioural risks and lack of information, education and services (UNAIDS, 2004).

7 ECA 2005, pp.181–2 (in reference to UNAIDS, 2004) notes that this phenomenon is “caused partly by the lack of employment opportunities that many young women face, leading to commercial sex with older men to support themselves and their families. Exacerbated by the higher biological vulnerability of girls and women to HIV infection, gender imbalance, patterns of sexual networking and age-mixing, girls and women are the main victims of this deadly disease.”

3.0 Literature Review

3.1 Theoretical literature

Becker's (Becker, 1965) neoclassical theory on production and time allocation within the household is the main theory applied in most labour supply studies. Its central assumptions hinge on utility maximization subject to budget constraints. In this theory, economic agents are rational individuals who make informed decisions on the basis of absolute certitude about prices and wages and confront their own budgetary constraints independent of what others do.

The concept of labour supply (i.e., the number of hours people are willing and able to supply labour at a given wage rate) has embedded the concept of labour force participation, whereby individuals simultaneously decide the number of hours to work and whether to work at all. Following Becker's production and time allocation model of an individual's usage of time, a person seeks to maximize utility by making a rational choice between market work and non-market activities. The decision to work is determined by the discrepancy between the market wage and the reservation wage (opportunity cost of not working). The incentive to work will be zero if the reservation wage exceeds the market wage. This is because it would be irrational for a utility maximizing individual to exchange even one hour of leisure for work as the utility derived from consuming leisure is more than that derived from the wages earned from market work.

Therefore, under Becker's framework, the main criterion for an individual to enter the labour market or engage in job search behaviour is that the market wage surpasses the reservation wage. A two-stage process influences a person's status in the labour force. In the initial stage, an individual decides whether or not to supply labour to the market. The subsequent stage depends on whether or not they are employed. The process is effected through a combination of factors including demand-side factors or preferences by employers (e.g., human capital attributes), incentives to engage in active job searches and to accept job offers available. Thus, moving from theory to practice requires assessing the factors that determine the reservation and market wages, or both.

This theory is not without its limitations. For instance, it overlooks the interdependence of household members and therefore their decision-making processes. It also assumes that incomes are pooled within a household and fails to

differentiate between productive and recreation activities.⁸

Embedded in the neoclassical theory is the human capital theory, which draws on the idea that individuals invest in their own education and skills with a view to boost their market skills, productivity and earnings. While the theory highlights key productivity-related gender differences it has some limitations, as summarized in Polachek (1995). For instance, it assumes that individuals work without interruption over their lifetime, which is not the case as both work hours and labour force participation vary over the life cycle, especially where female labour force participation is concerned. It also assumes homogeneity among individuals, e.g., the ability to generate more human capital. The ability to access resources to finance human capital investment varies from individual to individual and the process may be culturally determined (or gender discriminative), among other things. Despite these limitations, and following the literature on gender gaps in wages, disparities in unemployment between men and women may arise because of differences in human capital, discrimination and labour market institutions.⁹

3.2 Empirical literature

3.2.1 Correlates of youth unemployment

Several studies have examined the correlates of youth unemployment. While some of the studies analyze the correlates from a microeconomic perspective, others do so from a macroeconomic perspective or both (Eita and Ashipala, 2010 and O'Higgins, 1997). From a macroeconomic perspective, aggregate demand, youth wages, the size of the youth labour force and lack of skills among the youth determine youth employment.¹⁰ While recognizing the fact that unemployment is determined by the complex result of microeconomic and macroeconomic factors, this paper focuses on microeconomic factors in line with the objectives of the study. The microeconomic perspective provides explanations for youth unemployment that are not necessarily youth specific (O'Higgins, 1997).

The neoclassical theory of human capital differentiates between individuals according to their schooling and training investments, and accounts for some of the difference in productivity among young people and between cohorts. An inference from the theory is that young people with low education and experience have more difficulty in finding employment. Thus education, training and experience are some of the variables that are correlated with an individual's likelihood of being unemployed.

8 See Wamuthenya, 2009, for a succinct discussion. Further insights can be found in Van den Brink, 1994, and Haddad et al., 1997. This study assumes that incomes are pooled within a household and that decisions about expenditures and labour allocation are made jointly.

9 See Kaufman, 1994, for a detailed discussion of the theories of discrimination, and Blau and Kahn, 2003, Bertola et al., 2007, and Azmat et al., 2006, on institutions.

10 See for example Eita and Ashipala's study on causes of unemployment in Namibia for the period 1971 to 2007.

However, evidence as to whether education in particular does boost the odds of being employed appears mixed across countries, locations and gender. For instance, Halchuk's (2006) study of indigenous Australians finds that education is more important for boosting women's employability in major urban locations than it is for men (nearly all education parameters are statistically significant for females while the effect is nil for males). In remote areas, the effect of education on employability is nil for women.

In the literature on school to work transition, it is argued that the youth in Africa are ill-equipped to fulfil the needs of the labour market. For instance, Garcia and Fares (2008) examine the challenges African youths face in their transition to work. Using data from selected African countries (case studies of four countries: Burkina Faso, Ethiopia, Tanzania and Uganda, and from household data from 12 countries), they analyze three issues: the two paths of working life of an African youth (directly, without the benefit of education and through school), the effects of education on employment and income, and youth unemployment and its correlates.

Garcia and Fares (2008) observe that African youth start working too early and are unprepared to meet the demands of the labour market. In essence, leaving schooling early or not attending school at all limits their human capital accumulation and restricts upward mobility. Their results indicate that the youth enter the labour market lacking skills with illiteracy being very high in the age group 15 to 24. For example, in Burkina Faso, Ethiopia and Mozambique, more than 75% of out-of-school youth have no education at all. The results also indicate that those who do transition from school to work undergo excessively long periods of inactivity, for example in Kenya, Malawi, Zambia, Cameroon and Ethiopia young people face about five years of inactivity before finding work, while the average in Uganda is three years. The authors also note that while most youth in rural areas are in unpaid family work, underemployed or both, the majority in urban areas are unemployed, and for very long periods. Those who work are more likely than adults to be trapped in low productivity jobs (or illegal jobs). The low-skilled become more vulnerable to weakening demand with women facing more difficulties in participating in the labour force. Their results also indicate that male youths stay in school longer than women and are therefore more likely to attain higher education. As a result, they start the transition to work later than females in both urban (except for Kenya) and rural areas (except for Kenya and Uganda).

A more specific study on South Africa by Lam et al. (2008) examines the role of education in the employment outcomes of young people in South Africa. They ask why such a high proportion of young people between the ages of 15 and 24 (by their estimation, 42% in 2005) stop studying and enter the labour force despite the fact that approximately 60% of this cohort is unemployed. They identify two plausible reasons: resource constraints, which inhibit further education, and household income constraints, which forces young people to find work. Their results indicate that while completing secondary and/or tertiary education has a significant effect on the chance of finding employment, only one in ten young Africans leaving school find work in the first month and that proportion only improves moderately to about

a quarter after 12 months and only a half after three years. The findings do not point to the notion that young people leave school to generate income – they find a high turnover in the youth labour market (a 20% increase in the number of young African men who start work for the first time between the second and third year of their labour force participation). On the whole, their results suggest that race, gender, completed secondary school education and the literacy and numeracy evaluation score all have a significant impact on the probability of finding employment.

An earlier study on South Africa by Kingdom and Knight (2001a) seeks to understand why unemployed workers in South Africa prefer to remain unemployed and keep searching for work/waiting instead of joining the informal sector, which is free to enter. They argue that the informal sector might be an end in itself or route to wage-employment in the sense of providing a base from which to search/wait for wage-employment. For South Africa, their study indicates that earnings from wage-employment exceed those from self-employment by far, connoting that wage-employment is the preferred state. The study also indicates that income from self-employment exceeds “income” while unemployed (i.e., income from informal sector activities is non-negligible income) implying that it is better for the unemployed to choose to search from a self-employed state. Perhaps this is because job searching is more efficient if undertaken while unemployed (hence unemployment is voluntary), but there could be barriers that impede workers’ access informal sector activities. In this case, the authors assert that there might be no viable alternative to unemployment and therefore it would be misleading to label the unemployed who do not have the option to search from a self-employed state as voluntarily unemployed. They further argue that persons might choose unemployment (luxury/voluntary unemployment hypothesis) rather than wage employment as the choice between the two may be influenced by the likelihood of redistribution within the household through the stimulus produced by the distribution of household income. This incentive renders a member to remain needy and is thus a disincentive to work, that is, a disincentive effect. Moreover, higher household income may drive up transfers further encouraging the consumption of leisure, that is, the income effect.

Another reason that workers opt for unemployment rather than wage employment is lack of information in an imperfectly competitive labour market, in which case the unemployed face a distribution of wage offers with probabilities attached (Kingdom and Knight, 2001b). This may result in a tendency to stay unemployed until a sufficiently high wage offer appears or hold “unrealistically optimistic expectations” of the “expected wage” as defined in probabilistic models of migration. Therefore, because of imperfect information and related unrealistic expectations of securing wage employment and/or of the wage they will be offered, the unemployed choose to remain unemployed even when it would be economically rational to accept available job offers (Kingdom and Knight, 2001b).

In the Kenyan context, the study by Kiiru et al. (2013) finds that a marginal increase in the level of secondary and technical education is likely to increase the chances of the youth being in open unemployment as compared to being in fulltime employment,

with a significant reversal at very high levels of education. One explanation is that the youth who are unable to find formal jobs continue to acquire more education awaiting job openings. The effect of this is an increase in the supply of highly trained youth causing employers to raise their employment qualifications. The other is that as more youth acquire higher education, it raises their expectations of the kind of jobs sought for. Those who fail to get a job that is perceived to be commensurate with their qualifications embark on more schooling, the so called “parking theory”, at institutions of higher learning in anticipation of the right job (Kiiru et al. (2013). The finding that tertiary education is an important buffer against the risk of unemployment for young people has been reported in other studies (for example, Domadenik and Pastore, 2006, for Poland and Slovenia).

A commonly held view about urban labour markets in developing countries is that youth joblessness is a luxury accessible only to those from more advantaged backgrounds, often proxied by their education. This notion often views unemployment as an option for youth queuing for jobs in the formal public and private sectors. However, in the face of widespread poverty and absence of social welfare public provision such as unemployment benefits, as is the case in developed economies, non-employment is hardly a viable option for the poor who have no choice but to make ends meet through informal and casual work. Derived from this notion is that the youth unemployment problem should not be a source of major policy concern per se, as it is in principle a voluntary phenomenon. However, evidence from Tanzania is not consistent with this widespread view that joblessness in developing countries is a luxury for the better off (Kondylis and Manacorda, 2008). The results of the Tanzanian study indicate that youth unemployment does not appear to reflect queuing by young people for scarce well-paying jobs – in urban areas young people from more advantaged families are more likely to attend school and less likely to be jobless (thus inactive in the labour force) implying that joblessness is a more severe problem for the poor (Kondylis and Manacorda, 2008). In both developing and developed countries, as young workers see their employment prospects deteriorate, not only do they tend to work less but also respond by staying in school longer, residing with parents (Card and Lemieux 2000), and possibly engaging in crime (UNECA, 2005 and Freeman 1996, 1999). Overall, the findings of this study emphasize education as a key microeconomic determinant to being employed and that female youth in SSA have lower levels of school attainment, school enrolment and employment than males, which may explain the huge gender unemployment gap pertaining to women.

3.2.2 Gender gap in youth unemployment

In terms of the key focus of this paper (decomposition of the gender youth unemployment gap), there is hardly any study on the decomposition of the gender unemployment gap in developing countries to date. Most of the literature is on

developed economies.¹¹ However, in the context of African countries, the study by Mlatsheni and Rospabe (2002) is worth considering here given its relevance to this study in terms of methodology and parameters. It examines the main microeconomic correlates of youth unemployment in South Africa using a probit model and the reasons why it is so unequally spread among different population groups – race groups and genders using the Oaxaca 1973 decomposition technique. As in similar literature, the explanatory variables corresponding to the characteristics of the individuals include gender, race, level of schooling, years of participation in the labour force, marital status, headship status, the number of children in the household, the presence of unemployed and employed individuals in the household, and housing tenure. Mlatsheni and Rospabe refer to several variables not included in their analysis but which could also have an effect on the results, such as the reservation wage of the individuals, parental background variables and neighbourhood effects.¹² The results of the decomposition analysis indicate that large parts of the differences in employment of youth and older participants are attributable to disparities in observable characteristics, such as experience, education and family characteristics. On differences in the incidence of youth unemployment by gender, the study finds strong evidence of discrimination against women, noting that pre-labour market discrimination is likely to have played a part in this outcome.

11 For a detailed review, see Wamuthenya, 2010c.

12 Parental background variables include education, labour market status or occupation and were introduced to test for intergenerational transmission of inequalities. The ensuing estimates could be biased as the only way to introduce these intergenerational variables is to select the sample of youth living with their parents, thereby excluding those who are household heads. Other factors include neighbourhood factors such as peer effects (or distance and access to telephone), access to credit and interest rates as important correlates of self-employment (Mlatsheni and Rospabe, 2002).

4.0 Conceptual Framework and Methodology

The determining parameters for labour demand and supply are reflected in individual differences in the labour force status (i.e., whether one is employed or not). Demand-side factors such as labour versus capital-intensive economies or level of technological dependence, will determine the labour supply attributes needed in the labour market on condition that demand for labour also exists. For example, a large and expanding number of highly educated youth may not necessarily translate into employment if the economy is highly labour intensive and less technologically developed, thus requiring low educated/skilled labour. In general, the (un)employment outcomes manifested in the labour market result from an interface between demand and supply features, i.e., the disparities in outcomes across individuals endowed with diverse characteristics (such as education and skills) vis-à-vis how the characteristics are valued by employers.

Following the theoretical literature outlined above,¹³ the neo-classical theory of labour supply and human capital, institutions and discrimination are the main theories considered in this paper as relevant for identifying the factors associated with youth unemployment at the micro level (household/individual level) and the gender unemployment gap.

In the literature on gender pay gaps¹⁴ under the human capital framework, the average wage difference between men and women is the result of gender differentials in human capital endowments and discrimination (employer-driven prejudices and statistical discrimination). By extension, the gender gap in the youth unemployment rate is linked to employer prejudices against women and statistical discrimination (employers, in the absence of perfect information, presume that an average woman has

¹³ As specified in Section 3.1, the main criterion for an individual to enter the labour market or engage in job search behaviour is that the market wage surpasses the reservation wage.

¹⁴ The theoretical framework and interpretation of the empirical findings borrows heavily from the literature on the gender wage gap. While the literature on unemployment differentials between men and women is quite limited there exists substantial literature on gender pay gaps. This specific literature is critical to the conceptual framework of this study.

a lower level of labour market attachment and is less qualified than an average man).¹⁵

Discrimination in the labour market takes place when two workers who are similarly productive are recruited into different jobs, or are not equally paid for the same job, or do not access equal training opportunities because of their tribe, sex and religion or other factors. This phenomenon can be quantified by the amount of the gender earnings differential unexplained by gender discrepancy in human capital endowments.

This theoretical reasoning hinges on the fact that a person's likelihood of being unemployed relative to being employed depends on their endowments and the worth employers attach to the endowments. Therefore, the gender differential in unemployment can be separated into a portion that may be explained by differences in human capital and other observed characteristics, and an unexplained portion, which might be a result of labour market discrimination, e.g., employer-related characteristics, tastes and preferences not directly observable from the current data.

4.1 Model specification and variables

As is standard in the literature, a binary choice model (probit) will be used to estimate the odds of being unemployed (relative to being employed in the labour force), given a set of individual endowments. The model is non-linear and provides predicted probabilities between zero and one (for details, see Appendix B).

Replicating the model following previous work by Wamuthenya (2010c, refer to footnote 3), an individual's dichotomous unemployment status is denoted by U_i and $U_i = 1$, if an individual is unemployed, and $U_i = 0$ if an individual is not (i.e., is employed).

The probability that $U_i = 1$ is defined as:

$$\text{Probability that is, } F(U_i = 1) = F(\beta^0 + \beta^1 X_{1i} + \beta^2 X_{2i} + \dots + \beta^k X_{ki}) \quad (1)$$

The probability that $U_i = 1$ depends on a vector of individual and household attributes (X_i). This specification is estimated separately for 1986, 1998 and 2005 (refer to footnote 3).

From the theoretical and empirical literature, traditional observable characteristics that may influence the probability of being unemployed are discussed below (also summarized in Table 5 of the data section). They consist of individual characteristics (age, level of education, training, marital status, household headship)¹⁶, household characteristics (family size, household income, unearned income, reservation wage,

¹⁵ Detailed in Wamuthenya, 2010a and 2010c.

¹⁶ A household head is defined as the chief decision maker of a household whose authority is acknowledged by other members of the household. Being identified as a household head also comes with important responsibilities, including financial provision and protection for the family.

presence of female relatives and young children, cultural factors and housing tenure), and neighbourhood effects (e.g., distance from the nearest telephone). A detailed discussion of these characteristics and associated potential econometric issues follows.

In terms of human capital variables (age, education and training), the relationship between age and the incidence of unemployment is expected to follow a U-shaped pattern over the lifecycle, i.e., the risk is higher among younger persons and declines over the lifecycle before rising sharply for older persons. The variable age controls for these lifecycle effects. It also serves as a proxy for experience. Other constant factors, level of educational attainment and training, influence the likelihood of unemployment. The relationship is inverse.

Turning to household and family characteristics and the potential influence on unemployment, Marital status could have an inverse or positive effect. Young, single persons are more likely to be unemployed. They are likely to exhibit lower job search behaviour than married persons because of lesser financial/social obligations. Reproductive activities can hinder young, married mothers from engaging in gainful work and relegate them into long periods of job searching or frequent entry-exit labour market behaviour.

A young head of a household (defined as main income earner in a household) is more likely to be employed (and to pursue a more intensive job search) relative to being unemployed compared to a person who is not in an inverse relationship. This variable should be interpreted with caution as the correlation between household-headship and employment status may be endogenous – working in a particular sector may well determine who is considered as the household head. It is important to remember this when interpreting this variable Wamuthenya, 2010c).

Number of young children not attending school, size of a household and presence of female relatives in a household are other characteristics of a household related to the care of young children. The likelihood of being unemployed for women increases with the presence of young children where childcare is unaffordable and in the absence of female relatives. The choice to have children and to work is endogenous and results would also have to be interpreted with caution. The presence of female relatives in a household and marital status is also potentially endogenous (Wamuthenya, 2010c).

Keep in mind that this study is about assessing the gender gap in male and female youth unemployment rate irrespective of the marital status, i.e., it does not endeavour to estimate separate samples for young married and single women, but provides one sample that includes both, which is then compared with a similar sample for male youth. For this reason, variables such as the presence of young children and of female relatives and husband's income (as proxy for the reservation wage of young women) will be excluded from the analysis. As noted, the marital status variable is included in the model, keeping in mind that it is also endogenous and correlated with unemployment (Wamuthenya (2010c).

The correlation between the size of a household and the odds of unemployment is unclear. The larger the size of the household the more the chores performed by

women will be, diminishing their incentive to work. It could also imply more financial constraints, thus increasing the incentive to work under the assumption that other household members who do not work (e.g., adult female relatives) are able and available to care for young children. As explained above, the endogeneity bias in the choice to bear children implies that the size of a household may well be endogenous.

Other household characteristics include: housing tenure (ownership of household dwelling), size of the reservation wage and cultural factors (e.g., reluctance of male household heads to encourage spouses to work even if they possess the necessary education and skills).

Housing tenure poses two divergent effects for the probability of getting a job. Mlatsheni and Rospabe (2002), argue that it can impede labour mobility and migration (and thus employment) because of higher transactions costs if one has to rent a dwelling (hence a negative effect). It may also hamper employment if it acts as a proxy for wealth and the reservation wage (hence a negative effect). The correlation between tenure and the incidence of unemployment could be positive where an employer seeks stability to lessen labour turnover or where an employee has to pay rent for housing accommodation (Mlatsheni and Rospabe, 2002).

The effect of cultural factors and preferences would depend on whether one is active in the labour force or not. For instance, some young women could be inactive (i.e., not in the labour force) irrespective of education and or skills because their spouses demand that they should not work or because they deliberately choose not to engage in gainful work (thus inactive) depending on the income status of the household. In that case, they would not declare themselves “unemployed” by definition, unless they report to be secretly looking for work without their husband’s knowledge. In urban areas, women tend to be more educated (and therefore more empowered to decide and influence decisions at the household level) than in rural areas where cultural issues could be relevant. Thus, culture may not be an important element in determining the likelihood of unemployment of female urban youth in Kenya who declare themselves to be unemployed (available for work and actively looking for work). Furthermore, the LFS data do not contain the needed information to capture these issues.

4.2 Methodology for decomposing the gender gap in youth unemployment

To categorize the main parameters that explain the gender gap in unemployment rates in 1986, 1998 and 2005, we disentangle the gap using an extension of the Blinder-Oaxaca decomposition technique as outlined in Wamuthenya 2010c (as developed from Fairlie, 2003 and Even and Macpherson, 1990, 1993¹⁷). The Blinder-Oaxaca method facilitates decomposition of inter-group differences in average levels of an

17 See also Blackaby et al., 1998 and 1994, Fairlie, 2003, Nielsen and Jensen, 1997, Nielsen, 1998, Wen-Hao et al., 2005, and 2004.

outcome (i.e., the gender unemployment gap) into differences that may be ascribed to observable characteristics and to those linked to the perceived value of these characteristics in the labour market (i.e., the demand side).

The probability of being unemployed is first estimated for males and females separately while the estimated parameters are employed in the decomposition analysis to obtain the two parts described above: the endowment/characteristics and perceived value effects.

The rest of the paper follows a replication of the framework and content outlined in Wamuthenya 2010c (pp.18–21) with minor adjustments towards the end.

In each period, the female-male unemployment gap can be expressed as:

$$U_f - U_m = F(X_f \beta_f) - F(X_m \beta_m) \quad (2)$$

where U_f and U_m are the predicted unemployment probabilities for females and males, respectively.

Equation 2 can be decomposed as:

$$U_f - U_m = F(X_f \beta_f) - F(X_m \beta_m) = [F(X_f \beta_f) - F(X_m \beta_f)] + [F(X_m \beta_f) - F(X_m \beta_m)] \quad (3)$$

where F (for a probit model), is the cumulative distribution function from the standard normal distribution. β_f and β_m are vectors of parameter estimates associated with females and males, respectively (in each period). X_f and X_m are the vectors of individual characteristics (females and males, respectively).

In Equation 3, the first term in parentheses corresponds to the part of the gap that is linked to group differences in distributions of X , while the second part corresponds to the portion linked to differences in the group processes determining the levels of unemployment.

Thus, within this statistical framework, the female-male unemployment gap is ascribed to two sources – differences in the average characteristics (education, marital status, household-headship) of females and males, and differences in the returns to these characteristics. Differences in employment unexplained by differences in average characteristics are often viewed as resulting from sex discrimination in the labour market.

The decomposition sketched above is not unique and an alternative expression of Equation 3 may be written:

$$U_f - U_m = F(X_f \beta_f) - F(X_m \beta_m) = [F(X_f \beta_m) - F(X_m \beta_m)] + [F(X_f \beta_f) - F(X_f \beta_m)] \quad (4)$$

Linked to the index number problem in which Equations 3 and 4 yield different estimates owing to a random addition of the terms, $F(X_m \beta_f)$ and $F(X_f \beta_m)$ in Equation 3 and 4, respectively, this study uses coefficient estimates from a pooled sample of males and females as a proxy for the structure that would prevail in the

absence of discrimination.

Let β^* be the neutral coefficient structure (estimates from a pooled sample of the two groups) that would prevail in the absence of behavioural differences in returns to the labour-force status (the probability of being unemployed) generating characteristics between males and females (Oaxaca and Ransom, 1994, and Neumark, 1988). Deviations from the neutral structure (β^*) may arise from either discrimination or other unexplained sources of group differences. Based on the assumption that the probit estimates of the pooled sample represent the correlates of being unemployed in the absence of discrimination or unobserved group differences, the difference between the average unemployment probability among females and what their average probability of being unemployed would be without discrimination or unobserved influences in returns, is:

$$F(X_f \beta^*) - F(X_m \beta^*) \quad (5)$$

The comparable expression for males is:

$$F(X_m \beta^*) - F(X_f \beta^*) \quad (6)$$

Thus, the total gap in average female and male unemployment probability can be expressed as:

$$U_f - U_m = F(X_f \beta^*) - F(X_m \beta^*) = [F(X_f \beta^*) - F(X_m \beta^*)] + \{[F(X_f \beta^*) - F(X_f \beta^*)] + [F(X_m \beta^*) - F(X_m \beta^*)]\} \quad (7)$$

The first term in Equation 7 in square brackets uses the neutral-pooled male-female unemployment structure to predict the unemployment probabilities of each sample, but allows the characteristics of females to differ from those of males. This expression is the explained/observed part of the total gap or the characteristic effect, since it indicates the gap in unemployment probability explained by differences in the individual characteristics of females and males.

The second and third terms, in braces, constitute the coefficient effect or the unexplained part of the total gap in male-female unemployment.¹⁸ The second term indicates the difference between returns to female characteristics and those that would exist in the context of a neutral structure, while the third term depicts the difference between returns to male characteristics and those that would exist in the context of a neutral structure. The second term may be interpreted as the female

18 The compositional (characteristics) effect captures the role of personal, human capital and other endowments in the likelihood of being unemployed or of getting a job, while the structural effect captures an employer's valuation of these characteristics, therefore the demand-side of the labour market.

disadvantage of being unemployed, while the third term may be interpreted as the male advantage of being unemployed. The empirical discussion does not draw a distinction between the second and third terms and combines both of them to capture the gender gap in the probability of unemployment linked to differences in structural factors.

Equation 8 determines the contribution of each individual explanatory variable to the observed portion of the total gap (contribution of each of the X s) and the contribution of each of the Betas (coefficients) to the unexplained portion of the total gap (Yun, 2004 and Even and Macpherson, 1990 and 1993). The input I of variable k to the observed differential is calculated as follows:

$$Z_k [F(X_f \hat{\beta}) - F(X_m \hat{\beta})] \text{ where } Z_k = \frac{(X_k^f - X_k^m) \hat{\beta}_k^*}{\sum_{k=1}^K [(X_k^f - X_k^m) \hat{\beta}_k^*]} \text{ and } \sum_{k=1}^K Z_k = 1 \quad (8)$$

The contribution of variable k to the coefficient effect is derived by:

$$S_k [F(X_f \hat{\beta}) - F(X_m \hat{\beta})] + [F(X_m \hat{\beta}) - F(X_m \hat{\beta}_k)] \\ \text{and } S_k = \frac{(\hat{\beta}_k^f - \hat{\beta}_k^m) X_k^m}{\sum_{k=1}^K [(\hat{\beta}_k^f - \hat{\beta}_k^m) X_k^m]} \text{ with } \sum_{k=1}^K S_k = 1 \quad (9)$$

To recap, only Equation 2 will be estimated to obtain the total predicted male-female unemployment gap. Equation 7 will be used to compute (decompose) the gender gap in unemployment for each year into the characteristics' and returns' effects. Note that the male advantage and female disadvantage will be considered separately. Equations 8 and 9 will be used to calculate the contribution of a specific variable to each of the components of the gap.

Yet another problem with the decomposition methodology as pointed out in Oaxaca and Ransom (1994) is that of identification. Many of the explanatory variables in the model are dummy variables. The identification problem arises because distinct contributions of sets of exogenous dichotomous variables to the coefficients/unexplained effect, changes with the reference/omitted group/category chosen. A solution to the problem (i.e., to obtain identification) has been provided by Yun (2005 and 2008) and applied in the works of Epstein et al. (2010), Madden (2008), and Gardeazabal and Ugidos (2004). Essentially, "estimates of the coefficients effects for every possible specification of the reference groups can be obtained and then the

average of the estimates of the coefficients effects with various reference groups is taken as the true contributions of individual variables to differentials" (Epstein et al., 2010: p.669). This averaging approach is burdensome as it implies running an endless number of specifications. However, the average estimate can be determined easily with a single estimation (by only running one set of regression estimates with any reference group(s)). The interpretation of the detailed decomposition findings should be undertaken with caution as the methodology is not completely free from arbitrariness (Epstein et al., 2010: p. 669).

5.0 Data

This section provides information on data sources, relevant variables for the estimations, and some descriptive statistics.

5.1 Data sources

The paper uses national LFS data for 1986, 1998/99 and 2005. Confining the analysis to persons in the labour force aged 15 to 29, we obtain 1,957, 1,592 and 4,411 observations for the 1986, 1998 and 2005 data sets, respectively.

The Central Bureau of Statistics (now the Kenya National Bureau of Statistics) of the Ministry of Finance and Planning in Kenya has collected labour force survey data (cross-sectional) at different points in time: 1977, 1986, 1998/99 and 2005 (most current). This paper uses secondary data based on LFS data for 1986, 1998/99 and 2005. It covers the youth (ages 15 to 29) in the labour force.

The 1986 survey sampled 2,697 urban households and included 9,605 respondents. It is based on the National Sample Survey and Evaluation Program (NASSEP) designed by the Bureau of Statistics under the 1979 population housing census and adopted a stratified two-stage cluster design.

The 1998/99 Integrated Labour Force Survey utilized the 1989 NASSEP framework created under the 1989 population housing census. The framework also followed a two-stage cluster design of 1,139 clusters comprising 209 urban clusters and 1,938 households. In total, 6,646 individuals were interviewed. Information on the sample characteristics is provided below.

The 2005 survey was conducted in 1,343 randomly selected clusters comprising 482 urban clusters and 4,820 households. The urban clusters comprised 19,288 respondents of which 6,488 were in the age group 15–29. The survey was conducted in clusters randomly selected from the NASSEP framework created after the 1999 Population Census following the two-stage stratified cluster design as in previous surveys.

5.2 Estimation variables

Members of the population who are unavailable for work such as the disabled, the retired and full-time students represent the currently economically inactive

population (or “out” of the labour-force), whereas working members of a population and those who do not work but are looking for work during a specified reference period represent the currently economically active population (or “in” the labour force). Theoretically, the unemployment rate refers to the number of unemployed persons as a fraction of the labour force. However, as pointed out earlier, the task of categorizing working-age persons as employed, unemployed or inactive can be problematic in practice.

There exist two measures (narrow and broad) for the unemployed in the labour force. Jobless persons who have searched for work in a given period fall into the narrow measure. This measure does not include discouraged workers. To allow for objectivity and international comparability, the ILO suggests the use of the narrow measure of unemployment in which those not actively seeking work are excluded. The broader measure is the narrow measure plus discouraged workers; those who desire to have a job but have not taken active steps to look for one during a given reference period as they believe that there are no prospects of finding one.

In the Kenyan context, unemployed persons include those who are without work (during the reference period) but currently available for and actively seeking work. This category also includes those currently available for and without work, but who have made arrangements to undertake paid employment or a self-employment activity at a date subsequent to the reference period. Thus the criterion for seeking work is formulated in terms of actively searching for work (seeking paid or self-employment). A general declaration of searching for work is inadequate – a person must have taken specific steps in a specified recent period to obtain work in order to be considered as looking for work. This category does not include the underemployed; those who have paid work but wish to leave current employment for better opportunities.

Following Wambugu et al. (2009), this paper uses the broad measure to define the unemployed. Persons who had not looked for work during the reference period because “no work was available” are included in the unemployed. The perception that the probability of finding work is low depresses the perceived benefit-cost-ratio of the job search. In such circumstances, it would seem reasonable to treat those who do not have a job and are no longer looking for work because they are discouraged as unemployed, including those out of work but were available to take a job if offered one even though they had not been actively looking for work.

One should note that because of the absence of unemployment insurance in developing countries, few people can afford to be unemployed for any length of time or appear to be doing nothing. Often, such people will be engaged in some economic activity to survive and may also be seeking other or additional work and would therefore not counted as unemployed. Based on the questionnaires used to collect the survey data, respondents were asked what they were “mainly doing in the past 7 days”. Among the responses were “homemakers” and “unpaid family workers”.¹⁹

¹⁹ “Homemaker” is anyone who is mainly involved in household chores such as cooking and laundry, but may also include farm work and other activities. “Unpaid family worker” (contributing family work

Self-employment includes working employers, own-account workers and unpaid family workers. Women (mainly married women) are more often than men engaged in activities within the household as unpaid family workers or homemakers, or work as seasonal agricultural workers. As such, they would be counted as employed and thus economically active. However, their labour force status might be closer to unemployment than to employment. In this study, homemakers are classified as informal sector workers. Those whose main reason for not working or looking for work is “don't need work” (voluntarily inactive) are classified as inactive. Married women are likely to fall into this category.

This study excludes full-time students (defined as those in regular educational institutions and hence not available for work and do not work at all but may help with household chores) from the labour force, i.e., are counted as economically inactive.

The standard definition of the youth as provided by the UN refers to persons of age 15 to 24. However, each country adopts its own definition contingent on cultural, institutional and political factors (O'Higgins, 1997). In Kenya, the youth comprise persons in the age bracket 15 to 29 (Republic of Kenya, 2006). This paper adapts the Kenyan definition of the youth and covers persons in the labour force aged 15 to 29, including discouraged workers.

Table 4: Variable description

Variable	Description
Dependent variable: Unemployed	Dummy dependent variable taking the value “1” if unemployed and “0” otherwise.
Explanatory variables	
Age	Age in years
Age-squared	Age in years, squared
Sex	Dummy variable: 1=male; 0=female
Married	Dummy variable: 1=married; 0=not married
Household-head	Dummy variable: 1=Yes; 0=No
Household size	Total number of household members (hsize)
Education (highest level completed)	Primary dummy variable: 1=has primary level education; 0=otherwise; Secondary dummy variable: 1=has secondary level education; 0=otherwise; University dummy: 1=has university level education; 0=otherwise; None/nursery (omitted category) dummy variable: 1=has no schooling including/has nursery level; 0=otherwise
Training	Dummy variable: 1=if one has training; 0=otherwise
Log rent/unearned income	Continuous variable of rent/unearned in log form

5.3 Descriptive statistics: Youth in the labour force

Tables 5 to 7 provide the average characteristics for the total youth sample in the labour force, while Tables 5.5 to 5.7 display information for males and females separately. The numbers in Tables 5.2 to 5.4 point out minimal difference in the mean age of persons in the labour force across the sample periods (about 24 in 1986 and 23 in both 1998 and 2005). The share of male youth relative to female youth in the labour force (sex variable) drops steeply from 60% in 1986 to 40% in 1998, with a small increase to 43% in 2005, denoting an increase in the share of female youth in the labour force. The decline may be linked to an increase in the duration male youth spend at school/college acquiring education and skills when compared to female youth who are more likely to terminate school earlier and thus also join the labour force earlier. From roughly 48 per cent in 1986, the marital status of labour force participants increased to 51 per cent in 1998 and then dropped to 44 per cent in 2005. Except for 1998, the relatively higher proportion of single rather than married persons in the labour force may be associated with the fact that the majority are aged 15 to 24 and have often just finished school/college and are looking for work immediately. In 1986, 45% of the youth labour force was classified as heads of households, while only 30% in 1998 and 27% in 2005 signifies a decline. The lower proportion of youth household heads relative to those who are not is consistent with the issue raised earlier that most youths are aged 15 to 24 and marry later so have not yet become a household head. Most household heads are male and, as we have seen, the share of males in the youth labour force has declined over time. The average household size of the youth in the labour force did not change much over the years: about 4 in both 1986 and 1998, and 5 in 2005.

In terms of educational distribution, most youth in the labour force have either a primary or secondary level education. A small proportion of the youth have university level education with proportions ranging between 1 and 2 per cent across the three periods. At 40% in 1986, the proportion of the youth with primary level education is higher by 7 percentage points in 1998 and by 12 percentage points in 2005. This trend may be linked to the introduction of free primary education before 2005. At the same time, the proportion of the youth in the labour force with secondary level education indicates a declining trend: 53%, 48% and 45% cent for 1986, 1998 and 2005, respectively. This trend shows that progress to higher educational levels for youth in the labour force was higher in 1986 compared to later years. This is also evident from the fact that when the relatively few persons with university education are combined with those with secondary level education (secondary level and plus), the proportions are: 55%, 49% and 48% for 1986, 1998 and 2005, respectively, while the proportions for primary level education or none are 46%, 51% and 52%. Note that fewer youth have no education and the figures have declined sharply over time: about 6 per cent in 1986 and about 4 per cent and close to nil in 1998 and 2005, respectively. On the whole, the educational attainment of the youth seems to have evolved towards lower

educational levels, which may be linked to their increased levels of unemployment on the assumption that labour market needs educated and skilled young labour.

In terms of training, the majority of the youth have no training (technical/vocational/professional) beyond the highest academic level reached, and the share of those with training has declined by 22% between 1986 and 2005.

Variables such as marital status, household headship and size may indirectly capture the reservation wage²⁰ of the unemployed. In terms of other proxies of the reservation wage and in household(s) where there is youth unemployment, over 80 per cent of household heads are employed. From 82% in 1986, the share of the presence of an employee (persons in paid employment) in households where there is unemployed youth despite being quite high decreases to 73% in 1998 and 60% in 2005. The reverse is true for the presence of self-employed persons: 30%, 32% and 50% for 1986, 1998 and 2005, respectively, reflecting the precariousness of urban households in terms of employment and the shrinkage of formal sector jobs. The presence of other unemployed household members other than the individual, and the presence of female relatives is quite small ranging from 10 to 22 per cent.

Conditional on the employment status²¹ of youth in the labour force as per formal and informal employment and the unemployed, we see that from 56% in 1986, the proportion of employed youth in the formal sector declined by 29 percentage points in 1998 and by a further 17 percentage points in 2005. From 12%, the share of youth in the informal sector increases by 17 percentage points in 1998 and by a further 20 percentage points in 2005. From 31% in 1986, the proportion of unemployed youth in the labour force increases by 13 percentage points in 1998 and by a further 3 percentage points in 2005. This translates to an unemployment rate of 31%, 39% and 40% in 1986, 1998 and 2005, respectively.

20 The reservation wage among household heads and married persons (who are also the main income earners) would be zero since they can not afford to be unemployed. Likewise, the larger the size of the household with non-working persons, the lower the reservation wage would be. Other indicators for the reservation wage include wage and household income data. However, given the measurement issues related to such data, proxies are preferred.

21 For employment status the three categories: formal employment, informal employment and the unemployed should add up to 100.

Table 5: Descriptive statistics, youth in the labour force, 1986

Variable	Full sample		
	Obs.	Mean	Std. Dev.
Age	1957	23.99	3.50
Age, squared	1957	587.90	162.63
Sex	1957	0.60	0.49
Married	1957	0.48	0.50
Head of household	1957	0.45	0.50
Household size	1957	3.98	2.87
None	1957	0.06	0.23
Primary	1957	0.40	0.49
Secondary	1957	0.53	0.50
University	1957	0.02	0.12
Secondary and university	1957	0.55	0.50
Training	1957	0.46	0.50
Head employed	1957	0.88	0.32
Presence of employed	1957	0.82	0.39
Presence of self-employed	1957	0.30	0.59
Presence of other unemployed	1957	0.12	0.33
Presence of female relative	1957	0.13	0.34
Formal employment	1957	0.56	0.50
Informal employment	1957	0.12	0.33
Unemployed	1957	0.31	0.46
Unemployment rate	1957	0.31	0.46

Table 6: Descriptive statistics, youth in the labour force, 1998

Variable	Full sample		
	Obs.	Mean	Std. Dev.
Age	1572	23.28	3.73
Age, squared	1572	555.86	170.47
Sex	1572	0.40	0.49
Married	1572	0.51	0.50
Head of household	1572	0.30	0.46
Household size	1572	4.21	2.47
None	1572	0.04	0.20
Primary	1572	0.47	0.50
Secondary	1572	0.48	0.50
University	1572	0.01	0.11
Secondary and university	1572	0.49	0.50
Training	1572	0.45	0.50
Head employed	1572	0.88	0.32
Presence of employed	1572	0.73	0.44
Presence of self-employed	1572	0.32	0.47
Presence of other unemployed	1572	0.15	0.36
Presence of female relative	1572	0.22	0.41
Tenure	1572	0.14	0.34
Log rent/other income	1572	3.03	3.85
Formal employment	1408	0.27	0.45
Informal employment	1408	0.30	0.46
Unemployed	1408	0.43	0.50
Unemployment rate	1572	0.38	0.49

Table 7: Descriptive statistics, youth in the labour force, 2005

Variable	Full sample		
	Obs.	Mean	Std. Dev.
Age	4411	23.16	3.73
Age, squared	4411	550.45	170.58
Sex	4411	0.43	0.50
Married	4411	0.44	0.50
Head of household	4411	0.27	0.44
Household size	4411	5.00	3.11
None	4080	0.00	0.03
Primary	4080	0.52	0.50
Secondary	4080	0.45	0.50
University	4080	0.02	0.15
Secondary and university	4080	0.48	0.50
Training	4411	0.24	0.43
Head employed	4411	0.86	0.35
Presence of employed	4411	0.60	0.49
Presence of self-employed	4411	0.50	0.50
Presence of other unemployed	4411	0.22	0.42
Presence of female relative	4411	0.10	0.30
Log rent/other income	4411	1.15	3.02
Tenure	4389	0.30	0.46
Formal employment	4324	0.10	0.30
Informal employment	4324	0.49	0.50
Unemployed	4324	0.41	0.49
Unemployment rate	4408	0.40	0.49

Table 8: Descriptive statistics, youth in the labour force by sex, 1986

Variable	Male			Female		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
Age	1166	24.47	3.24	791	23.29	3.75
Age, squared	1166	609.25	153.57	791	556.42	170.41
Married	1166	0.45	0.50	791	0.52	0.50
Head of household	1166	0.59	0.49	791	0.24	0.43
Household size	1166	3.45	2.82	791	4.76	2.76
None	1166	0.04	0.19	791	0.08	0.27
Primary	1166	0.39	0.49	791	0.42	0.49
Secondary	1166	0.55	0.50	791	0.49	0.50
University	1166	0.02	0.13	791	0.01	0.12
Secondary and university	1166	0.57	0.49	791	0.50	0.50
Training	1166	0.52	0.50	791	0.36	0.48
Head employed	1166	0.89	0.31	791	0.87	0.34
Presence of employed	1166	0.84	0.36	791	0.78	0.42
Presence of self-employed	1166	0.26	0.56	791	0.36	0.63
Presence of other unemployed	1166	0.12	0.32	791	0.13	0.34
Presence of female relative	1166	0.09	0.28	791	0.21	0.40
Formal employment	1166	0.66	0.48	791	0.43	0.49
Informal employment	1166	0.11	0.31	791	0.15	0.36
Unemployed	1166	0.24	0.43	791	0.42	0.49
Unemployment rate	1166	0.24	0.43	791	0.42	0.49

Table 9: Descriptive statistics, youth in the labour force by sex, 1998

Variable	Male			Female		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
Age	621	23.94	3.69	951	22.85	3.69
Age, squared	621	586.63	170.87	951	535.77	167.26
Married	621	0.42	0.49	951	0.57	0.49
Head of household	621	0.56	0.50	951	0.13	0.33
Household size	621	3.87	2.56	951	4.42	2.39
None	621	0.02	0.14	951	0.06	0.23
Primary	621	0.44	0.50	951	0.49	0.50
Secondary	621	0.52	0.50	951	0.45	0.50
University	621	0.02	0.14	951	0.01	0.09
Secondary and university	621	0.54	0.50	951	0.45	0.50
Training	621	0.47	0.50	951	0.44	0.50
Head employed	621	0.86	0.35	951	0.90	0.30
Presence of employed	621	0.71	0.45	951	0.75	0.44
Presence of self-employed	621	0.29	0.46	951	0.34	0.47
Presence of other unemployed	621	0.18	0.38	951	0.13	0.34
Presence of female relative	621	0.15	0.35	951	0.27	0.44
Tenure	621	0.14	0.35	951	0.13	0.34
Log rent/other income	621	2.94	3.86	951	3.08	3.85
Formal employment	572	0.41	0.49	836	0.18	0.38
Informal employment	572	0.35	0.48	836	0.26	0.44
Unemployed	572	0.24	0.43	836	0.56	0.50
Unemployment rate	621	0.22	0.41	951	0.49	0.50

Table 10: Descriptive statistics, youth in the labour force by sex, 2005

Variable	Male			Female		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
Age	1915	23.46	3.65	2496	22.94	3.78
Age, squared	1915	563.63	168.02	2496	540.34	171.87
Married	1915	0.33	0.47	2496	0.52	0.50
Head of household	1915	0.45	0.50	2496	0.13	0.34
Household size	1915	4.93	3.37	2496	5.06	2.89
None	1801	0.00	0.03	2279	0.00	0.04
Primary	1801	0.50	0.50	2279	0.54	0.50
Secondary	1801	0.47	0.50	2279	0.44	0.50
University	1801	0.03	0.16	2279	0.02	0.14
Secondary and university	1801	0.50	0.50	2279	0.46	0.50
Training	1915	0.25	0.43	2496	0.23	0.42
Head employed	1915	0.85	0.36	2496	0.86	0.35
Presence of employed	1915	0.60	0.49	2496	0.60	0.49
Presence of self-employed	1915	0.52	0.50	2496	0.49	0.50
Presence of other unemployed	1915	0.25	0.43	2496	0.20	0.40
Presence of female relative	1915	0.10	0.29	2496	0.11	0.31
Tenure	1905	0.34	0.47	2484	0.27	0.45
Log rent/other income	1915	1.17	3.02	2496	1.14	3.02
Formal employment	1858	0.14	0.34	2466	0.07	0.26
Informal employment	1858	0.59	0.49	2466	0.42	0.49
Unemployed	1858	0.28	0.45	2466	0.51	0.50
Unemployment rate	1914	0.27	0.44	2494	0.50	0.50

Regarding job seeking behaviour, the majority of unemployed people aged 15–64 in 1986 (Table 5.8) had been looking for work for over a year with more than a third having been looking for more than two years (Urban Labour Force Survey Report, Republic of Kenya, 1986). The duration of searching is longer for females. The most common methods of job search are: directly approaching an employer; asking a friend or a relative; and responding to a newspaper advertisement and writing letters to potential employers, in that order. Following the 1998 sample, Table 5.9 contains information on the type of work sought, job search methods and duration of search among the youth by sex. We see that the majority of unemployed persons (95%) were looking for paid employment and the most common method of job search was asking friends/relatives followed by directly approaching an employer (Table 5.10). Although most respondents did not provide information on search duration, the longest search duration for the majority was a year (Table 11).

Table 11: Unemployment duration of job search, 1986 sample, age 15–64

Duration	Male	Female
Less than 3 months	9.7	8.2
3–6 months	5	7.3
6 months to 1 year	28.0	23.8
1–2 years	22.2	22.7
Longer than 2 years	31.1	39.3
Not stated	4.0	39.3
Total	100	140.6

Source: Republic of Kenya, 1986

Table 12: Unemployment by type of work sought by sex, 1998 sample

Duration	Male	Female
Less than 3 months	9.7	8.2
3–6 months	5	7.3
6 months to 1 year	28.0	23.8
1–2 years	22.2	22.7
Longer than 2 years	31.1	39.3
Not stated	4.0	39.3
Total	100	140.6

Source: Republic of Kenya 2003

Table 13: Unemployment by job search method by sex 1998 sample

Main method for seeking work last week	Female	Male	Total
Wrote to employer	2.8	5.1	3.4
Applied to government/labour office	0.5	1.5	0.8
Applied to private employment bureau	0.3	0.0	0.2
Answered newspaper advert	1.0	2.2	1.3
Asked relatives/friends	86.0	63.5	80.2
Directly approaching employer	6.1	24.8	11.0
Arranged for resources to start self-employment activities	2.8	1.5	2.5
Other	0.3	1.5	0.6
Not stated	0.3	0.0	0.2
Total	100.0	100.0	100.0

Source: Republic of Kenya, 2003

Table 14: Unemployment by job search duration by sex 1998 sample

Search duration	Female	Male	Total
1 month to 1 year	33.5	16.3	26.7
13–24 months	3.2	1.6	2.5
More than 2 years	2.7	4.0	3.2
Not reported	60.6	78.1	67.5
Total	100.0	100.0	100.0

Source: Republic of Kenya, 2003

Given that this study is about unemployment rates, the descriptive characteristics of unemployed youth in urban areas and how these characteristics differ over time and by sex are presented in Tables 15 to 15.

Table 15: Descriptive statistics, all unemployed youth, pooled sample

	1986			1998			2005		
Variable	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Age	612	22.37	3.42	603	22.33	3.37	1774	22.24	3.68
Age, squared	612	512.05	154.10	603	510.21	152.50	1774	507.99	165.18
Sex	612	0.46	0.50	603	0.23	0.42	1774	0.29	0.45
Married	612	0.39	0.49	603	0.57	0.50	1774	0.45	0.50
Head of household	612	0.13	0.33	603	0.06	0.24	1774	0.08	0.27
Household size	612	4.98	3.00	603	4.61	2.59	1774	5.76	3.38
None	612	0.07	0.26	603	0.06	0.23	1569	0.00	0.04
Primary	612	0.41	0.49	603	0.50	0.50	1569	0.52	0.50
Secondary	612	0.51	0.50	603	0.44	0.50	1569	0.46	0.50
University	612	0.00	0.04	603	0.00	0.06	1569	0.02	0.13
Secondary and university	612	0.51	0.50	603	0.44	0.50	1569	0.47	0.50
Training	612	0.25	0.43	603	0.09	0.28	1774	0.17	0.38
Head employed	612	0.76	0.43	603	0.82	0.39	1774	0.74	0.44
Presence of employed	612	0.69	0.46	603	0.67	0.47	1774	0.50	0.50
Presence of self-employed	612	0.24	0.53	603	0.24	0.42	1774	0.36	0.48
Presence of other unemployed	612	0.33	0.47	603	0.33	0.47	1774	0.45	0.50
Presence of female relative	612	0.18	0.38	603	0.23	0.42	1774	0.13	0.34

Table 16: Descriptive statistics, male unemployed youth

Variable	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Age	279	22.26	3.24	137	21.79	3.43	516	21.95	3.55
Age, squared	279	506.03	145.23	137	486.39	152.96	516	494.25	158.03
Married	279	0.15	0.35	137	0.15	0.35	516	0.09	0.29
Head of household	279	0.16	0.37	137	0.17	0.38	516	0.10	0.30
Household size	279	4.66	3.20	137	4.88	2.66	516	6.59	3.67
None	279	0.05	0.22	137	0.03	0.17	465	0.00	0.05
Primary	279	0.37	0.48	137	0.48	0.50	465	0.43	0.50
Secondary	279	0.58	0.49	137	0.48	0.50	465	0.54	0.50
University	279	0.00	0.00	137	0.01	0.09	465	0.02	0.15
Secondary and university	279	0.58	0.49	137	0.49	0.50	465	0.56	0.50
Training	279	0.27	0.44	137	0.15	0.35	516	0.18	0.38
Head employed	279	0.73	0.45	137	0.63	0.49	516	0.62	0.48
Presence of employed	279	0.68	0.47	137	0.47	0.50	516	0.46	0.50
Presence of self-employed	279	0.24	0.55	137	0.30	0.46	516	0.39	0.49
Presence of other unemployed	279	0.40	0.49	137	0.60	0.49	516	0.69	0.46
Presence of female relative	279	0.09	0.28	137	0.18	0.38	516	0.15	0.35

Table 17: Descriptive statistics, female unemployed youth

Variable	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Age	333	22.46	3.57	466	22.50	3.34	1258	22.35	3.73
Age, squared	333	517.10	161.20	466	517.22	151.82	1258	513.62	167.77
Married	333	0.59	0.49	466	0.69	0.46	1258	0.60	0.49
Head of household	333	0.10	0.30	466	0.03	0.17	1258	0.07	0.25
Household size	333	5.26	2.78	466	4.53	2.57	1258	5.42	3.19
None	333	0.09	0.29	466	0.07	0.25	1104	0.00	0.04
Primary	333	0.45	0.50	466	0.50	0.50	1104	0.56	0.50
Secondary	333	0.45	0.50	466	0.43	0.50	1104	0.42	0.49
University	333	0.00	0.05	466	0.00	0.05	1104	0.01	0.11
Secondary and university	333	0.45	0.50	466	0.43	0.50	1104	0.44	0.50
Training	333	0.23	0.42	466	0.07	0.25	1258	0.17	0.38
Head employed	333	0.79	0.41	466	0.88	0.33	1258	0.79	0.41
Presence of employed	333	0.69	0.46	466	0.73	0.45	1258	0.52	0.50
Presence of self-employed	333	0.24	0.52	466	0.22	0.41	1258	0.35	0.48
Presence of other unemployed	333	0.27	0.45	466	0.25	0.43	1258	0.35	0.48
Presence of female relative	333	0.26	0.44	466	0.24	0.43	1258	0.13	0.33

The average age of unemployed youth (pooled sample) is about 22. This applies to both young men and women and across time. At this age, most youth have probably just finished college and are actively looking for work. The majority of unemployed young persons are women – from 54% in 1986 the proportions increased to 73% and 71% in 1998 and 2005, respectively. This study seeks to explain this disproportionate gender gap in the incidence of unemployment. Compared to single persons, married persons are less likely to be unemployed – the proportions are 39% and 45% in 1986 and 2005, respectively. At 57% in 1998, there were more unemployed married persons among the youth than single people. This may be partly explained by the general economic situation in 1990s, which was marked by a weak performing economy to absorb a growing labour force, coupled with restrictive employment reforms following the structural adjustment programmes. The comparisons by sex are very different (Tables 16 and 17). There are significantly fewer married and unemployed young men than those who are single – the proportions are 15% in 1986 and 1998, and 9% in 2005. Among young women, the comparable figures are distinctively higher at 59%, 69%, and 60% in 1986, 1998 and 2005, respectively. Thus young married women are more likely to be unemployed than single women (or men in general). As indicated, this is probably due to care work and reproductive burdens. As would be expected, household heads are less likely to be unemployed relative to non-household heads, regardless of sex.

As concerns the educational characteristics of unemployed youth, we see that across the three periods (see Table 16), the share of those with no education is very small compared to those who have primary or secondary level education, i.e., most unemployed youth have either primary or secondary level education. However, only a marginal proportion of unemployed youth have university level education.

At 49% for those with no education and primary education combined, the figures are 56% and 53% for 1998 and 2005, respectively, reflecting the important role of higher educational attainment in securing a job. Nevertheless, the fact that the share of unemployed persons with primary or secondary level education is very high connotes that formal education alone may not be adequate for one to secure a job.

At 51% for secondary education, the figures dropped by 7 percentage points in 1998 with a small increase of 2 percentage points in 2005. For what is considered higher education levels (secondary and university levels combined), there is also a drop in the figures from 51% to 47%. This trend is also true for the entire labour force (unemployed and the employed combined), as outlined earlier. This shift could mean several things: that secondary level education was being less rewarded in the older than in the latter periods; that after completing secondary level education, young persons choose to pursue further studies to acquire skills to compete for better jobs in the formal sector; that due to a growing scarcity of formal jobs, the youth prefer to settle for jobs in the informal sector where less education and skills are needed; or that only those with higher educational levels are able to acquire formal jobs.

By sex, the proportion of unemployed youth with no education is higher among women in both 1986 and 1998. In 2005 the proportion are about nil for both, due

to the introduction of compulsory free primary education. At 55%, 57% and 56% in 1986, 1998 and 2005, respectively, among young women the share of unemployed persons with low education levels (none and primary combined) is higher than it is for young males (42%, 54% and 44% for 1986, 1998 and 2005, respectively). At 45%, the proportion of unemployed women with primary level education increased by 5 percentage points in 1998, and to 6 percentage points in 2005; while at 42–45 per cent, the proportion of young unemployed women with secondary level education or combined university level education remained stable across the three periods.

At 58% in 1986, the share of unemployed male youth with secondary education declined by 10 percentage points in 1998 and then rose by 6 percentage points in 2005. These changes mimic the changes in pooled educational characteristics of unemployed youth.

At 25%, 9% and 17% in 1986, 1998 and 2005, respectively, young unemployed persons are less likely to have training beyond the highest academic level reached. The figures for males are 27%, 15% and 18% in 1986, 1998 and 2005, respectively, and 23%, 7% and 17% for females.

6.0 Results

Estimates for the correlates of urban youth unemployment for the pooled samples (both male and female) appear in Tables 18 to 20. Estimates of separate samples for male and female youth appear in Tables 21 to 26. Marginal effects/ME (i.e., change in the predicted probabilities associated with changes in the explanatory variables) are provided to aid our understanding of the effects of the probit coefficients. The ME are calculated at the sample mean. In the discussion of the results, we start with estimates for 1986 and then highlight deviations from 1998 and 2005. A discussion of the results emphasizes the marginal effects without construing any causality (but rather correlations/associations with the dependent variable of interest), unless where it has been tested formally.

6.1 Correlates of overall youth unemployment

In Table 18, that contains the 1986 estimates, the age variables have the predicted signs (i.e., unemployment diminishes with age) and are statistically significant – the marginal effect is about 2 per cent.²² The variable “sex” is correlated with the likelihood of unemployment as depicted by a negative and significant coefficient, connoting that male youth are more likely to be unemployed than female youth. Marital status and the size of a household have a zero effect (association) on the overall youth unemployment rate, i.e., the variables are not associated with the likelihood of unemployment. Household-headship is negatively correlated with unemployment – the magnitude of its marginal effect is large (about 33 per cent). As argued in Wamuthenya 2010c, this finding probably signifies greater job-search intensity among household heads and is an indicator for unobserved productivity-related characteristics and motivation. Recruiters may perceive household-head status as an indicator of stability (dedication to work) and a person’s unobserved productivity-related features and thus be more likely to engage such persons (Wamuthenya 2010c).

At 10%, persons with primary level education are less likely to be unemployed than those with no education. Secondary and university levels of education have a zero effect on the likelihood of overall unemployment, i.e., both levels do not matter for employment, which may connote that individuals with secondary and university education are equally likely to be unemployed as those with no education. It seems

²² The actual marginal effect of age is obtained by: $ME_{age} + 2 * ME_{agesq} * \text{mean age}$ and is about -2 per cent in both periods.

that having training is more important than mere education – training is highly positively correlated with employment and increases the employment advantage by about 19 per cent (ME).

Table 18: Estimates: Correlates of unemployment, full sample, 1986

Unemployed: dummy dependent variable taking the value “1” if unemployed and “0” otherwise

Variable	Coef.	Std. Err.	dF/dx	Std. Err.
Age	0.295*	0.116	0.093	0.037
Agesq	-0.007**	0.003	-0.002	0.001
Sex	-0.166*	0.072	-0.053	0.023
Married	-0.103	0.076	-0.033	0.024
HHead	-1.117***	0.088	-0.331	0.023
Hsize	0.002	0.013	0.000	0.004
Primary	-0.324*	0.142	-0.100	0.043
Secondary	-0.182	0.142	-0.058	0.045
University	-0.878	0.463	-0.191	0.057
Training	-0.618***	0.073	-0.191	0.022
_cons	-2.215	1.309		
Number of obs.	1957			
LR chi2(10)	563.52			
Prob > chi2	0.00			
Pseudo R2	0.23			
Log likelihood	-934.05			

Note: * p<.05; ** p<.01; *** p<.001

Looking at the 1998 estimates in Table 19, age variables follow the same pattern as in 1986 – the marginal effect remains at about 2 per cent. From about 5 per cent in 1986, the sex variable is negatively correlated with unemployment with a marginal effect of about 9 per cent in 1998. At zero effect in 1986, estimates also depict that being married as opposed to being single is positively associated with the unemployment status with an ME of about 7 percentage points in 1998, pointing to an increase in the reservation wage of the unemployed. The size of the household-head effect remains high at about 40 per cent. Household size retains a nil effect in 1998.

While training is negatively correlated with the likelihood of being unemployed relative to being employed, with a marginal effect of about 19 per cent in 1986, the opposite is true in 1998: the ME is large, about 27 per cent and positive, thus increasing the likelihood of being unemployed and connoting a higher reservation wage and expected return to job searching for persons with training. From 10%, the effect of primary level education is zero in 1998. However, from a zero effect in 1986, the effect of secondary and university level education increases to 14% and 31%, respectively, in 1998. This signifies the increased importance of higher educational attainment on employment in the latter period.

Table 19: Estimates: Correlates of unemployment, full sample, 1998

Unemployed: dummy dependent variable taking the value "1" if unemployed and "0" otherwise

Variable	Coef.	Std. Err.	dF/dx	Std. Err.
Age	0.552***	0.123	0.201	0.045
Agesq	-0.013***	0.003	-0.005	0.001
Sex	-0.258**	0.088	-0.093	0.031
Married	0.202*	0.087	0.073	0.032
HHead	-1.318***	0.118	-0.399	0.026
Hsize	-0.008	0.016	-0.003	0.006
Primary	-0.322	0.179	-0.117	0.064
Secondary	-0.397*	0.180	-0.143	0.064
University	-1.450**	0.483	-0.310	0.037
Training	0.751***	0.075	0.272	0.027
_cons	-5.572	1.385		
Number of obs.	1572			
LR chi2(10)	487.47			
Prob > chi2	0.00			
Pseudo R2	0.23			
Log likelihood	-802.89			

Note: * p<.05; ** p<.01; *** p<.001

Turning to the estimates for 2005 (Table 20), the age variables retain the correct signs, but the effect declines to zero (statistically insignificant) from 2% in 1998. From about 9 per cent in 1998, the marginal effect of sex in reducing the likelihood of being unemployed increases further by 3 percentage points in 2005 (about 5 per cent in 1986). The effect of marital status in increasing the likelihood of being unemployed increases from 7% in 1998 to about 11% in 2005 (unlike in 1986, where the effect is zero). As noted, this suggests a higher reservation wage for unemployed persons owing to additional childcare and household responsibilities that come with marriage. The size of the household-head effect remains high at about 31 per cent, which is a drop of about 9 percentage points from the 1998 level. Household size retains a zero effect across all periods.

Primary level education has a zero effect, as in the previous period. At 14% and 31% effect for secondary and university level education (in that order) in 1998, the effect declines to zero in 2005, i.e., persons with primary/secondary/university level education are equally likely to be unemployed relative to having no education. We would expect the opposite to be true: that education, especially higher levels of education, would increase the employment advantage. However, it could be that younger unemployed youth with secondary/university education who have just left school take longer to transit from school/college to work, while those with no education are already at work or are willing to take up any job. On the whole, this result would seem to suggest a combined effect of several factors: longer school to work transition in the context of a labour force bloated with highly educated youth with no jobs immediately available, while the education that young labour force entrants possess may not necessarily match those that the evolving labour market demands.

Table 20: Estimates: Correlates of unemployment, full sample, 2005

Unemployed: dummy dependent variable taking the value "1" if unemployed and "0" otherwise

Variable	Coef.	Std. Err.	dF/dx	Std. Err.
Age	0.032	0.070	0.012	0.026
Agesq	-0.002	0.002	-0.001	0.001
Sex	-0.332***	0.048	-0.122	0.018
Married	0.296***	0.051	0.110	0.019
HHead	-0.940***	0.065	-0.309	0.018
Hsize	0.039	0.008	0.014	0.003
Primary	-0.343	0.577	-0.127	0.213
Secondary	-0.122	0.577	-0.045	0.213
University	-0.180	0.597	-0.064	0.205
Training	-0.243***	0.055	-0.088	0.019
_cons	0.298	0.981		
Number of obs.	4077			
LR chi2(10)	801.45			
Prob > chi2	0			
Pseudo R2	0.1475			
Log likelihood	-2316.13			

Note: * p<.05; ** p<.01; *** p<.001

As in the 1986 sample, the training variable exerts a positive effect on (is associated with) the likelihood of being employed of about 9 per cent. Over the three time periods, training exerts a significant effect on the likelihood of employment. This raises a concern as to the type of training that the current labour market requires and whether jobseekers are equipped with the necessary skills assuming that an equivalent demand for labour exists.

Overall, these results suggest that employers attach more importance to additional training beyond highest academic level reached rather than education per se. From a policy perspective, it would be important to consider the true effect of the training variable (i.e., the causality between training and unemployment rate. So far, our analysis is based on "naive" regressions where we assume exogeneity of the training variable). It is possible that the training variable is not exogenous, hence the endogeneity problem.

Ideally, let us assume that the unemployment probit function estimated is a function of all other variables estimated, plus wages and an error term (e). As there is no information on wages, the effect of the wage variable will be captured in the error term. However, we know that wage can influence training, i.e., there is a correlation between training and the error term in which the effect of wage is included. We cannot, therefore, assume causality between training and unemployment status because of the effect of wage in the error term (e). The solution would be to find an instrumental variable (IV) that affects training but not wage, such as unearned income

or rental income.²³ In this study, the potential endogeneity of the training variable is instrumented using log rental income from the 2005 data.²⁴

Rental income is a good IV and has an exogenous relationship with training. Contextually, it may affect unemployment indirectly through three channels via opportunity cost: a) reservation wage, b) job search costs, and c) job search duration/waiting time. We argue that in the Kenyan context, someone with rental income is able to stay searching for long or get more training or use rental income to set up an own business, i.e., rental income is a channel to self-employment: consider two people looking for work where one has rental income and the other not. The one with rental income, which is exogenous and fixed, has a higher reservation wage. This person can have several options: sit and do nothing (rental income meets his/her basic needs) hence the opportunity cost of looking for work is too high (i.e., has a high reservation wage), or choose to search or wait longer looking for a job or choose to go for training and use that to find work. However, a person with no rental income is ready to take up any job to meet their needs and is therefore likely to look for work more aggressively. It is unlikely that this person would be sitting at home doing nothing, but rather would be ready to take up a low wage to meet their basic needs. Such a person will not be thinking about training as there are no resources for this. Based on this discussion, the demand curve for training has an important economic meaning.

In summary, the above narrative provides relevance for the IV chosen – that it is exogenous only through training, which affects unemployment indirectly through the three channels. Requirements of an instrument and related formal tests are discussed in footnote 18. A test for identification is not needed as the equation is identified. For the strength of the IV: the first stage estimations (Table 21) show that rental income

23 Ideally, the IV helps filter out the association between the error term and explanatory variables in a model. An IV must satisfy two conditions: (i) be uncorrelated with the error term, but be (ii) partially and sufficiently interrelated with the endogenous variable (training in this case) once the independent variables are controlled for. As the error term cannot be observed, we cannot test the first condition. The second condition is tested using a reduced form equation with the IV and all explanatory variables which must not be correlated with the error term as per the procedure described below. For the IV to meet the second condition, the estimated coefficient of the IV must be statistically significant.

In the literature, the standard procedure to correct for endogeneity is done in two steps (i.e., two-stage least squares technique). The first step requires estimating a reduced form regression in which the endogenous variable (i.e., training) is regressed on the exogenous variables, including the instruments and predicting the residuals (i.e., to obtain predicted new training corrected for endogeneity). The second step requires estimating a probit in which the prime endogenous variable of the model (i.e., the unemployment rate) is regressed on the exogenous variables and the predicted residuals (i.e., predicted new training variable). The null hypothesis of exogeneity is tested using a straightforward t-test on the coefficient of the residual term. This procedure was implemented by means of the IV probit command in Stata.

24 It was not possible to find good instruments from previous data sets.

(designated by LogotherY) is statistically significant (with t-statistics of coef. = .007; Std. Err. = .002; $z = 3.43$).

Detailed results after controlling for potential endogeneity in training are presented in Table 22 for the 2005 sample.²⁵ Hsize variable is also likely to be endogenous and has been excluded from the model. The causality effect between training and the unemployment rate can be explained as follows: as training is a dummy variable, the coefficient of log rental income of 0.007 denotes that a 100% change in rent income generates an approximate 0.7% change in training, i.e., the probability that training occurs. However, as coefficients from probit models are not easy to construe (see Appendix A), we focus on the marginal effects (column “dy/dx”). The effect of training occurring as a result of rent helps to reduce unemployment by about 58%. In other words, holding all else constant, investing in labour market policies that equip the youth with relevant training beyond highest academic level attained could help to reduce to unemployment by this magnitude.

Table 21: Controlling for endogeneity in training, full sample, 2005, without educational dummies and h-size

Unemployed: dummy dependent variable taking the value “1” if unemployed and “0” otherwise

Probit model with endogenous regressors delta-method model VCE: OIM				
Variable	Coef.	Std. Err.	dy/dx	Std. Err.
Unemployment rate: second-stage least squares estimates				
Training	-1.892***	0.375	-0.578	0.099
Age	0.111	0.059	0.034	0.018
Agesq	-0.002	0.001	-0.001	0.000
Sex	-0.274***	0.060	-0.084	0.020
Married	0.071	0.077	0.022	0.024
HHead	-0.639**	0.209	-0.195	0.069
_cons	-1.025	0.695		
Training: first-stage least squares estimates				
Age	0.045*	0.020		
Agesq	0.000	0.000		
Sex	-0.028*	0.014		
Married	-0.052***	0.014		
HHead	0.066***	0.016		
LogotherY	0.007***	0.002		
_cons	-0.626**	0.223		
Instrumented:	Training			
Instruments: Age Agesq Sex Married Head LogotherY				
Wald test of exogeneity (/athrho = 0): chi2(1) = 6.67 Prob > chi2 = 0.0098				
Number of obs.	4408			
Wald chi2(6)	1729.49			
Prob > chi2	0			
Log likelihood =	-4883.536			

Note: * p<.05; ** p<.01; *** p<.001

25 When we control for the education variables, the instrument becomes insignificant. The education variables are therefore excluded from the probits with endogenous regressors, following footnote 18 on IV requirements.

6.2 Correlates of youth unemployment by gender

In Tables 18 – 27 for gender-specific estimates, age variables have the expected correlations with unemployment. In the male sample, the effect is zero across all periods. However, at about 2 per cent in 1986 and 1998, the age effect declines sharply to zero in the latter period among females. *Ceteris paribus*, this could imply that experience is more important for female youth to compete successfully with male youth in the labour market.

Young married women are more likely to be unemployed than young single women; the effect of the marital status variable is positive and increasing in the female sample at about 11 per cent, 18 per cent and 24 per cent for 1986, 1998 and 2005, respectively, highlighting the increasing difficulty young married women face in finding a job compared to single women. Conversely, young men are about 11 percentage points more likely to be employed compared to their single counterparts in 1986 and 2005. The effect is zero in 1998. Employers may be more inclined to hire young single women as opposed to young married women to circumvent non-productivity related costs (e.g., maternity benefits and stand-in costs in case of unexpected work absenteeism to take care of unavoidable reproductive duties). As noted, marital status (being married as opposed to being single) of young men can trigger a job-search incentive when married, while from the demand side, this may signify unobserved productivity-related characteristics. The fact that marital status boosts young men's likelihood of being employed relative to being unemployed while the contrary is true of women would be coherent with gender wage gap literature where married women earn lower wages compared to their male counterparts.

Being a household head is correlated with a sharp reduction in being unemployed for both male and female youth. The marginal effects range between 17 per cent and 36 per cent among females, marked by a sharp decline over time. Among male youth, the effects range between 25 per cent and 31 per cent.

Apart from the 1998 female sample where secondary and university education are positively correlated with the likelihood of employment, the importance of education in ensuring access to employment is zero for both females and males across the three sample periods.

The effect of training is significant in boosting the employment advantage relative to being unemployed, ranging between 12% and 34% for female youth, and 0% to 14% for males. This pattern not only suggests that training rather than education boosts the odds of employment, but that it more important for female youth than it is for male youth.

Table 22: Estimates: Correlates of unemployment, female sample, 1986

Unemployed: dummy dependent variable taking the value "1" if unemployed and "0" otherwise

Variable	Coef.	Std. Err.	dF/dx	Std. Err.
Age	0.471**	0.155	0.182	0.060
Agesq	-0.011***	0.003	-0.004	0.001
Married	0.294**	0.111	0.113	0.042
HHead	-0.711***	0.150	-0.254	0.047
Hsize	0.030	0.020	0.012	0.008
Primary	-0.274	0.185	-0.105	0.070
Secondary	-0.194	0.188	-0.075	0.072
University	-0.498	0.538	-0.175	0.164
Training	-0.656***	0.111	-0.243	0.039
_cons	-4.578***	1.725		
Number of obs.	791			
LR chi2(9)	141.82			
Prob > chi2	0			
Pseudo R2	0.1317			
Log likelihood	-467.452			

Note: * p<.05; ** p<.01; *** p<.001

Table 23: Estimates: Correlates of unemployment, female sample, 1998

Unemployed: dummy dependent variable taking the value "1" if unemployed and "0" otherwise

Variable	Coef.	Std. Err.	dF/dx	Std. Err.
Age	0.593***	0.153	0.236	0.061
Agesq	-0.014***	0.003	-0.006	0.001
Married	0.445***	0.114	0.176	0.044
HHead	-1.026***	0.191	-0.360	0.051
Hsize	0.016	0.021	0.006	0.008
Primary	-0.299	0.207	-0.119	0.082
Secondary	-0.410*	0.209	-0.162	0.081
University	-1.850**	0.669	-0.456	0.048
Training	0.890***	0.092	0.344	0.033
_cons	-6.251***	1.701		
Number of obs.	951			
LR chi2(9)	249.6			
Prob > chi2	0			
Pseudo R2	0.1891			
Log likelihood	-534.192			

Note: * p<.05; ** p<.01; *** p<.001

Table 24: Estimates: Correlates of unemployment, female sample, 2005

Unemployed: dummy dependent variable taking the value "1" if unemployed and "0" otherwise

Variable	Coef.	Std. Err.	dF/dx	Std. Err.
Age	0.004	0.089	0.001	0.036
Agesq	-0.002	0.002	-0.001	0.001
Married	0.658***	0.065	0.257	0.024
HHead	-0.448***	0.096	-0.173	0.035
Hsize	0.062***	0.011	0.025	0.005
Primary	-0.199	0.802	-0.079	0.318
Secondary	-0.038	0.803	-0.015	0.320
University	-0.211	0.831	-0.083	0.321
Training	-0.305***	0.069	-0.120	0.027
_cons	0.364	1.286		
Number of obs.	2277			
LR chi2(9)	284.06			
Prob > chi2	0			
Pseudo R2	0.09			
Log likelihood	-1435.22			

Note: * p<.05; ** p<.01; *** p<.001

Table 25: Estimates: Correlates of unemployment, male sample, 1986

Unemployed: dummy dependent variable taking the value "1" if unemployed and "0" otherwise

Variable	Coef. *	Std. Err.	dF/dx	Std. Err.	Coef. **	Std. Err.	dF/dx	Std. Err.
Age	-0.244	0.192	-0.060	0.048	-0.228	0.191	-0.055	0.046
Agesq	0.004	0.004	0.001	0.001	0.004	0.004	0.001	0.001
Married	-0.483***	0.123	-0.116	0.028	-0.472***	0.122	-0.111	0.028
HHead	-1.173***	0.121	-0.313	0.033	-1.163***	0.120	-0.306	0.032
Hsize	-0.011	0.017	-0.003	0.004	-0.010	0.017	-0.002	0.004
Primary	-0.344	0.233	-0.082	0.053	-0.344	0.233	-0.080	0.052
Secondary	-0.146	0.230	-0.036	0.057				
University	0.000	(omitted)						
Secondary+University					-0.157	0.230	-0.038	0.057
Training	-0.557***	0.101	-0.138	0.025	-0.576***	0.101	-0.141	0.025
_cons	3.966	2.206			3.799	2.195		
Number of obs.	1146				Number of obs.	1166		
LR chi2(8)	382.25				LR chi2(8)	388.25		
Prob > chi2	0				Prob > chi2	0		
Pseudo R2	0.3005				Pseudo R2	0.3026		
Log likelihood	-444.941				Log likelihood	-447.47		

Note: * p<.05; ** p<.01; *** p<.001

Coef. *: Regressions based on 4 educational dummies: none (omitted category), primary, secondary and university.

Coef. **: Not enough observations for males with university education. Regressions based on 3 educational dummies: none (omitted category), primary, secondary and university combined to avoid losing observations.

Table 26: Estimates: Correlates of unemployment, male sample, 1998

Unemployed: dummy dependent variable taking the value "1" if unemployed and "0" otherwise

Variable	Coef.	Std. Err.	dF/dx	Std. Err.
Age	0.240	0.219	0.059	0.054
Agesq	-0.006	0.005	-0.002	0.001
Married	-0.333	0.183	-0.080	0.042
HHead	-1.101***	0.194	-0.286	0.052
Hsize	-0.019	0.028	-0.005	0.007
Primary	-0.218	0.393	-0.053	0.094
Secondary	-0.184	0.396	-0.045	0.098
University	-0.894	0.727	-0.135	0.054
Training	0.524***	0.133	0.131	0.033
_cons	-2.310	2.484		
Number of obs.	621			
LR chi2(9)	143.97			
Prob > chi2	0.00			
Pseudo R2	0.22			
Log likelihood	-255.70			

Note: * p<.05; ** p<.01; *** p<.001

Table 27: Estimates: Correlates of unemployment, male sample, 2005

Unemployed: dummy dependent variable taking the value "1" if unemployed and "0" otherwise

Variable	Coef.	Std. Err.	dF/dx	Std. Err.
Age	-0.064	0.118	-0.018	0.033
Agesq	0.001	0.003	0.000	0.001
Married	-0.414***	0.113	-0.110	0.028
HHead	-0.905***	0.113	-0.246	0.029
Hsize	0.042***	0.012	0.012	0.003
Primary	-0.357	0.865	-0.100	0.243
Secondary	0.005	0.865	0.001	0.244
University	-0.092	0.892	-0.025	0.233
Training	-0.104	0.093	-0.029	0.025
_cons	0.799	1.585		
Number of obs.	1800			
LR chi2(9)	411.20			
Prob > chi2	0.00			
Pseudo R2	0.20			
Log likelihood	-822.75			

Note: * p<.05; ** p<.01; *** p<.001

Results after controlling for potential endogeneity in training are presented in Tables 28 and 29. The effect of training occurring as a result of rent helps to reduce female youth unemployment by about 53% and by about 51% for males. Thus, assuming that a demand for labour exists, investing in policies that prepare the youth by equipping them with relevant training/skills could translate into reducing female youth unemployment by about 53%, and by 51% for male youth. Comparable results for the full samples point at a reduction in overall youth unemployment of about 58% (Table 21).

Table 28: Controlling for endogeneity in training, female sample, 2005, with educational dummies; h-size excluded

Unemployed: dummy dependent variable taking the value "1" if unemployed and "0" otherwise

Probit model with endogenous regressors delta-method model VCE: OIM

Variable	Coef.	Std. Err.	dy/dx	Std. Err.
Unemployment rate: second-stage least squares estimates				
Training	-1.678*	0.747	-0.530	0.175
Age	0.108	0.099	0.034	0.029
Agesq	-0.003	0.002	-0.001	0.001
Married	0.365*	0.178	0.115	0.069
HHead	-0.454**	0.170	-0.143	0.068
_cons	-0.854	1.249		
Training: first-stage least squares estimates				
Age	0.077**	0.026		
Agesq	-0.001	0.001		
Married	-0.047**	0.018		
HHead	0.025	0.025		
LogotherY	0.007*	0.003		
_cons	-0.958***	0.288		
Instrumented: Training				
Instruments: Age Agesq Married Head LogotherY				
Wald test of exogeneity (/athrho = 0): chi2(1) = 1.69 Prob > chi2 = 0.1933				
Number of obs.	2494			
Wald chi2(5)	437.14			
Prob > chi2	0			
Log likelihood	-2892.1389			

Table 29: Controlling for endogeneity in training, male sample, 2005, with educational dummies; h-size excluded

Unemployed: dummy dependent variable taking the value "1" if unemployed and "0" otherwise

Probit model with endogenous regressors delta-method Model VCE: OIM				
Variable	Coef.	Std. Err.	dy/dx	Std. Err.
Unemployment rate				
Training	-1.726**	0.567	-0.508	0.196
Age	0.003	0.095	0.001	0.028
Agesq	0.001	0.002	0.000	0.001
Married	-0.427***	0.090	-0.125	0.026
HHead	-0.644	0.336	-0.190	0.088
_cons	-0.259	1.070		
Training				
Age	-0.002	0.032		
Agesq	0.001	0.001		
Married	-0.108***	0.026		
HHead	0.117***	0.025		
LogotherY	0.008**	0.003		
_cons	-0.166	0.356		
Instrumented: Training				
Instruments: Age Agesq Married Head LogotherY				
Wald test of exogeneity (/athrho = 0): chi2(1) = 3.42 Prob > chi2 = 0.0642				
Number of obs.	1914			
Wald chi2(5)	708.5			
Prob > chi2	0			
Log likelihood	-1931.5426			

Note: * p<.05; ** p<.01; *** p<.001

7.0 Decomposition Analysis: Youth Unemployment Gender Gap

Estimates for the sources of the gender gap in the incidence of youth unemployment in 1986, 1998 and 2005 are presented in Table 30. The predicted gender differential in unemployment is about 18% in 1986, 27% in 1998 and 23% in 2005. Thus, from a sharp increase of about 9 percentage points between 1986 and 1998, the predicted gender differential in unemployment falls by about 4 percentage points in 2005. Further insights could be obtained by decomposing these periodical changes, which is beyond the scope of this paper.

Table 30: Decomposition: gender youth unemployment gap

Unemployed: dummy dependent variable taking the value "1" if unemployed and "0" otherwise

Year	1986*	1998*	2005*	1998**	2005**
Predicted female unemployment rate	0.421	0.492	0.485	0.492	0.485
Predicted female unemployment rate using pooled coefficients	0.399	0.472	0.450	0.472	0.450
Predicted male unemployment rate	0.239	0.221	0.259	0.221	0.259
Predicted male unemployment rate using pooled coefficients	0.254	0.255	0.304	0.255	0.304
Total differential in average female-male unemployment probability	0.182	0.271	0.226	0.271	0.226
Total differential (%)	18.2%	27.1%	22.6%	27.1%	22.6%
Characteristics effect/observed	0.145	0.217	0.146	0.217	0.146
Female disadvantage of being unemployed (a)	0.022	0.021	0.036	0.020	0.035
Male advantage of being unemployed (b)	0.014	0.033	0.045	0.033	0.045
Coefficient effect/unexplained (a + b)	0.037	0.054	0.081	0.054	0.081
Characteristics effect (observed) +coefficient effect (unexplained)	0.182	0.271	0.226	0.271	0.226
Contribution (%)					
Component linked to characteristics' effect (CHE)	80	80	64	80	64
Component linked to coefficients' effect (COE)	20	20	36	20	36
Total	100	100	100	100	100

Note:

* Decompositions based on 3 educational dummies: none (omitted category), primary, secondary and university combined. See notes under Table 6.2d.

** Decompositions based on 4 educational dummies: none (omitted category), primary, secondary and university.

When decomposing the predicted differentials into compositional and structural/coefficient effects, we find that for the three periods, a vast percentage of the differential is attributable to the compositional effect, i.e., divergent average characteristics between female and male youth. The compositional effect accounts for about 80 per cent of the gender differential in youth unemployment in both 1986 and 1998, and by about 64 per cent in 2005. These figures may be understood as follows: if both female and male youth had on average the same compositional characteristics (i.e., labour supply characteristics such as education or training), the observed gender gap in the incidence of youth unemployment of 80% in 1986 and 1998 and 64% in 2005 would not exist *ceteris paribus* (for instance, assuming that conditions and opportunities for acquiring the labour supply factors are optimal and equal between sexes).

The structural/coefficient effect is comparatively small: accounting for about 20 per cent of the gender gap in both 1986 and 1998, and about 36 per cent in 2005. These may be interpreted as follows: if, for example, employers were to value/reward female and male youth equally for the various factors influencing the incidence of obtaining work, 20% of the gender disparity in youth unemployment in 1986 and 1998 (each) and 36% in 2005 would disappear.

If taken literally as a measure of gender discrimination in the labour market, the coefficients effect illustrates that only a small fraction of the gap may be ascribed to discrimination. In adhering to this conventional interpretation, it is assumed that other gender differences in unobserved productivity/personality-associated features that may have little to do with discrimination have been taken into account. As this is not the case, such an interpretation may be erroneous (Wamuthenya 2010c). Nevertheless, supposing that the whole coefficient effect represents the upper bound of the degree of discrimination, it is fairly small compared to the compositional effect. Even so, the fact that the magnitude of the coefficient effect appears to have increased considerably (by 16 percentage points between 1986/1998 and 2005) cannot be ignored.

In view of the sizeable fraction of the compositional effect of the youth unemployment gender gap, the following discussion considers the contribution of individual and/or groups of variables to this component of the gap, and thus in influencing the youth unemployment gender gap.

Starting with the 1986 sample (Table 31), the main variables are: household-headship (about 72 per cent), followed by the training variable (about 18 per cent) and the experience variables (about 9 per cent: sum age and agesq). As these factors are positive, it implies that male-female differences in these characteristics work towards increasing the associated gender gap in unemployment. The effect of observed differences in marital status and educational endowment is marginal: gender differences in primary education attainment help to reduce the gap by about 2 per cent while differences in secondary level education help to increase the gap by about 3 per cent. The combined effect of human capital variables (sum of age and agesq, education and training) is positive at about 28 per cent, of which the largest

part is associated with gender differences in training (18%) followed by experience (9%: sum of age and agesq).

Table 31: Detailed decomposition: 1986

Unemployed: dummy dependent variable taking the value "1" if unemployed and "0" otherwise

Percentage share		%
Component linked to characteristics' effect(CHE)	0.145	79.8
Component linked to coefficients' effect(COE)	0.037	20.2
Total differential	0.182	100.0
Variable	Contribution to CHE	% Share
Age	-0.085	-58.5
Agesq	0.098	67.5
Married	-0.001	-0.6
HHead	0.104	71.9
Hsize	0.001	0.9
Primary	-0.003	-2.0
Secondary+University	0.004	2.7
Training	0.026	18.1
Total CHE	0.145	100.0

Note: Decompositions based on 3 educational dummies: none (omitted category), primary, secondary and university combined. See notes under Table 6.2d.

Turning to detailed decomposition results for 1998 (Table 33), our interpretation is based on column 1998b* to allow comparisons with the 1986 sample in which secondary and university education are combined into a single dummy variable. In this regard, the explained proportion of the gap is dominated by the positive effect of household headship (86%), followed by experience variables (9%: sum age and agesq), marital status (about 6 per cent) and secondary and university education (about 5 per cent). The interpretation of these numbers is as above. The combined effect of human capital variables (sum of age and agesq, education and training) is positive (about 9 per cent), thus 18 percentage points lower than in 1986. The main contribution appears to come from the experience variable.

For the 2005 sample (Table 34, column 2005b*), the largest part may be attributed to household-headship (about 79 per cent) as in the previous samples, followed by marital status (about 15 per cent) and the combined effect of the experience variables (about 6 per cent), which is 3 percentage points lower than the 1998 and 1986 levels.

Over time, the effect of the marital status variable in widening the gender differential in youth unemployment increases from 6% in 1998 to 15% in 2005 (the effect is marginal in 1986). This reflects the increased importance of greater domestic burdens borne by female youth, which limits the time spent in gainful employment and or acquiring education. From a positive effect of about 18% in 1986, the effect of training drops sharply to about 1 per cent in 2005. The combined effect of human capital variables (sum of age and agesq, education and training) also drops sharply from about 28 per cent in 1986 to about 9 per cent in 1998, and to about 5 per cent in 2005. In essence, the larger the gender differences in human capital variables, the

wider will be the gender gap in unemployment, and vice versa. Thus, minimizing gender gaps in human capital endowments through appropriate policies could help to reduce the gender gaps in unemployment significantly.

After controlling for the separate contributions of primary, secondary and university education, the results are displayed in Table 33, columns 1998a* and 2005a*. At about 3 per cent in 1998, gender differences in primary level endowment help to reduce the unemployment gap by the same magnitude in 2005. This result may be explained by the fact that young women (and especially those that are married and shouldering domestic and reproductive responsibilities) are more likely to have lower educational levels (primary or none: as shown in the descriptive statistics), which leads to self-selection into low-level jobs requiring minimal education. This way, primary level education helps to reduce the unemployment gap. The reverse is true for secondary and university education. From 4% in 1998, gender differences in secondary education attainment helped to increase the differential in youth unemployment by 1% 2005. Differentials in university level helped to widen the gap from 2% in 1998 to 0.3% in 2005. In other words, higher educational endowments of male youth compared to female youth contribute to widening the gender gap in unemployment.

Summing up, household-headship appears to be the most important factor in explaining the gender differential in youth unemployment. The combined role of human capital variables has declined sharply over the three sample periods, while marital status increasingly prevents young women from being employed.

Table 32: Detailed decomposition: 1998

Unemployed: dummy dependent variable taking the value "1" if unemployed and "0" otherwise

	1998a		1998b*	
Percentage share		%		%
Component linked to characteristics' Effect (CHE)	0.217	80.1	0.217	80.1
Component linked to coefficients' Effect (COE)	0.054	19.9	0.054	19.9
Total differential	0.271	100.0	0.271	100.0
Variable	Contribution to CHE	% share	Contribution to CHE	% share
Age	-0.171	-78.8	-0.178	-81.9
Agesq	0.190	87.6	0.198	91.1
Married	0.012	5.6	0.013	6.0
HHead	0.185	85.4	0.187	86.1
Hsize	-0.002	-0.8	-0.002	-0.7
Primary	-0.005	-2.5	-0.005	-2.5
Secondary	0.009	4.3		
University	0.005	2.4		
Secondary+University			0.012	5.3
Training	-0.007	-3.4	-0.007	-3.3

	1998a		1998b*	
Percentage share	%		%	
Component linked to characteristics' Effect (CHE)	0.217	80.1	0.217	80.1
Component linked to coefficients' Effect (COE)	0.054	19.9	0.054	19.9
Total differential	0.271	100.0	0.271	100.0
Variable	Contribution to CHE	% share	Contribution to CHE	% share
Total CHE	0.217	100.0	0.217	100.0

Note: 1998b*; decompositions based on 3 educational dummies: none (omitted category), primary, secondary and university combined to allow comparison with the 1986 sample. See notes under Table 6.2d.

Table 33: Detailed decomposition: 2005

Unemployed: dummy dependent variable taking the value "1" if unemployed and "0" otherwise

	2005a		2005b*	
Percentage share	%		%	
Component linked to characteristics' effect (CHE)	0.146	64.3	0.146	64.3
Component linked to coefficients' effect (COE)	0.081	35.7	0.081	35.7
Total differential	0.226	100.0	0.226	100.0
Variable	Contribution to CHE	% share	Contribution to CHE	% share
Age	-0.002	-1.4	-0.002	-1.5
Agesq	0.011	7.7	0.011	7.8
Married	0.022	15.2	0.022	15.3
HHead	0.114	78.5	0.114	78.5
Hsize	0.001	0.9	0.001	0.9
Primary	-0.004	-2.7	0.001	0.9
Secondary	0.001	0.8		
University	0.000	0.3		
Secondary+University			0.001	1.0
Training	0.001	0.7	0.001	0.7
Total CHE	0.146	100.0	0.146	100.0

Note: 2005b*; decompositions based on 3 educational dummies: none (omitted category), primary, secondary and university combined to allow comparison with the 1986 sample. See notes under Table 6.2d.

8.0 Concluding Remarks

The problem of youth unemployment is a worldwide concern and has remained one of the most serious challenges facing the Kenyan economy. Moreover, striking gender gaps in the incidence of youth unemployment persist. The dynamics linked to persistent and enormous gender differentials in urban youth unemployment as well as the evolvement of influential parameters over time are least understood. This study uses cross-sectional (national) labour-force data for three time periods (1986, 1998 and 2005) to investigate the correlates of the incidence of youth unemployment in the urban areas of Kenya and the sources of its persistent and vast gender gap.

Among the important correlates of the incidence of urban youth unemployment are household headship, marital status, being male as opposed to being female, and human capital variables: age, education and training. Married female youth are more likely to be unemployed than single ones (while the contrary is true of married male youth). The effect ranges from 11% to 24% with an upward trend that not only suggests a higher reservation wage for this group (hence lower labour market attachment), but also increasing difficulty in finding work compared to young, single women.

Experience (measured by age) appears to be more important for female youth to compete effectively with their male counterparts. In terms of education and training, the analysis for the pooled sample shows that the effect of higher education levels in reducing the incidence of unemployment rises from 0% in 1986, to 14% and 31% in 1998 for secondary and university education levels (in that order), falling back to zero in 2005. From 10% in 1986, the effect of primary education in reducing unemployment is nil in the latter two periods. These results imply that persons with any level of education are equally likely to be unemployed compared to those with no education. Theoretically, one would expect that education, especially higher levels, increases the employment advantage. These results would seem to suggest a combined effect of several factors: longer transit duration from school/college to work in an economy deficient of jobs for its highly educated youth, or that the sort of education/skills possessed may not necessarily match those that the market requires. For males and females apart, results display a nil effect in nearly all the sample periods for both groups. What appears to be more important is whether one has some form of training beyond the highest academic level reached – the effect of training is positive in boosting the employment advantage relative to being unemployed (ranging from 12% to 34% for female youth and from 0% to 14% for males). This pattern suggests that training is more important than just academic certificates in boosting the chances of

employment, and that it is more essential for female youth to compete successfully with male youth in the job market.

To the extent that unemployment and training may be endogenous, this study uses rental income to control for the true effect of the training. The findings suggest that investing in labour market policies that equip the youth with relevant training could help to increase the odds of employment by about 58%. For males and females separately, the true effect of training is about 53% for females and 51% for male youth. Thus, assuming that a demand for labour exists, implementing youth-targeted policies (such as cash transfer, or free skills training programmes) that expressly provide them with relevant training and skills could cause female and male youth unemployment to shrink by the above magnitudes.

Turning to the incidence of gender youth unemployment gaps, the paper applies a decomposition framework to disentangle the gaps into two parts: that linked to male-female differences in observable characteristics, i.e., compositional effect (reflecting the supply side of the labour market), and that linked to differences in the valuation of these characteristics, i.e., coefficient/structural effect (reflecting the demand side of the labour market). In this regard, by far the most of the gender disparity in the incidence of urban youth unemployment is linked to the compositional effect, accounting for about 80% of the differential in both 1986 and 1998h, and about 64% in 2005. The main parameters are: household-head effect, human capital endowments and marital status.

About 72 per cent to 86 per cent of the compositional effect may be attributed to household-headship status. The enormous contribution of the household-headship variable in the compositional effect, and therefore in determining employment prospects, corroborates previous results by Wamuthenya (2010c). Following her line of argument, the significance of household-headship is possibly a mirror of the synergy between the demand and supply sides of the Kenyan labour market. From the supply side, the expectations ascribed to this role imply more intensive job searching, hence a lower reservation wage. From the demand side, employers may perceive household heads as more devoted to work, which can boost their prospects of being hired. In this case, the importance of the variable connotes greater job-search intensity among household heads and is an indicator of unobserved productivity-related characteristics and motivation. As a result, the effect of household-headship status in determining employment is likely to be overstated. Current data to test this possibility are limited. Even so, the analysis pertaining to the youth in the Kenyan urban labour force provides restricted direct support for employment discrimination in the labour market along gender lines. The reality that the probability of being a female youth household-head is by far lower compared to male youth does translate into considerably higher female youth unemployment rates. Also, the small share of young female household-heads in the labour force is a manifestation of profound and established pre-labour market differences in the mindset, treatment and cultural expectations of women than are discernible in the labour market.

On the whole, the combined effect of human capital variables (experience,

education and training) is about 28% in 1986, falling sharply to 9% in 1998 and to 5% in 2005. Given that these figures are positive, it means that gender differences in human capital endowments contribute to widening the gender gap in unemployment. However, as the importance of these variables has declined sharply, it connotes that improvements in human capital endowments (i.e., more training, experience and education) of young women have worked towards diminishing the gender gap in urban youth unemployment. Therefore, minimizing gender gaps in human capital endowments through appropriate human capital acquisition policies could help to reduce the gender gaps in unemployment significantly. As noted above, training rather than education in particular is more essential for female youth to compete successfully with male youth, while access to training can help to reduce their odds of unemployment considerably.

The contribution of the marital status variable appears marginal in 1986 at about -1 per cent (thus reducing the gender gap in youth unemployment). In the latter periods, the sign configuration is positive and sharply increasing from 6% in 1998 to 15% in 2005, hence widening the gender gap in youth unemployment. This reflects the greater domestic burden borne by young married women, which limits time spent in gainful employment and acquiring education. This calls for policies that can promote young women's participation in the labour market and in the acquisition of the necessary skills.

Female youth are more vulnerable to unemployment than male youth because of differing observed characteristics and not chiefly because of how the characteristics are priced on the demand side of the labour market. In other words, there is limited gender-based discrimination as far as the gender differential in youth unemployment rates is concerned – the value attached to observed characteristics in shaping the gender gaps in youth unemployment in the three sample periods is about 20 per cent to 36 per cent.

It is widely acknowledged that youth unemployment has serious social and economic consequences for the economy, society and the individual. As youth unemployment is disproportionately higher among young women, the likelihood that they will resort to survival alternatives including illicit activities would be expected to be quite high among them. Moreover, young women face a greater risk of contracting HIV/AIDS compared to their employed counterparts, while joblessness among young women raises their susceptibility to contracting HIV infection more than for young men. The fact that the above factors hinder young women more than their male counterparts in finding work calls for gender-specific policies that can enhance their prospects of finding work and to enable them to compete equally with young men.

In terms of future research, the study finds a sharp increase (of about 9 percentage points) between 1986 and 1998 in the predicted gender differential in unemployment. The gap falls by about 4 percentage points in 2005. Further insights could be obtained through a coherent analysis of employment and educational policies that may be associated with this reversal in trends and by decomposing these periodical changes in the gender gap in youth unemployment. Additionally, the coefficients effect, if taken

literally, measures gender discrimination in the labour market. Although its share of the urban youth unemployment gender gap is fairly small compared to the compositional effect, the fact that its magnitude appears to have increased considerably (by 16 percentage points between 1986/1998 and 2005) could be studied in more detail using current data.

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Appendixes

Appendix A: Probit and Logit Models Elaborated

A description of the probit and logit model is extracted from Wamuthenya, 2010a, pp.91–2 as follows:

“For the probit model, $F(X_i\beta)$ in equation (1), is the cumulative standard normal distribution function, which rises from zero to one as Z goes from negative infinity to positive infinity. The probit model employs an integral, making it computationally more difficult than the logit. For the logit model, $F(X_i\beta)$ is the logistic function that also rises from zero to one and employs an exponential function – where the logit transformation is the natural log of the odds ratio, the function used in probit is the inverse of the standard normal cumulative distribution function. A logistic regression is based on the assumption that the categorical exogenous variable reflects an underlying qualitative variable and uses the binomial distribution while a probit regression assumes the categorical dependent reflects an underlying quantitative variable and it uses the cumulative normal distribution.

The logit is somewhat easier to interpret in terms of the odds ratios. Probit models have the drawback that probit coefficients are more difficult to interpret – interpretation of estimated coefficients from a probit model is not straightforward because there is no equivalent to logistic regression’s odds ratios as effect sizes in probit. Hence, they are less used although the choice is largely personal preference. From an empirical standpoint, logit and probit models typically yield similar estimates of the relevant derivatives. This is because the cumulative distribution functions for the two models differ only slightly in the tails of their respective distributions. However, while the derivatives are usually similar, the parameter estimates obtained from the two models differ. Parameter estimates of both models can be made comparable by multiplying those from the logit by a factor, 0.625.”

Appendix B: Specification, Probit Model

The linear probability models (LPM) such as the probit and logit (also known as binary response models, or dummy, categorical, or dichotomous choice models) have two major drawbacks:

- (a) The probability of the predicted endogenous variable does not fall between 0 and 1 (i.e. can be >1 , <0); and
- (b) Partial effects are invariable for all exogenous variables.

The principal concern of binary response models (such as the predicted probability of unemployment rate/ U) lies with response probability:

$$\Pr(U = 1|x) = \Pr(U = 1 | x_1, x_2, \dots, x_k) \quad (A1)$$

For example, in examining the probability of being unemployed after a new policy measure (e.g., cash transfer or free skills training programmes) to equip unemployed youth with compulsory training, then (U) could be 1 if a person is unemployed and 0 if not.

The X s would include exogenous household and personal characteristics, including a dummy variable for whether one received training or otherwise.

To get rid of the restrictions of the LPM, assume the following:

In probit models the function $F(\cdot)$ is presumed to follow a cumulative normal distribution (as described in Appendix A):

$$\Pr(U = 1|x) = F(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k) \text{ i.e. } F(X_i\beta) \quad (A2)$$

$F(X_i\beta)$ is a function of this form: $x \mapsto [1,0]$, $\forall x \in R$.

$$F(x) = \Phi(x) = \int_{-\infty}^x \phi(z) dz \quad (A3)$$

$\phi(z)\phi(z)$ is the normal density function.

$$\phi(z) = \frac{1}{\sqrt{2\pi}} e^{-\frac{z^2}{2}} \quad (A4)$$

The probit model can be drawn from a latent variable model.

$$U^* = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k + \varepsilon \quad (A5)$$

Assume that (U^*) is an unmeasured/hidden/unobserved/latent variable expressed by:

The observed/measured/known variable (U) assumes a value of 1 if (U^*) is larger than zero $\{(U^* > 0)\}$, and zero otherwise. In this specification, (\cdot) is the characteristic function and assumes the value 1 on condition that the term in parentheses holds true.

To estimate this function, the OLS assumption for unbiased estimates requires that the expected value of the error term (ε) equals zero, i.e., there is non-correlation between the error term and exogenous variables. The functional distribution of the error term is reliant on the causal assumption made about $F(\cdot)$.

Usually, the latent variable U^* lacks an easily interpretable measure. For this

reason, assessing the effect of an endogenous dependent variable is done in relation to the effect on $\Pr(U = 1|x)$.



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