

Earnings and Employment Sector Choice in Kenya

By

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Contents

List of tables	iv
Abstract	v
Acknowledgements	vi
1. Introduction	1
2. Literature review	4
3. Methodology	6
4. Data and variables	8
5. Regression results	14
6. Conclusion and policy implications	24
Notes	26
References	27
Appendix: Supplementary tables	29

List of tables

1. Spatial distribution of the working age population (15–64)	8
2. Spatial distribution of employed persons by gender	9
3. Distribution of working individuals by gender and sector of work	9
4. Type of work sought and reasons for not seeking work	10
5. Wage earnings of paid employees	10
6. Wage profiles by employment sector	11
7. Summary statistics	12
8. Multinomial logit and marginal effects for the whole sample	15
9. Multinomial results by sector and by gender	17
10. Earnings models for various sectors	20
11. Earnings models by gender and employment sector	21
A1. Employment in the formal and informal sectors	29
A2. Earnings in public and private sectors	29

Abstract

The level of participation in employment and wages paid in the labour market can be assessed by comparing relative sectoral labour compensation amounts, participation rates and skill distribution of the workforce. In addition, the level of participation in employment and differences in wages paid in any given sector are affected by both individual factors and sector-specific factors. The study estimates a multinomial logit model and selection-corrected earnings models to determine participation and earnings in various employment sectors. This study finds clear differences in the formal private and public employment sectors relative to the vast informal sector. Regression results confirm that education is the key determinant of both participation and wage earnings. Attainment of higher levels of education is related to a greater likelihood of working in private and public sectors and earning higher wages in these sectors, relative to working in the informal sector. Gender disaggregated participation and earnings models show that in contrast to men, university education has a considerable effect on women's participation and earnings in the formal sectors. Education attainment however, a primary factor in participation and earnings determination, weakly explains participation in the typically low-wage informal sector whose stable employment growth coincides with the stagnation in the public and private sectors. Even with its characteristic low wages, to many job seekers the informal sector is where jobs can still be found.

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1. Introduction

Labour market inefficiencies such as unemployment, underemployment, low labour productivity and the growth of the informal sector fairly represent labour market conditions in many developing countries (Strobl and Thornton, 2002; Gorg and Strobl, 2001). Slow economic growth and accompanying inadequate supply of formal sector jobs have in particular contributed to the growth in the informal sector. In Kenya, unemployment, underemployment, a rapidly growing informal sector and absence of a functioning social security¹ system are notable examples of labour market inefficiencies.

These labour market conditions are largely attributable to the poor performance of the economy and various labour market reforms since the 1970s that suppressed growth in new jobs and led to major formal sector layoffs (Manda, 2004). Important economic reforms that also affected the labour side included trade reforms and price decontrols. Nothing stands out more, however, than the dual existence of the formal and informal employment sectors, which reflects possible labour market segmentation in Kenya. To the extent that this segmentation reflects sharp differences in earnings and job conditions, it may have clear implications for poverty and income distribution (Bourguignon et al., 2003). Notably, while new public sector employment almost stagnated, the private sector's ability to create new jobs continued to be weighed down by high production costs and a generally unfavourable business environment. Nevertheless, the informal sector continued to create most new jobs in the economy despite questions about the quality of its jobs.

The level of participation in employment and differences in wages paid in any given sector are affected by economic and institutional factors in that sector. It is notable that these sector-specific factors influence both the rate of participation in employment and the earnings paid to workers. Thus, sectoral employment differences can be assessed by comparing relative sectoral labour compensation amounts, skill distribution of the workforce and participation rates, among other factors. In addition, both participation in any of the sectors and the wages earned by individual workers are affected by such factors as education attainment, age and gender.

The study of both sector level and individual level labour market conditions and their interlinkage would be broadly useful in apprising policy makers on what interventions to undertake in order to improve labour market outcomes. It would be informative, for example, to see how conditions of work in the informal sector could be improved so as to sustain participation and address unemployment. It can be noted, however, that data limitations limit exhaustive study of these factors.

Research questions and study objectives

This study builds on previous work by Mwabu and Evenson (1996), which estimated the factors determining occupational choice in rural Kenya; Kabubo (2003) and Wambugu (2002a), which looked at the determinants of labour market participation and earnings in Kenya; and Wamuthenya (2005) on the determinants of participation in gender-disaggregated urban employment sectors. Here we examine the effect of education, gender, age and other factors on participation in employment and the determination of earnings using the 1998/99 Integrated Labour Force Survey (ILFS) data. The study also assesses the characteristics of workers under various employment sectors.

As an important contribution to the labour market literature, this study attempts to analyse supply side determinants of both participation and individual labour market earnings in broad labour market sectors. The worker profiles in the formal, informal and small-scale agricultural sectors considered in this study further bring out the extent of differences in participation and earnings across sectors. Special attention is given to employment trends and the determinants of participation and level of earnings in the low-paying informal sector, which, as expected, appears to absorb many job seekers unable to attain employment in the near-stagnant formal sectors. The paper does not, however, capture the effect of firm level characteristics, statutory minimum wages or labour union activities on earnings and allocation of workers to various sectors.

In order to identify the factors that influence participation in various employment sectors and those that explain earnings under different labour market conditions, the study:

- Assesses characteristics of working population by age, gender, sector of employment and wages;
- Examines factors that influence participation in various employment sectors;
- Identifies factors that explain earnings under various labour market conditions; and,
- Makes policy recommendations based on the results.

Background and institutional context

While growth of employment in Kenya's private and public sectors has almost stagnated, the informal sector continues to contribute enormously to employment creation in the country. Saddled by high costs of doing business, the capacity for the private sector to create substantial numbers of quality jobs has been limited, compared with the informal sector. Appendix Table A1 shows that employment in the formal sector has been growing at about 2% per year, compared with an average of 12% for the informal sector (GOK, 2004). The public sector, on its part, has nearly stagnated in its creation of new jobs, reflecting the implementation of stringent public service reforms introduced in the early 1990s.

Those reforms, introduced as a form of aid conditionality, saw the retrenchment of many existing workers and a freeze on new recruitment with a view to reducing the public sector wage bill and encourage development-related spending (GOK, 2001). They were also designed to address low labour productivity in the public service. The first

phase of the civil service reform programme saw the retrenchment of 42,132 workers and consequent Ksh2.1 billion wage savings per year. A general freeze on employment also led to reduction of 39,370 state workers through natural attrition and abolition of 26,334 vacant posts. Despite measured replacement of staff in critical sectors, the reforms may have caused the public sector to cease being a reliable alternative employment for job seekers.

The modest growth in private sector employment has not been sufficient to take up the slack left by the decline in public sector employment, leaving the informal sector as an important source of jobs. According to the *Economic Survey* for 2006, the informal sector contributed about 90.3% of all new jobs. This sector also accounts for about 74.2% of all persons engaged in employment and contributes a modest 18.4% to the country's gross domestic product (GOK, 2005). There are, however, pertinent concerns about whether informal sector work can alleviate poverty and improve income distribution, most particularly because the sector is known for its low wages and poor working conditions.² Irrespective of questions about the quality of the informal sector jobs, the government expects that a large proportion of new jobs will continue to be generated by this sector (GOK, 2003a).

Following this introduction, the paper turns in Section 2 to a brief appraisal of relevant literature. Section 3 discusses the methodology, Section 4 describes the data and descriptive statistics, and Section 5 presents the results. Section 8 proffers a conclusion and some policy observations.

2. Literature review

Labour markets in most developing countries are mainly organized along broad formal and informal sectors (Bourguignon et al., 2003; Gorg and Strobl, 2001). Notably, and because of imperfect competition, wages are not equalized across the formal and informal labour segments and workers often get rationed out of the formal wage labour market. Such workers may take up “inadequate” activities in the informal sector as a shelter in the absence of a functioning unemployment social security system (Gorg and Strobl, 2001). Other problems in these labour markets include high levels of unemployment and underemployment, low labour productivity, and low international competitiveness of local workers.³

Many studies attempt to find out the factors that are related to labour market outcomes, including the apparent inefficiencies in the labour markets, by partly assessing participation and earnings in various sectors. Differences in participation rates and earnings may be explained by individual and household characteristics in addition to firm level characteristics. As observed above, however, institutional and structural factors play an important role in allocation to various sectors and in determination of earnings.

Allocation to different employment sectors or specific occupations can be assessed using occupational choice models. Bourguignon et al. (2003), for instance, fit a multinomial logit model of the effect of individual characteristics and the size and composition of the household on three alternatives: being inactive, being a waged worker and being self-employed. Kabubo (2003) also used a multinomial logit model to model allocation to either public or private sectors. Kabubo’s results affirmed the importance of education in the probability of participation in these employment sectors relative to remaining inactive. Other variables found to influence participation included age and the squared value of the age variable. The study also used the number of young children in a household as an instrument to identify participation in the labour market. In another study, Wambugu (2002a) distinguished five employment sectors: unemployed, agriculture sector, public sector, private sector and informal sector. Also using a multinomial logit model, this study found that education, gender, marital status, household headship, ownership of assets and presence of children were the key variables in determining participation in employment. Across Africa, Okpukpara and Odurukwe (2006) studied the determinants of participation in the labour market of Nigerian children using a logit model. Sackey (2005) sought to model female labour force participation and fertility in Ghana. He found a high rate of labour participation by women, with education being the key determinant of their participation.

In contrast, investigations of labour earnings look at determinants of returns to investment in human capital or education in line with the standard Mincerian human

capital framework on which empirical earnings studies are founded (such as Bedi and Edwards, 2002; Krueger and Lindahl, 2001). Studies of the education effect on earnings often include controls for factors such as firm level characteristics, location and household characteristics, while individual level earnings models face these identification problems as well. Indeed, a high correlation of education with earnings may also reflect education signalling in situations where employers face imperfect information about the true ability of potential employees (Strobl, 2002). In such a case, education attainment reflects perceived ability rather than actual productivity.

These effects could be modelled by controlling for work experience and unobserved characteristics such as natural ability (captured by IQ measures or proxied by parental education). Additional studies on earnings control for firm size, average skill levels and union avoidance (Strobl and Thornton, 2002); underemployment (Gorg and Strobl, 2001); and location (Velde and Morrissey, 2002). The dependent variable is usually the natural logarithm of hourly wages and the independent variables include schooling years or education level dummies, individual characteristics, location dummies, and occupation dummies. Usual problems of selectivity bias in the labour earnings data are often taken into account using selectivity correction terms or models that correct for selectivity bias such as the Heckman selection model (Maddala, 1983).

Some recent studies further assess the role of social contacts on job attainment and earnings (for instance, Strobl 2002; Bentolila et al., 2004). Finding a job through social contacts is considered to have specific distortionary effects on average productivity and earnings. Notably, those who find jobs this way may sacrifice their comparative advantage in other sectors in order to obtain a job easily through social contacts where they are less productive. Also, people hoping to get a job through social contacts may invest less in education compared with those hoping to get jobs through the competitive process.

Overall, the micro level studies confirm that education attainment has a positive and significant impact on labour market earnings (see Wambugu, 2002a/b). In addition, investment in human capital has been found to be associated with higher economic growth. Such findings have also found expression in public policy where empirical analysis of the role of education in economic growth and in personal earnings sustains the argument for greater public provision of education (Krueger and Lindahl, 2001; Agenor and Montiel, 1996).

3. Methodology

In this study the idea is to look at factors that determine participation in various employment sectors and those that determine labour market earnings. Several multinomial logit (MNL) models are estimated so as to analyse participation, while selection-corrected and ordinary least squares (OLS) models are used to identify the determinants of earnings.

Multinomial Logit Model

The multinomial model can be described as follows: With Y_i representing a discrete choice among J alternatives (employment sectors), the utility u_{ij} of participating in j -th sector for i -th individual may be written as:

$$u_{ij} = v_{ij} + \varepsilon_{ij} \quad (1)$$

where v_{ij} is a systematic component (deterministic) and ε_{ij} is the random (error) component. We further assume that a utility maximizing subject i will choose alternative j if u_{ij} is largest of u_{i1}, \dots, u_{iJ} . Hence, the probability that i chooses j can be written as:

$$p_{ij} = \text{prob}\{Y_i = j\} = \text{prob}\{\max(u_{i1}, \dots, u_{iJ}) = u_{ij}\} \quad (2)$$

On the basis of (1) and (2), and the assumption that the error terms ε_{ij} exhibit a standard Type I extreme value distribution, the general expression of the MNL model⁴ is given by:

$$p_j = \frac{\exp\{v_j\}}{\sum_{k=1}^J \exp\{v_k\}} \quad (3)$$

Generally, the expected utilities, v_{ij} , can be modelled as:

$$\ln \left[\frac{p_j}{p_k} \right] = \alpha_j + X_i \beta_j = X_i \beta_j \quad (4)$$

where X_i are the characteristics of the individual (or household) and β_j may be regarded as reflecting the effects of covariates on odds of an alternative being selected (Greene, 1997; Maddala, 1983).

MNL estimation is based on the assumption of independence from irrelevant alternatives⁵ (IIA). It should be noted that MNL uses the same set of attributes, X_i , in modelling determinants of allocation to various alternatives J , unlike in the more general conditional logit⁶ or nested logit. The model further generates a large number of parameters, although signs of MNL may be misleading and differ from those of marginal effects since all coefficients from $J-1$ equations enter in the calculation of marginal effects and probabilities.

The employment sectors consist of public, private, informal and small-scale agricultural sectors as defined in the ILFS data. The covariates include household and regional attributes such as gender, age, education, household size and others.

Earnings model

Several earnings models for the private, public and the informal sectors are estimated. Since labour force data are particularly truncated on the basis of the wage variable (owing to self-selection into various employment sectors), the process of allocation to various employment sectors with the resultant wage earnings is not entirely random. Ordinary least squares (OLS) estimates will be biased if the data are censored or truncated, hence the need to correct for selectivity in the earnings models. To address this problem the MNL described above is used in the first stage regression to estimate the inverse Mills ratios (selection terms). The inverse Mills ratios are calculated from the predicted probabilities of various outcomes in the MNL and inserted in the earnings equation to correct for sector selectivity. An alternative OLS model is also estimated for comparison in each case.

The earnings function that integrates the selection correction terms is

$$\text{Log}W_{ij} = \alpha_{ij} + \beta_{ij}X_{ij} + \rho_{ij}S_{ij} + \varepsilon_{ij}, \varepsilon_{ij} \sim N(0, \sigma^2) \quad (5)$$

where $\text{Log}W_{ij}$ is the natural logarithm of the hourly wage of individual i_s in sector j , X_{ij} represents explanatory variables, β_{ij} measures the effects of the explanatory variables, S_{ij} is the selectivity correction term, and ρ_{ij} measures the effect and direction of non-random selection into employment sectors.

While Equation 5 corrects for selectivity, it does not address the fact that employment sectors are endogenous in a full sample earnings model. By assuming that employment sectors are exogenous, we can estimate separate earnings models for each sector without including sectoral dummies. Variables X include education dummies, age and the square of the age of the individual, gender, regional or location dummies (rural and/or urban), household headship, and marital status. Appropriate variables such as a dummy for access to non-labour income are used to identify the models.

4. Data and variables

Kenya's 1998/99 ILFS provided the dataset for the study. The ILFS had a general labour force module and a module on the informal sector and child labour. A total of 11,049 households were interviewed: 9,111 of them rural and 1,938 urban (GOK, 2003b). The survey obtained information on household characteristics, household expenditure, employment status, working patterns and earnings from labour, among other aspects.

Distribution of employment and wage earnings

Survey results compiled in Table 1 show that 66% of those aged 15–64 reported working, while 34% reported not working. Central Province and Eastern Province recorded the highest rates of employment (about 75%), followed by Rift Valley and Nairobi with rates of 67% and 65%, respectively. The lowest employment rates were found in North Eastern, Coast and Western provinces. North Eastern and Western provinces reported the highest proportions of their workforce not working.

Table 1: Spatial distribution of the working age population (15–64)

Province	Working		Not working	
	Observations	Percentage	Observations	Percentage
Nairobi	1,523	65	802	35
Central	2,838	75	970	25
Coast	1,308	57	982	43
Eastern	3,304	75	1,111	25
North Eastern	295	47	332	53
Nyanza	2,791	63	1,625	37
Rift Valley	3,943	67	1,946	33
Western	1,531	53	1,349	47
Total	17,537	66	9,119	34

Source: Calculations by the author from ILFS data.

Table 2 presents a breakdown of those who reported working by gender and region of residence. The table shows that majority of employed persons were in the Rift Valley Province (22%), followed by Eastern Province with 19%, and Central and Nyanza provinces with 16% each. North Eastern reported the lowest contribution to employment

in Kenya, with only 2% of the total working population resident in that region. More men than women reported holding a job according to the survey. This pattern was different at the regional level, however. For example, more women than men were working in Central, Nyanza and Eastern provinces relative to the other provinces. Female employment was lowest in Nairobi, Coast and North Eastern provinces.

Table 2: Spatial distribution of employed persons by gender

Province	Female		Male		Total	
	Observations	Percentage	Observations	Percentage	Observations	Percentage
Nairobi	524	34	1,003	66	1,528	9
Central	1,474	52	1,371	48	2,845	16
Coast	483	37	829	63	1,312	7
Eastern	1,701	51	1,611	49	3,312	19
North Eastern	100	34	196	66	296	2
Nyanza	1,485	53	1,314	47	2,799	16
Rift Valley	1,828	46	2,125	54	3,953	22
Western	745	49	790	51	1,535	9
Total	8,341	47	9,240	53	17,581	100

Source: Calculations by the author from ILFS data.

Sectoral distribution of working persons also yields interesting results. Notably the formal sector is relatively small compared with the informal sector and the small agricultural sector. Among the employed population, it is clear from Table 3 that the formal sector contributed about 24% of employment while the informal sector and small-scale farming contributed about 75% of employment⁷. Further, whereas the majority of public and private sector workers were male (69% and 74%, respectively) a large proportion of female workers could be found in the informal sector and small-scale agriculture. It can be seen from the table that at about 53%, the majority of Kenya's working population is male.

Table 3: Distribution of working individuals by gender and sector of work

Employment sector	Female		Male		Total	
	Observations	%	Observations	%	Observations	%
Public	546	31	1,242	69	1,788	10.17
Private	658	26	1,850	74	2,508	14.26
Informal sector	2,585	45	3,115	55	5,700	32.42
Small scale farming	4,553	60	3,033	40	7,586	43.15
Total	8,341	47	9,240	53	17,581	
%	47		53			100

Source: Calculations by the author from ILFS data.

As can be seen, a significant number of those sampled were not holding jobs. The non-workers constituted those seeking and not seeking work. Table 4 shows that out of 9,070 individuals who were not working, 22% of them actively sought work, 9% were out of season and 1% had been laid off temporarily. The remaining 67% did not seek work, and these include those incapacitated, retired or retrenched, as well as students.

The unemployment rate, computed as the proportion of unemployed persons in the labour force, is therefore 14.4%.

Table 4: Type of work sought and reasons for not seeking work

Type of work sought	Frequency	Percentage
Paid employment	2,250	90
Business operator employer	11	0.5
Business operator-own account worker	124	5
Small-scale farming	79	3
Other	44	2
Total	2,510	100.5
Main reason for not working		
Sick/incapacitated	564	6
Full-time student	2,894	32
Retired	74	1
Looking for work	1,979	22
Out of season	838	9
Retrenchment/redundancy	49	1
Temporary layoff	132	1
Do not need work	538	6
Other	2,002	22
Total	9,070	100

Source: Calculations by the author from ILFS data.

The Kenyan labour market is characterized by quite differentiated labour earnings across the broad employment sectors. Public and private sector workers are well remunerated for their work compared with those employed in the informal and small-scale agriculture sectors. Table 5 presents average monthly labour earnings in various sectors by gender and education level. Kenyan workers received Ksh7,915 (US\$105.5) as average monthly wages. Workers in the public sector received about Ksh10,759 per month (approximately Ksh129,108 annually), whereas those working in the private sector were paid Ksh9,095 monthly (Ksh109,140 annually).⁸ Those employed in the informal and agricultural sectors earned about Ksh4,149 and Ksh1,815, respectively.

Table 5: Wage earnings of paid employees

Variable	Public sector	Private sector	Informal farming	Small-scale	Full sample
	Mean	Mean	Mean	Mean	Mean
Whole sample	10,759	9,095	4,149	1,815	7,915
Females	8,699	7,122	3,118	1,597	6,390
Males	11,631	9,695	4,456	1,899	8,441
No education	5,115	3,032	3,364	1,679	2,832
Primary	5,894	4,538	3,331	1,661	3,842
Secondary	9,480	9,230	5,462	3,508	8,735
Undergraduate	30,211	32,070	11,762		30,398
Postgraduate	34,757	65,617	21,405		48,808

Source: Calculations by the author from ILFS data.

The table also draws attention to differences in labour market earnings by education attainment and gender. Male workers earned more than their female counterparts across all the sectors. In the whole sample, male workers earned Ksh8,441 compared with Ksh6,390 earned by women. This disparity is maintained across the formal and informal sectors and the small-scale agriculture sector.

These results indicate that those with higher education were paid markedly better for their labour than those with lower education. In the whole sample, those without education earned only Ksh2,832, while those with primary and secondary education earned Ksh3,842 and Ksh8,735, respectively. A remarkable jump in wage earnings is seen on attainment of at least undergraduate education. Across sectors, those in public sectors and with education up to secondary level earned higher salaries than their private sector counterparts. Private sector workers with postgraduate education, however, earned nearly double the amount earned by public sector workers with equivalent qualifications (Ksh65,617 compared with Ksh34,757).

A look at the wage profiles in Table 6 among the paid workers across various sectors shows that the median wage is Ksh5,000. Table 6 represents percentiles for the distribution of wage earnings in the population. This table shows that 80% of the population earns less than Ksh10,000 per month (or US\$133.3⁹) and only 1% earns well over Ksh53,000 (US\$706.7). Among the 1% highly paid workers, those in private sector earned distinctly more than their public sector counterparts and those across all the other sectors. The wage profile shows consistently low wages in the informal and small-scale agriculture sectors. For instance, 80% of informal sector workers earned a measly Ksh5,400 or less (US\$72).

Table 6: Wage profiles by employment sector

Percentile	Public sector	Private sector	Informal sector	Small-scale farming	Whole sample
10 th	3,920	2,000	1,000	600	1,400
20 th	5,417	2,760	1,500	800	2,100
30 th	6,500	3,300	1,900	1,000	3,000
40 th	7,500	4,200	2,500	1,200	4,000
Median	8,400	5,000	3,000	1,500	5,000
60 th	9,500	6,500	3,800	1,680	6,570
70 th	10,800	7,800	4,200	2,000	8,000
80 th	12,835	10,000	5,400	2,700	10,000
90 th	16,500	18,000	8,000	3,055	15,000
99 th	59,080	96,000	25,000	8,500	53,000

Source: Calculations by the author from ILFS data.

Key variables for the data

Four employment sectors are identified in this study: public, private, informal and small-scale agriculture. Participation in the labour market is captured by a specific question in the data set: whether the individual held a job in the past week. As noted above, allocation to an employment sector is determined by individual, household, regional and household asset characteristics. These factors generally influence expected

earnings and reservation wages, hence determining whether a person participates in the labour market.

Individuals also sort themselves out according to the skill requirements of the jobs, which means that the less skilled may have a lower threshold of reservation wage and hence are more likely to choose informal sector work. Theoretically, education is expected to influence participation in the waged employment sectors where educational returns should be highest. Thus we expect a positive and significant influence of education on earnings, particularly for the formal sectors. Factors such as household size and presence of children in the family may discourage labour supply; these should have a negative sign in the participation models. The presence of household assets or capital is important in entry to some types of informal sectors or in agriculture, for instance, but it is expected to lower the probability of participating in the formal sectors.

Age is used as a proxy for experience, and as discussed earlier, experience is an important determinant of earnings and therefore indirectly, the sector of employment. Presence of children should either deter participation or encourage it. The sign is ambiguous. Young children may constrain caregivers (women) from participating in the labour market. Household headship and gender may also influence participation. It is expected that being male raises the likelihood of participation in the labour market.

Table 7 presents the main sample statistics for the variables used in the regressions. The table indicates that the public sector and informal sector employ relatively older workers than the private and small-scale agriculture sectors. Further, 69% of the working population was married; 51% had at least primary education; 31% had received some secondary education; and 16% had no education at all. Only 2% had acquired university education. The mean hourly wage was about Ksh46.9 (US\$0.6). Private sector and informal sector workers worked for longer hours than those in the public sector but received lower earnings per hour. Specifically, workers in the public sector received about Ksh70 per hour, while those in the private sector and informal sector got about Ksh49 and Ksh12 per hour, respectively.

Table 7: Summary statistics

Variable	Public sector			Private sector			
	Informal sector	Small-scale ag					
SD	Mean	SD	N	Mean	SD	N	Mean
	N	Mean	SD	N			
Age	36.76	7.97	1,406	33.88	9.70	1,574	36.86
11.60	5,391	33.79	13.05	9,218			
Gender	0.69	0.46	1,406	0.74	0.44	1,574	0.55
0.50	5,391	0.40	0.49	9,218			
Headship	0.76	0.43	1,406	0.75	0.43	1,574	0.66
0.48	5,391	0.28	0.45	9,218			
Married	0.83	0.37	1,406	0.71	0.45	1,574	0.74
0.44	5,391	0.62	0.49	9,218			
No education	0.01	0.09	1,406	0.05	0.22	1,574	0.16
0.37	5,391	0.23	0.42	9,218			
Primary	0.17	0.37	1,406	0.38	0.49	1,574	0.55
0.50	5,391	0.59	0.49	9,218			
Secondary	0.74	0.44	1,406	0.52	0.50	1,574	0.28
0.45	5,391	0.17	0.38	9,218			

EARNINGS AND EMPLOYMENT SECTOR CHOICE IN KENYA

13

Undergraduate	0.04	0.20	1,406	0.02	0.15	1,574	0.00
0.07	5,391	0.00	0.04	9,218			
Postgraduate	0.04	0.20	1,406	0.03	0.16	1,574	0.00
0.07	5,391	0.00	0.02	9,218			
Weekly hours	43.50	12.57	1,188	52.65	15.85	1,354	55.83
23.27	863	44.71	17.60	604			
Hourly wage	70.48	135.10	1,185	49.09	93.23	1,342	26.31
58.02	857	11.88	12.36	596			
Non-labour income	0.13	0.34	1406	0.11	0.31	1,574	0.57
0.50	5,391	0.26	0.44	9,218			
Household size	4.63	2.70	1406	3.72	2.56	1,574	4.98
2.82	5,391	6.17	2.77	9,218			

SD is standard deviation.

ag is agriculture

Source: Calculations from ILFS data

5. Regression results

As discussed above, in order to determine the choice of participation in employment sectors as well as potential earnings, this study used a variety of empirical approaches. Several multinomial logit models were employed to analyse labour force participation, while selection-corrected OLS models were the option for identifying the determinants of earnings.

Multinomial logit models

In this section we estimate three MNL models: one for the full sample and the other two for male and female samples by employment sector. The small-scale agriculture sector is the base category in all cases. Using the Wald test, the null hypothesis for equality of coefficients between any pair of employment sectors was rejected at the 1% significance level (Tables 8 and 9). This indicates that the labour market is heterogeneous and the decomposition of the labour market into public, private, informal and small-scale agriculture sectors is suitable. Presence of non-labour income in a household and ownership of a dwelling unit are used to identify participation in the labour market. Tables 8 and 9 also present the marginal effects for each variable.¹⁰

Table 8 presents the core factors that determine participation in public, private or informal employment sectors relative to the small-scale agriculture sector. All variables in the models have the expected signs. In particular, education raises the probability of participation, while ownership of household assets, presence of non-labour income and household size reduce this probability. The presence of non-labour income is associated with a reduced probability of participating in the formal sectors (private and public sectors), but a higher probability of participating in the informal sectors. As hypothesized above, the ownership of a dwelling unit strongly reduces the probability of participation in any of the sectors relative to participating in small-scale agriculture.

Demographic variables such as age, household size and marital status also play a central role in allocation to various employment sectors. The age and age-squared variables, for instance, are significant at 1% across all the sectors. Age raises the probability of participating in all employment sectors, while the negatively signed age-squared indicates that the probability of participation increases at a decreasing rate as age increases. The results further show that individuals in large households are less likely to participate in the formal and informal sectors and that being a household head raises the probability of participation. At the same time, the results stress that men are more likely than women to work in the formal sectors, while being married is associated with a higher probability of participation in formal and informal employment sectors.

Table 8: Multinomial logit and marginal effects for the whole sample

Variable	Public		Private		Informal	
	Coefficient	Marginal effects	Coefficient	Marginal effects	Coefficient	Marginal effects
Age	0.418*** (11)	0.016	0.117*** (3.870)	0.006	0.087*** (5.810)	0.009
Age squared	-0.005*** (-10.68)	0.000	-0.002*** (-4.330)	0.000	-0.001*** (-5.770)	0.000
Gender	0.331*** (2.93)	0.010	0.748*** (6.720)	0.068	0.032 (0.480)	-0.029
Headship	1.239*** (9.2)	0.019	1.186*** (9.770)	0.042	1.541*** (19.710)	0.284
Primary	2.028** *(7.95)	0.080	0.957*** (6.160)	0.064	0.395*** (5.330)	0.016
Secondary	4.660*** (18.74)	0.383	2.254*** (13.950)	0.120	0.831*** (9.060)	-0.113
Undergraduate	5.996*** (12.01)	0.754 (6.390)	3.271*** (2.220)	0.025	1.049**	-0.338
Postgraduate	7.303*** (11.43)	0.695 (8.610)	5.090*** (4.230)	0.095	2.541***	-0.330
Non-labour	-0.637*** (-5.5)	-0.046 (-5.500)	-0.664*** (29.640)	-0.112	1.625***	0.415
Married	0.410*** (3.1)	0.012 (1.920)	0.244* (3.180)	0.012	0.232***	0.038
Own dwelling	-1.206*** (-12.78)	-0.027	-1.763*** (-17.900)	-0.123	-0.866*** (-16.620)	-0.110
Household size	-0.078*** (-3.95)	-0.001	-0.191*** (-9.140)	-0.014	-0.081*** (-8.020)	-0.010
Constant	-12.655***		-3.792***		-2.921***	
N	17589 (-17.3)		(-6.830)	(-10.720)		
Wald Chi ² (36)	4421.43					
Pseudo R ²	0.2689					
Log-likelihood	-15921					

*** Significant at 1% level; ** significant at 5% level; * significant at 10% level; z in parentheses.
Source: Computations by the author using the ILFS data.

Notably, the marginal effects show that higher age is associated with 1.6%, 0.6% and 0.9% chance of working in the public sector, private sector and informal sector, respectively. Being married, in contrast, increases the chance of working in the informal sector by 3.8% compared with 1.2% in both public and informal sectors.

Education is a vital determinant of participation in employment sectors in Kenya. The significance at the 1% level of all education dummies clearly supports this empirically documented fact (see for example Kabubo, 2003; Wambugu, 2002a). Every education level – primary, secondary, undergraduate and postgraduate – increases the likelihood of participating in the key employment sectors in Kenya relative to having no education. As for marginal effects, possession of some primary education increases the chance of participation by 8% for the public sector. Secondary, undergraduate and postgraduate education raise the chance of participating in the public employment sector by 38%, 75% and 69%, respectively. In contrast, primary education raises the chance of working in the private sector by 6.4% and secondary education by 12%. Undergraduate education increases this probability by 2.5% while postgraduate education increases the chance by about 10%.

On average, Table 8 indicates that attainment of primary, secondary and university level education increases the probability of working in the public sector relative to all other sectors. This, as Wambugu (2002a) found, connotes the importance placed on formal education in recruitment for the public sector. In sharp contrast, only primary education really raises the chance of working in the informal sectors. Hence, possession of higher levels of education (secondary, undergraduate and postgraduate) is associated with a declining chance of working in the informal sector, which also suggests that one does not need to go for further education to get a chance to work in this sector.

According to the gender disaggregated MNL regressions in Table 9, the signs of age and age squared are similar to those in the non-disaggregated models. This means that irrespective of gender, age tends to raise the chance of working in any employment sector but at a decreasing rate. There is no notable difference in the signs for household size and ownership of a dwelling in determining participation under the male or female models compared with those of the full sample.

Unlike in the full sample results, household headship explains participation in all sectors except among female private sector workers. At the same time, being married is associated with increased probability of participation in all the sectors in the male sample. But in the private sector female sample, being married reduces the probability of working by about 4.8%. This clearly implies that household headship and being married reduce female participation in the private sector. This may reflect probable discrimination against women on the basis of marital and household responsibilities by private sector employers.

The results further show the stark gender differences in the effect of education on participation in various sectors. Men with at least primary education are more likely to work in the public sector than in the private or the informal sectors. Among females, the effect of education participation in public and private sectors is very strong relative to that of men. In addition, the effect of university education for women in getting a job in the public and private sectors is consistently higher than that of men. This emphasizes the clear effect of education, particularly university education, on a woman's chance of working in the formal sectors (see also Wambugu, 2002a; Kabubo, 2003).

Table 9: Multinomial results by sector and by gender

Female	Male					
	Public	Public		Private		Informal
		Private	Informal	Informal	Public	
Variable	Coefficient	M E	Coefficient	M E	Coefficient	M E
Coefficient	M E	Coefficient	M E	Coefficient	M E	M E
Age	0.407***	0.025	0.139***	0.008	0.094***	-0.002
0.512***	0.007	0.123**	0.004	0.081***	0.014	0.002
(6.680)	(8.640)	(2.510)	(3.870)	(3.910)	(4.120)	
Age squared	-0.005***	0.000	-0.002***	0.000	-0.001***	0.000
-0.006***	0.000	-0.002***	0.000	-0.001***	0.000	0.000
(-6.190)	(-8.760)	(-2.610)	(-4.490)	(-3.440)	(-4.550)	
Headship	1.234***	0.029	1.116***	0.047	1.515***	0.239
0.829***	0.003	0.062	-0.019	1.428***	0.324	0.399
(3.950)	(5.010)	(0.270)	(6.490)	(15.040)	(10.060)	
Primary	1.729***	0.106	0.884***	0.073	0.400***	-0.031
2.295***	0.033	0.900***	0.029	0.401***	0.063	0.316
(4.200)	(5.930)	(2.900)	(4.790)	(4.110)	(3.450)	
Secondary	3.990***	0.355	2.006***	0.133	0.679***	-0.185
5.498***	0.364	2.256***	0.069	0.968***	-0.004	0.185
(10.540)	(13.880)	(7.130)	(10.280)	(7.560)	(4.820)	
Undergraduate	5.449***	0.699	3.002***	-0.022	1.083*	-0.366
6.773***	0.779	3.744***	0.076	0.805	-0.275	0.666
(9.750)	(8.360)	(5.400)	(4.590)	(1.040)	(1.730)	
Postgraduate	6.453***	0.612	4.588***	0.069	2.335***	-0.357
8.625***	0.765	5.977***	0.128	2.621**	-0.275	0.577
(6.510)	(9.580)	(4.940)	(7.230)	(2.060)	(3.740)	
Non-labour	-0.534***	-0.073	-0.686***	-0.183	1.540***	0.424
-0.960***	-0.018	-0.779***	-0.048	1.706***	0.396	0.424
(-4.880)	(-3.680)	(-3.530)	(-4.810)	(22.820)	(18.810)	
Married	0.793***	0.031	0.858***	0.080	0.411***	0.016
-0.055	-0.001	-0.958***	-0.049	0.130	0.044	0.166
(-0.290)	(3.370)	(-4.390)	(5.210)	(1.360)	(3.120)	

Continued next page

Table 9: Continued

Variable	Male						Female					
	Public		Private		Informal		Public		Private		Informal	
	Coefficient	ME	Coefficient	ME	Coefficient	ME	Coefficient	ME	Coefficient	ME	Coefficient	ME
Own dwelling	-1.099*** (-9.380)	-0.030	-1.631*** (-14.210)	-0.156	-0.827*** (-11.180)	-0.048	-1.339*** (-8.120)	-0.013	-2.017*** (-10.170)	-0.073	-0.891*** (-12.120)	-0.154
Household size	-0.085*** (-3.560)	-0.001	-0.195*** (-8.910)	-0.022	-0.082*** (-5.780)	-0.002	-0.105*** (-2.930)	-0.001	-0.282*** (-6.120)	-0.010	-0.080*** (-5.390)	-0.013
Constant	-11.846*** (-13.140)		-3.616*** (-5.540)		-2.931*** (-7.120)		-14.225*** (-10.580)		-2.306*** (-2.850)		-2.896*** (-8.000)	
N	8910											
Wald chi ²	2574.08											
Pseudo R ²	0.248											
Log likelihood	-8870.84											

*** Significant at 1% level; ** significant at 5% level; * significant at 10% level; z statistic in parentheses; ME= marginal effects
Source: Computations by the author using the ILS data.

It is also notable that the effect of university education on participation in the private sector is weaker than that for the public sector for both male and female samples. This represents ample evidence that only minimum education and possibly special skills (which are not captured by this data) are desired to obtain a job opportunity in the private sector. Higher levels of education do not really matter in attaining employment in the informal sector as the results show. Because of its low skill use, primary education is just enough to obtain work in the vast informal sector.

Earnings models

To establish the factors that explain earnings, several selection-corrected models and OLS earnings models are fitted, and the results are reported in Tables 10 and 11. The earnings were estimated for the three main sectors and also across male and female samples for each sector. The inverse Mills ratio coefficients in the public and private sector earnings models are insignificant. The selection term is significant and positive in the informal sector model, however. Significance of the selection term in the informal sector model means that the earnings of a worker with average characteristics is higher than for any worker who would be drawn randomly into the sector. Conversely, the earnings of a worker with average characteristics in either the public or the private sector do not differ significantly from those of a worker who would be randomly drawn into the sector.

Education dummies are highly significant in the public and private sector models (Table 10), but have a weak influence on hourly wages in the informal sector. On average, attainment of additional education leads to higher wage returns in the public, private and informal sectors in a manner similar to that of education for participation in employment as discussed above. Importantly, controlling for sample selection does affect parameter estimates of education dummies in the informal sector. The full sample results show that education attainment is related to higher labour market earnings across public and private sectors but has little effect on the earnings in the informal sectors where education dummies are insignificant. However, the identifying variable, the presence of non-labour income, is highly significant in the informal sector model. Individuals with access to non-labour income are not only likely to work in the informal sector, but their wage earnings are relatively higher. Evidently, availability of capital or non-labour income is more important than education attainment in the informal sectors where most workers are relatively unskilled. University education and secondary education yield the highest returns in public and private sector employment, while primary education yields the lowest returns in the two sectors as shown by the relative sizes of the coefficients.

Demographic factors also play an important role in wage returns according to these results. Age, for example, is related to higher wage earnings in the private sector even though this is not significant under the public and informal sectors. The rate at which age contributes to additional wage rises at a decreasing rate, as shown by the negative sign of square of the age variable. This is only significant at the 5% significance level in the private sector sample where most workers are likely to be younger or in their most productive ages. Being married is associated with higher wage returns, while rural residence is associated with lower wage earnings across all sectors. Further analysis of these factors is assessed in the gender disaggregated earnings functions summarized in Table 11.

Table 10: Earnings models for various sectors

Variable	Public		Private		Informal	
	Selection	OLS	Selection	OLS	Selection	OLS
Age	0.061 (1.500)	0.061** (2.320)	0.101*** (2.680)	0.089*** (3.420)	-0.0110.115*** (-0.180)	(3.050)
Age squared -0.001**	0.001 (-1.000)	0.001 (-1.480)	-0.001** (-2.470)	-0.001*** (-3.000)	0 . 0 0 1 (0.450)	(-2.160)
Married	0.134* (1.930)	0.140** (2.070)	0.213** (2.320)	0.202** (2.300)	-0.095 (-0.520)	0.014 (0.070)
Primary	0.165 (0.590)	0.151 (0.670)	0.327* (1.920)	0.275*** (3.040)	-0.460* (-1.720)	0.119 (0.510)
Secondary	0.825** (2.110)	0.809*** (3.670)	0.969*** (3.060)	0.855*** (8.720)	-0.865** (-2.100)	0.371 (1.460)
University 1.699***	1.736*** (3.970)	1.714*** (7.140)	2.520*** (6.140)	2.395*** (3.620)	0 . 2 5 9 (0.560)	(6.160)
Region -0.288**	-0.284*** (-6.130)	-0.280*** (-6.210)	-0.413*** (-7.390)	-0.410*** (-7.670)	- 0 . 2 0 7 * (-1.640)	(-2.440)
Non-labour	0.076 (0.600)	(-0.380)	-0.057 (3.740)		0.655***	
Inverse Mills ratio	-0.001 (-0.020)	(-0.370)	-0.011 (3.180)		0.112***	
Constant	1.578 (1.320)	1.606*** (3.120)	0.497 (0.450)	0.893* (2.760)	4.413*** (0.310)	0.233
N	1185	1185	1342	1342	857	857
F-statistic	33.23	41.73	46.75	59.99	59.66	103.26
R ²	0.3450	0.3440	0.4303	0.4302	0.2039	0.1811

*** Significant at 1% level; ** significant at 5% level; * significant at 10% level; t statistics in parentheses; dependent variable is log hourly wage.

Source: Computations by the author using the ILFS data.

Table 11 presents earnings models disaggregated according to gender and by employment sectors. Under both male and female models, selectivity bias was only indicated in the public sector under the female sample under which the inverse Mills ratio term is significant at the 5% level. This implies that the earnings of a woman with average characteristics in the sector are higher than those of a woman randomly selected into the sector. All the other models in Table 11 do not show evidence of selection problem as firmly supported by the insignificance of the selection terms.

The significance and size of coefficients for public sector and private sector models in the male and female sample are fairly consistent with the results in Table 10, but the primary education dummy is insignificant for men working in the public sector and for women working in the private and informal sectors. The secondary education dummy is highly significant in all the male and female samples except under the female informal sector sample where the dummy is insignificant. Consistent with the results discussed above, it is clear that labour market earnings rise with education attainment. This is true for both men and women participating in the private and public sectors. Thus, in comparison with the employment allocation results given above, this evidence indicates that those individuals in the private and public sectors who possess high education tend to receive higher earnings than those with little or no education. It is notable that only in the male sample is education attainment important for earnings in the informal sectors. Alternatively, education attainment has little influence on earnings paid to a worker in the informal sector.

For women, any level of education raises their earnings relative to males in the public sector. As shown by the size of the education coefficients, female workers with at least university education are especially well rewarded in the public and private sectors, including the informal employment sector, compared with their male counterparts. This underscores once again the importance of education attainment for women in both earnings and allocation to employment sectors. The age and age-squared variables in the models reported in Table 11 compare well with the results in Table 10, with the exception of female public and informal sector earnings models in which the age variable is insignificant. Rural residence once again leads to lower labour earnings, while being married has mixed results across all the models.

Table 11: Earnings models by gender and employment sector

Variable Female	Male					
	Public Private		Private Informal		Informal	
Public Selection	Selection OLS	OLS Selection	Selection OLS	OLS Selection	Selection OLS	O L S
Age 0.072 (1.230)	0.043 (0.690) (-0.340)	0.108*** (3.070) (2.050)	0.088* (1.940) (1.970)	0.091*** (3.730) (-0.780)	0.133*** (2.850) (-0.020)	0 . 1 5 7 * * *
Age squared 0.001 (-0.770)	0.001 (-0.400) (0.820)	-0.001** (-2.460) (-2.000)	-0.001* (-1.720) (-1.910)	-0.001*** (-3.060) (1.220)	-0.002*** (-2.750) (0.660)	-0.002*** -0.001 (- 3 . 2 5 0)
Married 0.259*** (2.940)	-0.148 (-1.400) (2.990)	-0.072 (-0.690) (2.580)	0.110 (0.980) (2.170)	0.114 (-0.253) (-1.340)	-0.011 (-0.120) (-1.010)	0 . 0 3 8 (0 . 1 9 0)
Primary	-0.264	0.039	0.291*	0.307***	0.326*	0 . 4 4 8 * * *

1.282*** (4.460)	0.776*** (-0.830) (3.330)	0.724** (0.160) (1.970)	0.221 (1.650) (1.400)	-0.980* (2.650) (-1.900)	-0.634 (1.690) (-1.490)	(2 . 9 3 0)
Secondary 2.458*** (4.400)	0.100 1.354*** (0.210) (6.520)	0.722*** 2.232*** (3.030) (2.750)	0.777*** 1.003*** (2.330) (4.940)	0.810*** -0.811 (6.690) (-0.840)	0.300 0.063 (0.860) (0.130)	0 . 5 5 9 * * *
University 3.448*** (5.510)	0.918* 2.225*** (1.660) (9.930)	1.623*** 3.568*** (6.040) (4.190)	2.385*** 2.229*** (5.340) (8.390)	2.417*** 1.058 (8.560) (0.790)	1.574*** 1.950*** (2.640) (4.890)	1 . 9 2 9 * * *
Region -0.275*** (-3.680)	-0.294*** -0.229*** (-5.120) (-3.190)	-0.312*** -0.465*** (-5.550) (-3.390)	-0.423*** -0.432*** (-7.410) (-3.390)	-0.424*** -0.481*** (-7.590) (-2.660)	-0.164** 0.599*** (-2.210) (-2.630)	- 0 . 1 5 3 (- 1 . 4 6 0)
Non-labour (-1.280)	0.260* -0.776* (1.660)	 (-1.840)	0.075 0.557* (0.480)	 (1.640)	0.274* (1.920)	-0.258
Inverse Mills ratio -0.076** (-1.970)	0.071 (1.520)	-0.094 (-1.580)	0.003 (0.090)	0.065 (1.000)	0.025 (0.700)	

Continued next page

Table 11: Continued

Variable	Male						Female																	
	Public			Private			Informal			Public			Private			Informal								
	Selection	OLS		Selection	OLS		Selection	OLS		Selection	OLS		Selection	OLS		Selection	OLS							
Constant	3.284*	0.975	0.990	0.889**	0.277	-0.570	-0.781	2.275***	-3.153	0.413	4.930	2.306**	(1.820)	(1.410)	(0.720)	(2.040)	(0.200)	(-0.680)	(-0.470)	(2.890)	(-1.100)	(0.380)	(1.610)	(2.060)
N	843	843	1062	1062	664	664	342	342	280	280	193	193												
F statistic	24.79	29.17	33.57	41.92	17.16	113.73	29.78	33.89	31.43	33.75	11.76	39.18												
R ²	0.3617	0.3281	0.4328	0.4324	0.1910	0.1831	0.3520	0.3401	0.4619	0.4449	0.3665	0.3840												

*** Significant at 1% level; ** significant at 5% level; * significant at 10% level; t statistics in parentheses; dependent variable is log hourly wage.
Source: Computations by the author using the ILFS data.

6. Conclusion and policy implications

This study assesses the characteristics of the working population and factors that influence participation in various employment sectors and wage earnings. Using a labour force survey the study finds that the unemployment rate, computed as the proportion of unemployed persons in the labour force, was 14.4%. The study finds that whereas well-educated individuals tend to prefer public or private sector jobs, individuals with low education appear to be predisposed to the informal sectors. The assessment of earnings profiles of various sectors clearly illustrates that the informal sector pays the lowest wages. With the near stagnation of job opportunities in the public and private sectors, as confirmed by other data sources, an overwhelming majority of those holding jobs are to be found in the informal and agricultural sectors. But these sectors offer low pay and probably poor working conditions. While the median monthly wage was about Ksh5,000, informal and small agricultural workers earned 30%–60% of this amount. Formal sector workers earned twice as much as workers in the informal and small-scale agriculture sectors. Another important finding is that male workers on average earned 32% more than female workers.

The analysis of participation in various employment sectors indicates that the labour market is heterogeneous and decomposition of the labour market into public, private, informal and small-scale agriculture sectors is suitable. Factors such as education attainment, marital status, age, region of residence, household size are central in allocation to various employment sectors. Results show that attainment of at least primary education increases the likelihood of working in the private and public sectors, but the likelihood declines in the vast informal and agricultural sectors. Gender disaggregated participation models show that in contrast to men, university education has a considerable effect on the chances of women participating in the formal sectors. The results also show that household headship and being married reduce female participation in the private sector.

With respect to wage earnings, education attainment is found to have a strong influence, even though this effect is weak in the informal sector. On average, attainment of additional education leads to higher wage returns in the public and private sectors analogous to the way education contributes to participation in employment. Gender differences are also noted in the determination of wage earnings. Notably, female workers with at least university education are especially well rewarded in the public and private sectors relative to their male counterparts. This highlights once again the importance of education attainment in both earnings and allocation to employment sectors among women.

Education attainment, such factors as marital status, age and presence of non-labour income are therefore among the factors that determine both participation and wage earnings in various employment sectors. Education attainment, although a primary factor in determining participation and earnings, weakly explains the earnings in the low-wage informal sector whose stable employment growth coincides with the stagnation in employment growth in the public and private sectors. Hence, even with the characteristic low wages and probably because of the ease of entry, it seems to many job seekers that the informal sector is where jobs can still be found. Investment in education, therefore, needs to be supported by improving employment opportunities in quality occupations such as those in the public and private sectors.

Notes

1. Gorg and Strobl (2001) note that those rationed out of the wage labour market end up in the informal sector in the absence of a functioning social security.
2. Informal sector jobs provide lower earnings, are insecure and are related to being poor (Geda et al., 2001).
3. Minimum wage laws and the usual Labour Day (1st May) wage increases pay little regard to worker productivity or to the ability of the employers to pay (Manda, 2004; APSG, 2004).
4. The MNL regression is an unordered generalization of the logistic regression model for two alternatives. The logistic model can be derived from the MNL if $J=2$ and if random utilities u_{ij} have independent extreme value distributions, where their difference can be shown to have a logistic distribution (Rodriguez, 2007).
5. Independence from irrelevant alternatives states that the odds of choosing j over alternative k should be independent of the choice set for all pairs j, k . This can be tested using Hausman-Mc Fadden tests (Stata 7, User Guide, 2001)
6. Conditional logit takes into account characteristics of individuals as well as attributes of the choices or variables that take combinations of individual and choice attributes.
7. These results fairly reflect those in the *Report of 1998/99 Labour Force Survey*. The proportion of workers in the formal sectors (full time, part time and seasonal private and public sector workers) was about 24% of the total working population of about 10.5 million in 1998/99 (GOK, 2003b).
8. These figures correspond fairly to those reported in the 2003 *Economic Survey*.
9. At Ksh75 to the US dollar exchange rate.
10. The signs of the coefficients do not necessarily match those of the coefficients of the MNL.

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Appendix: Supplementary tables

Table A1: Employment in the formal and informal sectors

Year	Employment in thousands			Growth in employment (%)		
	Private sector	Public sector	Informal	Private sector	Public sector	Informal
1994	817	688	1,772			
1995	867	690	2,240	6.12	0.29	26.41
1996	917	690	2,643	5.77	0.00	17.99
1997	947	701	2,987	3.27	1.59	13.02
1998	967	701	3,354	2.11	0.00	12.29
1999	990	699	3,739	2.38	-0.29	11.48
2000	1,003	693	4,151	1.31	-0.86	11.02
2001	1,019	659	4,624	1.60	-4.91	11.39
2002	1,041	659	5,086	2.16	0.00	9.99
2003	1,069	659	5,716	2.69	0.00	12.39
2004	1,106	658	6,168	3.46	-0.15	7.91
2005	1,155	654	6,628	4.43	-0.61	7.46
2006	1,210	650	7,049	4.76	-0.61	6.35
2007	1,282	625	7,476	5.95	-3.85	6.06

Source: *Economic Surveys* for 2003, 2004, 2007 and 2008.

Table A2: Earnings in public and private sectors

Year	Earnings in shillings per annum		Growth in earnings (%)	
	Private sector	Public sector	Private sector	Public sector
1999	152,459	130,741		
2000	175,846	136,409	15.34	4.34
2001	202,083	147,971	14.92	8.48
2002	213,871	223,926	5.83	51.33
2003	247,168	244,771	15.57	9.31
2004	291,738	279,545	18.03	14.21
2005	340,721	272,132	16.79	-2.65
2006	387,198	294,975	13.64	8.39
2007	427,716	322,259	10.46	9.25

Source: *Economic Surveys* for 2003, 2004, 2007 and 2008.

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