



Working Paper
No. 507

**Determinants of urban job attainment in Kenya across
time: education and quality of jobs by gender**

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June 2010

ISSN 0921-0210

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Abstract

Kenya has experienced a sharp decline in formal sector employment and a corresponding increase in informal sector employment. This paper examines the role played by various factors in influencing the sorting of individuals into different sectors of employment in urban Kenya. It examines whether factors influencing the location of individuals in different sectors change over time and differ across gender and thus contributes to an understanding of gender differences in job attainment. The paper complements the issues addressed in two other studies by the author on the remarkable rise in female Labour Force Participation Rate (LFPR) and on the gender gap in the incidence of unemployment. As may be expected, in both periods, experience and education are highly valued in the formal sector. Over time, the importance of education in securing labour market access increases by about 5 and 16 percentage points for primary and secondary education levels respectively. However, there are sharp gender differences. For men, the importance of education increases while for women it declines suggesting the presence of labour market segregation. Over time, the negative effect of marital status on female formal sector participation declines reflecting the increasing insertion of married women in the labour market. Underscoring the use of the informal sector as a last resort option, I find that declines in husbands' real earnings are associated with a sharp increase in women's participation in the informal sector. The increasing participation of women in the vulnerable informal sector is consistent with the feminist version of the structuralist characterisation of the informal sector.

Keywords

Formal sector, informal sector, education, gender, labour market segregation, feminist dualist and structuralist views

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education and quality of jobs by gender

1 Introduction

Urban labour markets in developing countries are widely recognised as having two distinct sectors, a regulated or protected formal sector¹ and an unregulated or unprotected informal sector (Pradhan and van Soest 1995).² Lachaud (1994) and Mazumdar (1989) describe an urban labour market structure in a typical developing country as being subdivided into three main categories: the formal sector (public and private); the informal sector – comprising the informal sector wage labour, self-employed, paid domestic workers, those earning a monthly salary or those working on casual basis; and the unemployed.³ This categorisation ignores unpaid workers (people who work without pay in an economic enterprise operated by a related person), who form a significant proportion of the urban and rural labour-force.⁴

Among the most important challenges facing governments in developing countries, is the task of identifying development strategies that can generate

¹ In the Kenyan context, the formal sector (referred to as the modern sector) includes the entire public sector and private sector enterprises and institutions that are formal in terms of registration, taxation and official recording (incorporated enterprises). The public sector covers all activities and establishments of the central government, its statutory corporations (wholly owned corporations or parastatals) and registered companies in which the government is a majority shareholder, and all local government authorities. Public sector activities are entirely in the modern economy. The private sector consists of companies and businesses in the modern sector in which the government does not own majority shares, the informal sector, cooperatives, non-profit organisations, private households employing domestic servants and, small-scale/subsistence farming and pastoral activities. See Republic of Kenya, (2003, 1998).

² The origin of these classifications comes from literature on dual labour market and labour market segmentation models. See Doeringer and Poire (1971), Lewis (1954), Ranis and Fei (1961), Ricardo (1815).

³ The ILO first introduced the concept of ‘informal sector’ (now, ‘informal economy’) in the early 1970s when the term was used to describe specific activities taking place in urban areas of developing countries. The concern at that time was with the working poor who were not recognised, registered or protected by the working authority (ILO 1972). See also Menke (1998) for a succinct discussion of the evolution of this concept. In the Kenyan context, the informal sector (locally known as the Jua-Kali, a Kiswahili term meaning ‘hot sun’ to indicate that many workers operate without fixed premises) covers all small-scale activities that are normally semi-organised and unregulated and use low and simple technology. The sector largely comprises self-employed persons or employers of a few workers. It also includes unpaid family workers. Small-scale agriculture and pastoral activities are farm-related economic activities mainly located in the rural areas. Owing to their non-registration nature, they are not classified as belonging to either the modern sector or the informal sector (Republic of Kenya 2003).

⁴ See also Magnac (1991) and Pradhan and Van Soest (1995).

new employment and income opportunities and reduce under-employment and unemployment. The higher rate of labour-force growth than population growth underscores the urgent need to create employment opportunities. According to Fox and Gaal (2008), wage and salary employment in Kenya increased by half a million between 1983 and 1996 while, the economy's labour-force grew by half a million people yearly. A similar situation exists in other sub-Saharan African countries. For example, in Zambia, nearly 25 per cent of the population was employed in salaried and wage employment around the 1970s, but by 2005, this share had dropped to less than 10 per cent. Between 1991 and 1998, in Ghana, wage and salary employment grew by 2.5 per cent annually while the labour-force grew at 3.3 per cent. However, there are countries in SSA that display a pattern of higher employment growth than the growth of their labour force. For instance, in Senegal, the labour-force grew by 2.8 per cent annually between 1994 and 2001 while wage and salary employment grew at a rate of 4.9 per cent per year. In Burkina Faso, after a long period of economic decline, wage and salary employment grew by 3.6 per cent yearly against labour-force growth of 1.8 per cent between 1998 and 2003. In most of these countries, the share of women in wage and salary employment increased but they still account for only about a quarter of these jobs. More specifically, the percentage of female workers in the formal sector is about 30 per cent in Kenya, 23 per cent in Cameroon, 26 per cent in Uganda, 18.5 per cent in Mozambique, 25.4 per cent in Ghana, and 36.6 per cent in Senegal (Fox and Gaal 2008).

In Kenya, the persistence of slow economic growth combined with the higher rate of labour force growth, has forced many individuals, including those who have left school and college graduates to marginal activities in small-scale agriculture and in the urban informal economy. In the 1970s and 1980s, Kenya experienced rapid public sector employment growth. However, in the 1990s, consistent with the limits on fiscal spending, public sector employment declined. At the same time, job creation in the private sector did not match declines in public sector employment.

Thus, the background and context of this study is one where the size of the labour-force has been growing much faster than the rate of growth of formal sector jobs.⁵ In developed economies, sluggish job growth compared to the supply of labour is likely to show up as unemployment. However, in the developing world, increases in urban informal employment are likely to emerge instead of open unemployment (Fox and Gaal 2008). As noted in Wamuthenya 2010a, a growing rate of informalisation has magnified the incidence of poverty, as earnings in the informal sector are much lower than in modern wage employment (Mwabu et al. 2004). Furthermore, as analysed in chapters 3 and 4 and shown in Table 1 (below), there was a huge increase in the level of female labour force participation between 1986 and 1998 and as may be expected, given sluggish job creation, a sharp increase in the rate of female

⁵ For example, unemployment in the urban areas increased from about 7 per cent in 1977 to 16 per cent in 1986 and 25 per cent in 1998. Informal sector employment to total employment has increased enormously from about 4.2 per cent in 1972 to 79.1 per cent in 2007 compared with a sharp fall in formal sector employment – from about 89.6 per cent in 1972 to 20.2 per cent in 2007.

unemployment. While the previous paper examined factors that drive the probability of female unemployment compared to male unemployment, this paper focuses on the quality of female employment as captured by the participation of women in the formal and informal sectors of the economy.

As shown in Tables 1 and 2, in 1998, 46 per cent of women in the labour force were unemployed while 23 per cent worked in the formal sector and about 31 per cent in the informal sector. The corresponding figures for men are 15 per cent, 53 and 32 per cent respectively. In terms of their relative shares in each sector, 71 (53) per cent of the workers in the formal (informal) sector are males and women account for 74 per cent of the unemployed. A comparison of the figures between 1986 and 1998 shows that while the share of women in formal and informal sector employment increased between the two years analysed, large gaps continue to exist.

TABLE 1
Employed & unemployed persons by sex and sector
(% of relevant population group)

Labour-force	1986			1998		
	Female	Male	All	Female	Male	All
Formal	45.1	71.3	62.4	23.4	53.2	38.9
Informal	22.1	15.8	17.9	30.7	32.1	31.4
Unemployed	32.8	12.9	19.6	45.9	14.8	29.7
Total	100	100	100	100	100	100
Working Age Population						
Formal	26.3	60.1	46.8	20.1	46.6	33.8
Informal	12.9	13.4	13.2	26.4	28.1	27.3
Unemployed	19.2	10.8	14.4	39.4	13	25.7
Inactive	41.6	15.7	27.7	14.1	12.3	13.3
Total	100	100	100	100	100	100
LFPR	58.4	84.3	73.3	87.2	88.2	87.8

Labour-force	Change		
	Female	Male	All
Formal	-21.7	-18.1	-23.5
Informal	8.6	16.2	13.5
Unemployed	13.1	1.9	10
Total			

Source: Own Computation from the LFS data.

TABLE 2
Gender gap in employment (by sector) & unemployment (percentages)

	1986				1998			
	Female	Male	Total	Gap Male- Female	Female	Male	Total	Gap Male- Female
Formal	24.4	75.6	100	51.2	28.7	71.3	100	42.6
Informal	41.6	58.4	100	16.8	46.7	53.3	100	6.6
Unemployed	56.6	43.4	100	-13.2	74	26	100	-47.9
Total	33.8	66.2	100	32.4	47.8	52.2	100	4.4

Source: Own Computation from the LFS data.

Against this setting, conditional on labour force participation, this paper examines the role played by various factors (human capital, individual and household characteristics) in influencing the sorting of individuals into different sectors of employment in Kenya's urban labour market. The paper also examines whether factors influencing the location of individuals in different sectors change over time and differ by gender. It thus contributes to an understanding of gender differences in job attainment in the Kenyan urban labour market. In terms of specific contribution, this paper provides an assessment of factors that play a role in sorting men and women into various sectors and ensuring access to better quality employment. In so doing, it complements the findings of another study by the author (Wamuthenya 2010a:95-129) on why women are disproportionately more vulnerable to unemployment than men are where the focus is on the quantity of (un)employment rather than the quality.

The paper also endeavours to shed light on the factors important for job attainment among married women as most of the increase in female employment rate (ER)/LFPR is due to their influx into the labour market. This is important for corroborating the results of yet another study by the author on explaining the dramatic increase in urban female LFPR observed in Kenya between 1986 and 1998 (Wamuthenya 2010a&b), in which male spouse earnings are important for explaining the rise in female employment rate (ER) unconditional on the sector of employment. The current paper sheds light on whether the added worker effect is observed in both sectors.

The empirical analysis presented in the paper is based on two cross-section labour-force surveys conducted in 1986 and 1998 and relies on a multinomial logit model to analyse sector sorting.

The remainder of the paper is as follows: section 5.2 outlines a conceptual framework and methodology for the study including specification of the MNL model and variables to be estimated. Section 5.3 describes the LFS data. Results are reported in Section 5.4. Section 5.5 concludes.

2 Conceptual framework and methodology

A reading of the literature shows researchers have used a number of approaches to conceptualise and define the informal sector. This section provides a discussion of the main theoretical perspectives that have informed the debate on the informal sector and a methodology for estimating the determinants of formal and informal sector employment.

The term ‘informal sector’ (also, informal economy, hidden economy or underground economy) is used to describe a heterogeneous group of economic arrangements that are not subject to regulation by the state in an environment where similar activities are (Peterson and Lewis 1999: 472; see also Menke 1998 for a succinct discussion of the evolution of this concept). Use of the term goes back to the 1970s, when the enormous population growth of many cities in developing countries was accompanied by increasing unemployment and low-income employment. During this period, the concept of informal sector first came into use and was synonymous with the economic activities of the urban poor.⁶ There are four broad theoretical perspectives identifiable from the literature: 1) dualist perspective; 2) neoliberal approach; 3) underground economy approach and 4) structuralist perspective. In addition, there is a feminist perspective on the informal sector, which draws on elements from each of the approaches listed above. A brief elaboration of these perspectives as well as the feminist approach as pertains to the gender aspect of the informal sector appears below.

Dualist perspective (associated with ILO), takes a positive view of the sector and emphasises its potential for creating employment opportunities in developing countries. This view can be traced to an ILO (1972) mission report on Kenya that identified the informal sector as a sub-sector of the Kenyan labour market that coexisted with modern wage employment (formal sector) in the face of the fact that its activities were unaided, unregulated and unrecognised by the state. This perception of economic dualism differentiated the formal and informal sectors in terms of surplus labour supply and suggested that those unable to find work in the formal sector fashioned their own work in the informal sector. As mentioned in Wamuthenya 2010a, among the development challenges facing many developing countries in the 1960s was what the ILO report described as chronic and intractable unemployment. As a result, ILO launched a World Employment Programme in 1969. Its mandate (with the help of other United Nation agencies) was to study the causes of unemployment in countries with particular types of problems and to identify what needed to be done internationally as well as nationally. Kenya was a pilot country for the programme. The main concern about Kenya then, was to explain the causes of persistent inequities and unemployment in spite of rapid economic growth. Thus, between the late-1960s and early 1970s, the country attracted a number of visiting development economists who developed analytic

⁶ Hart (1973) first coined the term ‘informal sector’ in a study of economic activities in urban Ghana. Nowadays, the concept seems to have been replaced by ‘informal economy’, which includes all economic activities by workers and economic units that are in law or in practice uncovered or insufficiently covered by formal arrangements, directing both enterprise and work relationships.

models explaining the labour market of the 1960s. The report pointed out the high incidence of working poor or low returns from work while cautioning that the existence of the urban informal sector with its low-income employment led to an underestimate of the extent of unemployment.⁷

The neoliberal approach assumes that enormous state intervention, which is accompanied by ‘abundant and complex laws and regulation culminates into the emergence and expansion of the informal economy’ (Menke 1998: 35). Similarly, according to Peterson and Lewis (1999: 473), ‘The IMF and WB are adherents to neo-classical strand of the dualist view in which the informal sector is seen as a product of excessive government controls in the formal sector such as minimum wage laws and labour regulations’. Its policy lesson is that the informal economy should be legalised within the formal economy based on market competition. The resemblance between this approach and the underground economy and structuralist approaches is that they both share the notion that informal activities take place outside the existing regulatory and legal framework. The neoliberal approach differs from them in that it considers the informal sector as originating from inefficient bureaucracy and inadequate legislation.

The underground economy approach attributes the expansion of the informal economy to a variety of processes, some of which were at work prior to the 1970s particularly in less developed economies – ‘the responses of both workers and enterprises to the power of organised labour, a reaction of formal enterprises to escape regulations; international competition, which forces capital to reduce costs by shifting enterprise locations to low cost countries and finally, the impact of the restructuring and particular the austerity policies of international financial institutions’ (Menke 1998: 46). The approach perceives the systematic linkages between informal and formal economies as ‘an integral component of the national and global economy rather than a marginal appendix’ (ibid: 34). Hence, policies should aim at linking consistent activities at the grassroots level with broader social economic processes.

In fact, the starting point of institutional and labour market segmentation theories is the role played by institutions in which some labour market segmentation theories explain segmentation as resulting from institutional factors such as unionisation or labour legislation. This reflects the underground economy approach whereby large formal enterprises circumvent costs on minimum wage and taxes by employing unprotected labour. Thus, changes in the employment structure and poverty are influenced by lack of protection, which is the principal criterion for informality according to the underground approach.

Structuralist perspective contends that labour surplus is structurally rather than policy induced owing to global restructuring and the resulting technological innovations. This perspective takes a negative view of the informal sector and labour employment in the informal sector is seen as vulnerable. This view rebuffs the dualist approach rationalisations in favour of structural ones drawing on Marx’s notion of *petty production* to characterise informal sector

⁷ Referring to unemployment being worsened by the fact that the rate of rural-urban migration had outnumbered the expansion of urban employment in the formal sector.

activities (petty producers refer to production for the market by independent producers who own the means of production such as artisans). Structuralists contend that instead of a differentiation between formal and informal sectors, there exists a variety of production processes that can be separated by their relationships to the capitalist sector whose mode of production involves production for the market by owners of the means of production with services from a class of workers. According to the structuralist view, the informal sector is seen as the result of an incomplete transition to advanced capitalism, it employs those who are the most socially and economically vulnerable to serve the interests of capitalist production in the formal sector rendering them reliant and subordinate to that sector (Moser 1984; Peterson and Lewis 1999). Structuralists contend that global rivalry has induced the modern economy to look for cheaper, more flexible modes of production thus shifting more of their production to the informal sector in the form of piecework and contract work. A consequent policy contention of the structuralist view is that government policy should be used to assist the transition of informal sector to advanced capitalism (formal sector) causing the eventual disappearance of the informal sector (Peterson and Lewis 1999: 473).

Menke (1998) explains that excess labour further suppresses labour incomes giving rise to survival economic activities that are not integrated with the modern economy. This is one of the approach's major differences from the underground approach, which again, stresses the linkages between informal grassroots survival activities and the formal economy. A commonality between the two approaches is the linkage of the expansion of the informal sector to global economic processes as well as decentralisation and reorganisation of production and labour relations. Informalisation is therefore seen as a means to reduce labour costs and enhance flexibility in production forcing many enterprises to evade laws and regulations.

In terms of the *feminist approach*, Peterson and Lewis (1999: 473) note, 'a feminist sociologist (MacEwen Scott: 1995) observes that early research on the informal sector focused almost exclusively on men's activities and Mazumdar (1975) was the first to mention women in relation to the informal sector but only did so in the context of defining informal sector labour by its low

opportunity cost'.⁸ Based on the premise that women who chose to work in the informal sector were not considered giving up their time spent on home production and leisure activities for productive activities, their labour was considered to have very little value (Peterson and Lewis 1999). Subsequent research showed women's heavy involvement and remuneration in the informal sector. Benaria (1989) observes that most people employed in the informal sector in developing economies tend to be poor; they belong to certain marginalised groups (women, the young, immigrants) and are disproportionately represented in this sector. In sum, the discovery of women's involvement in the informal sector provoked feminist scholars to explore the rationale for this. Part of their research efforts were directed at certain groups of women (street vendors, domestic servants; Benaria and Roldan 1987; Moser 1977) and partly on the theoretical significance of women's work for the family, society and economy. Many of the feminist studies suggested that patriarchal norms in the family might help explain women's status in the formal sector.

According to feminist economists, the growing evidence of women's participation in the informal sector 'was both further evidence and ammunition against the gender bias inherent in mainstream development economics which consistently underestimated women's economic contributions, a flaw that became more apparent as feminist economists undertook case studies of women in developing countries' (Peterson and Lewis, 1999: 474). As heavy participation by women in income generating activities in the informal sector became more obvious, the meaning of their economic contributions to the household also became apparent and this confronted the traditional view of the household and household decision-making with its assumptions of a male head. A significant contribution of women to household income became visible as well as the fact that women's income had more beneficial effects than did male income on the family in general and in children in particular (Folbre 1988). As a result, the policy debate began to see earning opportunities of women as the most direct way of promoting not only their own welfare, but also their children's welfare and more broadly, economic development. Thus, the *invisible hand* of women changed from being invisible or unproductive to being a dynamic force for promoting development. As Peterson and Lewis

⁸ While Scott's view may be true in a wider sense, it should be seen in a specific context. For instance, the ILO (1972) report raised an important policy concern about the vulnerable situation of women in the labour-force in Kenya at that time – the report stresses that these employment problems differ across groups: men and women, between school leavers, young and older persons and between people in the semi-arid regions and overpopulated districts and elsewhere. It points out that the incidence of unemployment falls more heavily on women than on men; younger members of the adult population are hardest hit; regardless of the age-group, the less educated suffer most; and 'the worst of all possible conditions from the standpoint of searching for work is to be young, uneducated and female' (ILO 1972: 59). Moreover, in the 70s in Kenya, males dominated the urban labour force almost entirely – customary, women resided in the rural areas while men migrated to the urban areas in search of better jobs in the modern economy and sent remittances back home. This situation changed with rising education levels of women and increased migration by women to the urban areas.

(1999: 474-475) explain, a debate emerged among feminist economists on the subject of women in the informal sector, in the background of this revolutionary thinking about women and development.

As a preliminary point, some feminist economists accepted pragmatically the dualist view – the feminist version of the dualist view accepts that women work in the informal sector because they lack other income generating activities and suggests that if women are mainly working in the care economy, the informal sector can be beneficial to them. According to Peterson and Lewis (1999), the feminists' dualist view of the informal sector has inspired considerable literature on women and micro-enterprise development. The literature has principally stressed women's participation in productive activities and the obstacles they face as women in earning a decent income. These hurdles include socially defined limits to their mobility and discrimination by formal sources of credit. In reality, their right to obtaining credit has turned out to be one of the fundamental concerns in promoting micro-enterprises of women (Berger 1995; Berger and Bulvenic 1995; Dignard and Havet 1995).

Feminist economists who challenge the feminist dualistic view of the informal sector approach it from the structuralist perspective and emphasise issues concerning women's intense participation in the most vulnerable sector of the economy (Benaria 1989; Moser 1978, 1984; Scott 1995). Feminist economists view the informal sector, from the structuralist perspective, as reliant and inferior to the formal sector and maintain that a development strategy based on informal enterprise will do little to help women because it ignores certain essentials. For example, that enterprises belonging to women have low levels of human capital and backward technology level (Peterson and Lewis 1999).

Most women in Kenya are engaged in the informal sector in a wide range of survival activities as own account workers or unpaid family workers. According to Amanda et al. (2007), 85 per cent of female-owned businesses are in the informal sector; women constitute 48 per cent of micro, small and medium enterprises; their businesses tend to be smaller; are less likely to grow; and are less capital-intensive than those owned by males. As noted, the reforms process in Kenya has coincided with increased informality and precarious forms of employment with women becoming the most vulnerable group.

According to the feminist version of the dualist view, the fact that women work in the informal sector because they lack other income generating activities and that the sector can be beneficial to them if they are mainly working in the care economy is to a certain extent relevant for Kenya. Implied in this view is that the flexible nature of working conditions in the informal sector enables women to juggle between care and productive work but, this notion seems oblivious of the fact that this sort of juggling favours certain groups of women and not others. The informal sector favours women with fewer children, those with children above school-age, those that can afford to hire a maid or accommodate a female relative to assist with caring for children and other household chores and those that have the resources to set up their own business. Adjustment and crisis have induced a major shift in employment from modern wage employment to informal sector employment while deteriorating economic circumstances of urban households have fuelled

women’s intensive participation in this most vulnerable sector of the economy with the nature of their work mainly revolving around non-wage labour in precarious activities. In addition to the fact that enterprises belonging to women have low levels of human capital and backward technology, perhaps because of this, it appears that women operating such enterprises in Kenya earn less than men do in equivalent situations (Pollin et al. 2007). This makes the structuralist feminist perspective also relevant as it emphasises the vulnerable conditions of women’s work in the informal sector. Thus, the dualist version of the feminist approach adopts a somewhat positive view as it sees the informal sector as beneficial to women who are also participating in the care economy while pointing out the obstacles they face as women in earning a decent income. The structuralist version takes a more negative view in the sense that it highlights the vulnerable conditions of work in the informal sector (as concerns women) and considers it reliant and inferior to the formal sector. Of course, it is likely that both these views are relevant and applicable to the Kenyan case.

This paper assesses the factors responsible for situating individuals in different sectors, with particular attention to the role of women. To interpret and understand the estimates, it draws upon the various perspectives outlined above, especially the feminist characterisation of the informal sector.

Empirical model for the determinants of sectoral choice

This study uses a multinomial logit model (MNL), which sorts individuals into three different states – formal sector employment, informal sector employment and unemployed. The model allows the dependent variable to take three mutually exclusive and exhaustive values, $j=1, 2$ and 3 defined as follows:

$$\text{Probability}(Y_i = j) = \frac{e^{\beta_j X_i}}{\sum_{m=1}^3 e^{\beta_m X_i}}, \text{ where,}$$

- $y_i=1$ if an individual works in the formal sector
- $y_i=2$ if an individual works in the informal sector
- $y_i=3$ if an individual is unemployed (base category).⁹

⁹ In a MNL model, coefficients are estimated according to each outcome category. In all the models estimated here, the base category is ‘unemployed’. The estimated coefficients indicate the independent log odds or chances of an independent variable being in the dependent variable category of interest, versus being in the base (or contrast) category of the dependent variable. If there is no relationship, the coefficient will be zero. Negative coefficients indicate a negative association or negative chances or odds of being in the dependent variable category of interest and positive coefficients indicate positive chances. In the case of an independent variable being an ordinal (or interval) variable (e.g. age and age-squared), the odds ratio represents the effect of a change of one value or unit in the independent variable in changing the odds of being in the dependent variable category of interest.

Thus, the dependent variable has three categories/outcomes. In order to facilitate understanding of the effects of the estimated coefficients, marginal effects or predicted probabilities (that is, changes in the predicted probability associated with changes in the explanatory variables for each of the three outcomes)¹⁰ are developed based on the MNL model. Marginal effects (ME) are evaluated at the sample mean. The independent variables include personal and household characteristics as well as other socioeconomic variables. Personal characteristics include – age, level of education, marital status and household-headship. Household characteristics include variables that capture childcare responsibilities – number of young children below school age, the size of the household, and the presence of female relatives in a household. Details on the definition of the variables and their expected effects appear in Table A.1 of the Appendix.

3 Data and descriptive statistics

This paper uses LFS cross-sectional data of 1986 and 1998 and covers the age range 15 to 64. Mean characteristics for the entire labour force sample and for males and females appear separately and are discussed in (Wamuthenya 2010a: 113-118). Descriptive statistics conditional on sector are provided in Tables 3, 4 and 5 for the entire sample while figures conditional on sex and sector are in Tables 6, 7 and 8 for males and in Tables 9, 10 and 11 for females.

Across the three outcomes, there are clear differences in some of the characteristics. As displayed in Tables 3, 4 and 5, an average formal sector worker was about two years older in 1998 compared to 1986 while an average informal sector worker was about three years younger in 1998 (about 33) as compared to 1986. However, the key difference is that the average unemployed worker was about 6 to 10 years younger than workers in the formal or informal sector were. In terms of the level of education in relation to the sector of employment, in 1998, 72 per cent of formal sector workers had secondary level education or above, which is 24 per cent higher than the corresponding figure for 1986. While this is partly due to the general increase in education level of the labour force, it also reflects increasing competition for formal sector jobs and/or increasing demand for educated labour in the formal sector. As may be expected, informal sector workers are less educated than formal sector workers are (in 1998, 43 per cent have secondary education or more as compared to 72 per cent of formal sector workers). However, over time, reflecting the overall increase in educational supply, the percentage of workers with secondary or more education increased even in the informal sector (from 33 to 43 per cent).

At about 64 per cent in both sample periods, most persons engaged in formal employment have acquired some form of training (mainly technical/vocational/professional rather than on-job training). However, a majority of those in informal sector employment did not have any training (59 per cent in 1986 and 74 per cent in 1998). The scenario is worse among unemployed persons where 76 per cent of the sample in 1986 and 87 per cent of the sample in 1998 had no training.

¹⁰ See for example, Greene (2000: 667).

TABLE 3
Descriptive statistics: Labour-force (full sample) by sector breakdown -formal

Variable	1986			1998		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Age	2502	32.65	9.22	1261	34.63	8.77
Agesq	2502	1150.99	671.02	1261	1276.05	641.22
Sex	2502	0.76	0.43	1261	0.71	0.45
Married	2502	0.72	0.45	1261	0.77	0.42
Head	2502	0.74	0.44	1261	0.78	0.42
Hsize	2502	3.92	2.85	1261	3.74	2.33
Relatives	2502	0.1	0.3	1261	0.16	0.37
None	2502	0.09	0.28	1261	0.03	0.16
Primary	2502	0.39	0.49	1261	0.25	0.43
Secondary	2502	0.48	0.5	1261	0.66	0.47
University	2502	0.05	0.21	1261	0.06	0.24
Training	2500	0.64	0.48	1261	0.64	0.48

TABLE 4
Descriptive statistics: Labour-force (full sample) by sector breakdown – informal

Variable	1986			1998		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Age	719	35.71	10.85	1017	33.18	10.19
Agesq	719	1392.53	854.05	1017	1204.96	753.39
Sex	719	0.58	0.49	1017	0.53	0.5
Married	719	0.77	0.42	1017	0.69	0.46
Head	719	0.69	0.46	1017	0.61	0.49
Hsize	719	4.57	3.12	1017	4.19	2.42
Relatives	719	0.12	0.33	1017	0.15	0.36
None	719	0.2	0.4	1017	0.09	0.29
Primary	719	0.47	0.5	1017	0.47	0.5
Secondary	719	0.29	0.45	1017	0.41	0.49
University	719	0.04	0.2	1017	0.02	0.14
Training	719	0.41	0.49	1017	0.26	0.44

In terms of gender composition, 76 per cent of formal sector workers in 1986 were male, which dropped to 71 per cent in 1998. For the informal sector, corresponding figures are 58 per cent in 1986 falling to 53 per cent in 1998 while for the unemployed category the proportions are 43 per cent in 1986 falling to 26 per cent in 1998. Thus, while men dominated the two sectors, women comprised a majority among the unemployed. By marital status, the proportion of married persons working in the formal sector increased from 72 per cent in 1986 to 77 per cent in 1998. Similarly, their proportion among the unemployed increased by a large magnitude from 47 per cent in 1986 to 64 per cent in 1998. In contrast, their proportion in the informal sector dropped from 77 per cent in 1986 to 69 per cent in 1998. The changes in the overall sex and marital status composition across the three

outcomes reflect the general increase in female labour force participation of married women.

TABLE 5
Descriptive statistics: Labour-force (full sample) by sector breakdown – unemployed

Variable	1986			1998		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Age	786	25.82	8	960	28.69	10.67
Agesq	786	730.69	526.4	960	936.64	767.32
Sex	786	0.43	0.5	960	0.26	0.44
Married	786	0.47	0.5	960	0.64	0.48
Head	786	0.18	0.39	960	0.18	0.38
Hsize	786	5.12	3.01	960	4.71	2.64
Relatives	786	0.16	0.37	960	0.22	0.42
None	786	0.15	0.35	960	0.11	0.31
Primary	786	0.4	0.49	960	0.45	0.5
Secondary	786	0.45	0.5	960	0.43	0.5
University	786	0	0.06	960	0.02	0.12
Training	786	0.24	0.43	959	0.13	0.34

In 1986, 74 per cent of the individuals working in the formal sector were household heads while this proportion increased to 78 per cent in 1998. Matching figures for the informal sector are 69 per cent in 1986 and 61 per cent in 1998. At about 18 per cent, the proportion of household heads did not change among the unemployed. Thus, persons classified as household heads are far more likely to be employed as compared to non-household heads.

Across the three outcomes, there are sharp differences by sex. An average formal sector male worker was about four years older (about 34 in 1986 and 36 in 1998) than a female worker. Turning to the informal sector, an average male worker was about three years older in 1986 (about 37) and two years older in 1998 (about 34) as compared to a female worker. What is common in both groups is an increase in the average age among formal sector workers (from 34 in 1986 to 36 in 1998 for males and from 30 to 32 for females) suggesting an increase in demand for experienced workers in the formal sector. While the average age of an unemployed male increased by about five years from 25 in 1986 that of a female increased by about two years from 26 in 1986; there was a 4 to 9 year gap between employed and unemployed individuals regardless of sex. The overall increase in the age of individuals in the labour market may be linked to increased time spent acquiring education. At the same time, the higher age of the employed (formal or informal sector) also supports the idea that the youth find it harder to get jobs in either the formal or the informal sector.

By marital status, although evidence shows an increase in the proportion of married persons in the formal sector in both male and female samples, the proportion is considerably higher among males than females (79 per cent in 1986 and 85 per cent in 1998 for males and 50 per cent in 1986 and 55 per cent

in 1998 for females). In the informal sector, the proportion of married persons is decreasing among both males and females, although it remains higher among males (84 per cent in 1986 and 75 per cent in 1998 as compared to 69 per cent in 1986 and 63 per cent among women). The higher proportions of married males in both sectors reflect a societal obligation assigned to married men to provide for their families financially. Thus, a married man regardless of education, skills or ability cannot afford to be unemployed – the unemployed category shows a sharp increase in the proportion of unemployed married males (of about 15 percentage points from 26 per cent in 1986). The proportion of unemployed married women is far higher than for males and it increased less sharply (by 8 percentage points from 64 per cent in 1986). The risk of unemployment is likely to be higher among married women than among married men for the reason explained above. Thus, although unemployment is remarkably higher among women, the increase in unemployment is highest among men.

TABLE 6
Descriptive statistics: Labour-force (males) by sector breakdown – formal

Variable	1986			1998		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Age	1891	33.57	9.18	899	35.74	8.71
Agesq	1891	1211.03	681.77	899	1353.03	655.14
Married	1891	0.79	0.41	899	0.85	0.35
Head	1891	0.86	0.35	899	0.92	0.27
Hsize	1891	3.62	2.79	899	3.6	2.34
Relatives	1891	0.07	0.26	899	0.12	0.33
None	1891	0.08	0.28	899	0.03	0.16
Primary	1891	0.41	0.49	899	0.25	0.44
Secondary	1891	0.47	0.5	899	0.65	0.48
University	1891	0.04	0.21	899	0.07	0.26
Training	1891	0.66	0.47	899	0.66	0.47

In 1986, 86 per cent of males working in the formal sector were classified as household heads, which increases to 92 per cent in 1998. In 1986, the proportion of male household heads in the informal sector is higher by 3 percentage points in comparison with the formal sector but it drops to it drops to 83 percent in 1998. The main difference is the far lower percentage of household heads amongst the unemployed. Although this proportion increased from 26 per cent in 1986 to 44 per cent in 1998, it is clear that male household heads are far less likely to be unemployed as compared to non-household heads. In terms of temporal trends, the increase in the proportion of male household heads among the unemployed may have triggered a greater need to work amongst married women to compensate for the loss in spouse's income due to unemployment or the general decline in real earnings. As a matter of fact, male spouse's average real monthly earnings were about Ksh 4,235 in 1986 and about Ksh 2,059 in 1998, a decline in value of about 51 per cent. As

sketched out in Wamuthenya 2010a: 8-45, this mirrors the real wage losses particularly during the first half of the 1980s and early 90s.

Although the proportion of women classified as household head in 1986 was higher in the informal sector (about 41 per cent) than in the formal sector (about 37 per cent), it increased to 42 per cent in 1998 in the formal sector while it dropped to 36 per cent in the informal sector. As argued earlier, this may reflect an improvement in women's productive characteristics (experience and education) from the labour demand point view. The proportion of unemployed female household heads although quite smaller than in the male sample (about 26 per cent in 1986 and 44 in 1998) dropped from 12 per cent in 1986 to 9 per cent in 1998.

In terms of the level of education in relation to gender and sector of employment, the proportion of male formal sector workers in 1986 with primary level education or none and with secondary level education or above were about the same (49 per cent and 51 per cent respectively). There is a clear increase in male educational attainment over time and in 1998, about 72 per cent of male formal sector workers had secondary level education or above. A majority among male informal sector workers had primary level education or none (59 per cent in 1986 and 54 per cent in 1998). In 1986, the proportion of unemployed males was higher for those with secondary level education or above (55 per cent) than for those with primary level or none (46 per cent). In 1998, the proportions were equal for the two education levels.

Among women, about 58 per cent of formal sector workers had secondary education or above in 1986, which increased to 75 per cent in the 1998 sample. However, a majority of female informal sector workers had primary level education or none (80 per cent in 1986 and 59 per cent in 1998). Similarly, a majority among unemployed females had primary level education or none (62 per cent in 1986 and 58 per cent in 1998).

TABLE 7
Descriptive statistics: Labour-force (males) by sector breakdown – informal

Variable	1986			1998		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Age	420	36.98	11.03	542	34.24	10.54
Agesq	420	1488.77	882.69	542	1283.03	794.42
Married	420	0.84	0.37	542	0.75	0.44
Head	420	0.89	0.31	542	0.83	0.38
Hsize	420	4.18	3.03	542	3.98	2.54
Relatives	420	0.1	0.29	542	0.11	0.31
None	420	0.14	0.34	542	0.06	0.24
Primary	420	0.45	0.5	542	0.48	0.5
Secondary	420	0.35	0.48	542	0.42	0.49
University	420	0.06	0.24	542	0.03	0.17
Training	420	0.52	0.5	542	0.35	0.48

TABLE 8
Descriptive statistics: Labour-force (males) – unemployed

Variable	1986			1998		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Age	341	25.4	7.99	250	30.23	12.29
Agesq	341	708.7	526.93	250	1064.25	898.26
Married	341	0.26	0.44	250	0.41	0.49
Head	341	0.26	0.44	250	0.44	0.5
Hsize	341	4.7	3.18	250	4.69	2.68
Relatives	341	0.09	0.28	250	0.18	0.38
None	341	0.08	0.27	250	0.08	0.27
Primary	341	0.38	0.49	250	0.42	0.49
Secondary	341	0.54	0.5	250	0.48	0.5
University	341	0.01	0.08	250	0.02	0.15
Training	341	0.29	0.45	249	0.24	0.43

TABLE 9
Descriptive statistics: Labour-force (females) by sector breakdown – formal

Variable	1986			1998		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Age	611	29.81	8.77	362	31.88	8.31
Agesq	611	965.17	600.15	362	1084.85	562.13
Married	611	0.5	0.5	362	0.55	0.5
Head	611	0.37	0.48	362	0.42	0.49
Hsize	611	4.86	2.84	362	4.09	2.27
Relatives	611	0.19	0.39	362	0.25	0.43
None	611	0.09	0.29	362	0.02	0.16
Primary	611	0.33	0.47	362	0.23	0.42
Secondary	611	0.53	0.5	362	0.71	0.46
University	611	0.05	0.22	362	0.04	0.19
Training	609	0.57	0.49	362	0.58	0.49

Thus as in the case of males, there is a sharp increase in the proportion of highly educated persons in the formal sector, which as noted reflects the increasing competition for formal sector jobs and/or the increasing demand for educated labour in the formal sector. An important difference by sex is noted: among women, unemployment and informal sector employment strikes those with a low education level (primary level education or none) heavily. Even so, there has been a sharper increase in the supply of women with secondary level education or above in the informal sector (from a proportion of about 20 per cent in 1986 to 41 per cent in 1998) compared to men (from a proportion of about 41 per cent in 1986 to 45 per cent in 1998). This implies a highly competitive labour market for the scarce number of jobs available in the formal sector. This may also partly account for the increase in the proportion

of women with secondary level or above among the unemployed. As the formal sector becomes increasingly informalised, this can trigger demand for highly educated labour, which may account for the rise in the supply of workers with secondary level education in the informal sector.

Overall, descriptive analysis points to greater demand for highly educated, skilled and experienced labour in the formal sector, despite its sluggish ability to generate employment.

TABLE 10
Descriptive statistics: Labour-force (females) by sector breakdown – informal

Variable	1986			1998		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Age	299	33.92	10.34	475	31.99	9.64
Agesq	299	1257.34	794.05	475	1115.88	693.83
Married	299	0.69	0.46	475	0.63	0.48
Head	299	0.41	0.49	475	0.36	0.48
Hsize	299	5.12	3.18	475	4.44	2.25
Relatives	299	0.16	0.36	475	0.2	0.4
None	299	0.29	0.45	475	0.13	0.33
Primary	299	0.51	0.5	475	0.46	0.5
Secondary	299	0.19	0.4	475	0.4	0.49
University	299	0.01	0.1	475	0.01	0.09
Training	299	0.25	0.43	475	0.16	0.37

TABLE 11
Descriptive statistics: Labour-force (females) - unemployed

Variable	1986			1998		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Age	445	26.15	8	710	28.14	9.99
Agesq	445	747.55	525.97	710	891.71	710.81
Married	445	0.64	0.48	710	0.72	0.45
Head	445	0.12	0.32	710	0.09	0.28
Hsize	445	5.45	2.83	710	4.71	2.63
Relatives	445	0.22	0.41	710	0.24	0.43
None	445	0.2	0.4	710	0.11	0.32
Primary	445	0.42	0.49	710	0.46	0.5
Secondary	445	0.38	0.49	710	0.41	0.49
University	445	0	0.05	710	0.01	0.11
Training	445	0.21	0.41	710	0.09	0.29

4 Results and discussion

For each year, multinomial logit estimates are provided for the entire sample in Tables 12 and 13 followed by estimates for males and females separately (Tables 14 and 15 for males and Tables 16 and 17 for females). In view of the fact that most of the rise in urban female LFPR is due to increased presence of

married women in the labour-force, determinants of sectoral choice are presented for married women separately (Tables 18 and 19). The discussion focuses on the estimates for 1986 and highlights disparities between formal and informal sectors and over time.

For 1986, the estimates in Table 12 show that the age and age-squared variables (proxy for experience) have the expected positive and negative signs and are statistically significant in both formal and informal sectors. However, the marginal effect (ME) of age is higher in the formal sector (about two per cent) and quite small in the informal sector (even if the coefficient of age is positive in the informal sector, its ME is negative, -0.3 per cent). This shows that older persons have a higher likelihood of being employed in the formal sector (in other words younger persons find it harder to obtain employment in both sectors) although beyond a peak (about 40 for the formal sector) the probability of being employed declines. Experience has a more important bearing in the formal than in the informal sector.

The coefficients of the sex variable indicate that men are far more likely to be working in the formal sector than women are. Estimates indicate that men are about 17 percentage points more likely to be employed in the formal sector than women are while they are about 14 percentage points less likely to be employed in the informal sector and about 4 percentage points less likely to be unemployed than women are. The sorting of men into the formal sector may be a result of various factors. First, formal sector work is likely to be less flexible and call for fixed work hours compared to informal sector work and given their household responsibilities, women may select the informal sector to cope with other demands on their time. Second, despite similar observed educational characteristics, employers may be less willing to hire women due to lower levels of unobserved human capital and experience and/or the expectation that women may not be able to meet the demands of the job because of competing needs on their time (statistical discrimination).¹¹

Marital status does not seem to be associated with employment in the formal sector while it works towards increasing the probability of working in the informal sector (about six percentage points) and reducing that of being unemployed (about five percentage points). This effect is covered in more detail in the examination of sex-specific estimates below.

Household heads are about 17 percentage points more likely to be employed in the formal sector, about 8 percentage points more likely to be employed in the informal sector and 25 percentage points less likely to be unemployed. As explained, a person classified as head of a household in Kenyan families as in other parts of the world, has an important cultural role and obligation to provide for the family economically and is expected to work, regardless of the sector. Accordingly, the strong effect of the household headship variable on employment may be because a person identified as the head of a household is expected to be the family's breadwinner and for such a

¹¹ Mariara (2003) finds marked differences in the process, generating the gender wage gaps in the private and public sectors of the Kenyan labour market where preferential treatment towards men is pronounced in all sectors owing to expected lower productivity of women of childbearing age.

person, the job search is more intensive than for a person who is not. From the demand side, while employers per se, may not care whether one is a household head or not it may signal a person's job commitment and reflect his/her productivity related attributes.

In terms of the effect of education, individuals with primary education are about 14 percentage points more likely to be employed in the formal sector than persons with no education are. The effect for those with secondary education is about 23 percentage points. The gap between the marginal effects of the two levels of education is large and highlights the importance of education in securing formal wage employment.

TABLE 12
Determinants of formal and informal employment 1986 – full sample

Variable	Formal				Informal			
	Coef.	Std. Err	ME	Std. Err	Coef.	Std. Err	ME	Std. Err.
Age	0.202***	0.034	0.024	0.005	0.149***	0.039	-0.003	0.004
Agesq^	-0.210***	0.048	-0.03	0.007	-0.116*	0.053	0.009	0.006
Sex	0.539***	0.104	0.171	0.019	-0.391**	0.136	-0.135	0.019
Marital	0.320**	0.112	-0.018	0.019	0.723***	0.143	0.064	0.015
Head	1.853***	0.126	0.173	0.021	2.065***	0.16	0.079	0.016
Hsize	-0.022	0.018	-0.008	0.003	0.03	0.021	0.007	0.002
Relatives	0.256	0.144	0.031	0.024	0.179	0.178	-0.006	0.021
Primary	1.046***	0.165	0.135	0.024	0.653***	0.178	-0.035	0.018
Secondary+	1.219***	0.162	0.226	0.024	0.217	0.182	-0.117	0.019
Constant	-5.038***	0.551			-5.104***	0.649		
Number of obs	4007							

Variable	Unemployed	
	ME	Std.
Age	-0.021	0.004
Agesq^	0.021	0.005
Sex	-0.036	0.012
Marital	-0.046	0.013
Head	-0.252	0.018
Hsize	0.001	0.002
Relatives	-0.025	0.013
Primary	-0.1	0.016
Secondary+	-0.109	0.017
Constant		
Number of obs		

Note: * p<.05; ** p<.01; *** p<.001; ^ Estimated parameters multiplied by 1000 to avoid zero entries after rounding off the estimates to 3 decimal places.

While there are similarities between the 1986 and 1998 estimates, there are also some sharp differences. While the effect of age (Table 13) is negligible in the informal sector, in the formal sector, from a positive marginal effect of two

percentage points, the 1998 estimates show that age increases the likelihood of employment by about five per cent (the peak age in 1998, 39, is a year lower than in 1986). Whereas the positive effect of the sex variable on formal sector employment is relatively unchanged, its negative ME in the informal sector dropped from about 14 per cent to about 4 per cent in 1998 suggesting a decline in the importance attached to sex in finding an informal sector job. The negative effect of the marital status variable in the formal sector and its positive effect in the informal sector are replaced by a zero effect in 1998. In other words, married and single persons are equally likely to be employed in any of the two sectors.

TABLE 13
Determinants of formal and informal employment 1998 – full sample

Variable	Formal				Informal			
	Coef.	Std. Err.	ME	Std. Err.	Coef.	Std. Err.	ME	Std. Err.
Age	0.349***	0.035	0.053	0.007	0.204***	0.031	-0.002	0.006
Agesq^	-0.453***	0.047	-0.067	0.01	-0.275***	0.041	0	0.009
Sex	0.917***	0.127	0.161	0.023	0.369**	0.121	-0.043	0.023
Marital	-0.012	0.129	0.008	0.024	-0.077	0.12	-0.016	0.023
Head	1.937***	0.15	0.206	0.026	1.740***	0.145	0.137	0.025
Hsize	-0.048*	0.025	-0.016	0.005	0.035	0.022	0.015	0.004
Relatives	0.351*	0.144	0.093	0.03	-0.06	0.136	-0.065	0.026
Primary	1.066***	0.243	0.187	0.05	0.449*	0.185	-0.054	0.04
Secondary+	1.888***	0.239	0.389	0.04	0.187	0.186	-0.209	0.037
Constant	-8.490***	0.626			-4.506***	0.519		
Number of obs	3238							

Variable	Unemployed	
	ME	Std. Err.
Age	-0.051	0.005
Agesq^	0.067	0.007
Sex	-0.118	0.02
Marital	0.008	0.02
Head	-0.344	-0.023
Hsize	0.001	0.004
Relatives	-0.028	0.021
Primary	-0.133	0.031
Secondary+	-0.18	0.032
Constant		
Number of obs		

Note: * p<.05; ** p<.01; *** p<.001; ^ Estimated parameters multiplied by 1000 to avoid zero entries after rounding off the estimates to 3 decimal places.

While both levels of education continue to exert a statistically significant effect on the probability of finding formal sector employment, there are sharp changes in the magnitude (importance) of education in accessing formal sector employment. The effect of secondary level and plus education increases remarkably by about 16 percentage points while that of primary level increases by 5 percentage points. The increase in the importance of education may reflect an increase in demand for more educated labour while at the same time; given the overall decline in modern wage employment, it suggests the increasing use of education as a way of screening entry into formal sector employment.

Turning to males and females separately and starting with the results for males in Tables 14 and 15, the discussion again focuses on the estimates for 1986 and then highlights differences between the two sectors, over time and by gender.

TABLE 14
Determinants of formal and informal employment 1986 – males

Variable	Formal				Informal			
	Coef.	Std. Err.	ME	Std. Err.	Coef.	Std. Err.	ME	Std. Err.
Age	0.224***	0.051	0.024	0.006	0.123*	0.061	-0.011	0.006
Agesq^	-0.276***	0.07	-0.034	0.008	-0.113	0.08	0.019	0.007
Marital	1.080***	0.187	0.07	0.027	1.088***	0.24	0.016	0.023
Head	1.844***	0.178	0.126	0.03	2.187***	0.247	0.07	0.02
Hsize	-0.022	0.024	-0.008	0.003	0.037	0.028	0.008	0.003
Primary	0.547*	0.278	0.046	0.028	0.394	0.311	-0.015	0.024
Secondary+	0.482	0.276	0.07	0.029	0.119	0.312	-0.043	0.025
Constant	-4.282***	0.858			-4.715***	1.024		
Number of obs	2652							

Variable	Unemployed	
	ME	Std. Err.
Age	-0.013	0.003
Agesq^	0.015	0.004
Marital	-0.085	0.018
Head	-0.196	0.026
Hsize	0.001	0.001
Primary	-0.031	0.016
Secondary+	-0.026	0.017
Constant		
Number of obs		

Note: * p<.05; ** p<.01; *** p<.001; ^ Estimated parameters multiplied by 1000 to avoid zero entries after rounding off the estimates to 3 decimal places.

Male estimates for 1986 (Table 14) show that the substitute for experience (age) exerts the expected positive sign in the formal sector and is statistically significant (with ME of about two per cent). This shows that older men have a higher likelihood of employment in the formal sector. This likelihood begins to

decline at the age of 35. As in the previous results, although the coefficient of age is positive in the informal sector, its ME is negative (about one per cent). Married men are about seven percentage points and two percentage points more likely to be employed in the formal and informal sectors respectively than single men are. Male heads of household are 13 percentage points and 7 percentage points (respectively) more likely to be employed in the formal and informal sectors compared to men who do not head their households. Household size exerts a zero effect.

In terms of the effect of education on sectoral choice, both primary, and secondary and above (higher) education exert a statistically significant effect on the probability of finding employment in the formal sector (about five per cent and seven per cent respectively) while their effect in the informal sector is zero.

Turning to the 1998 estimates (Table 15), the peak age of formal sector employment increased by four years to 39 (from 35 in 1986). This may be due to increased educational attainment thus capturing a longer duration spent at school acquiring education. Moreover, given the structural changes that have characterised the Kenyan economy in recent years, shifts in demand in favour of skilled and highly educated labour affected the labour market. Accumulation of skills, education and experience takes time causing the peak age of formal sector employment to increase.

TABLE 15
Determinants of formal and informal employment 1998 – males

Variable	Formal				Informal			
	Coef.	Std. Err.	ME	Std. Err.	Coef.	Std. Err.	ME	Std. Err.
Age	0.271***	0.054	0.05	0.01	0.09	0.051	-0.031	0.009
Agesq^	-0.375***	0.068	-0.064	0.013	-0.152*	0.065	0.036	0.012
Marital	0.943***	0.245	0.111	0.042	0.688**	0.25	-0.013	0.039
Head	1.762***	0.254	0.171	0.047	1.671***	0.261	0.084	0.041
Hsize	-0.06	0.034	-0.017	0.006	0.014	0.032	0.014	0.005
Primary	0.944**	0.365	0.091	0.066	0.739*	0.342	-0.014	0.06
Secondary+	1.409***	0.355	0.307	0.06	0.187	0.337	-0.215	0.058
Constant	-6.010***	0.981			-2.302*	0.917		
Number of obs	1691							

Variable	Unemployed	
	ME	Std. Err.
Age	-0.02	0.005
Agesq^	0.028	0.006
Marital	-0.097	0.031
Head	-0.254	0.045
Hsize	0.003	0.003
Primary	-0.077	0.027
Secondary+	-0.092	0.035
Constant		
Number of obs		

Note: * p<.05; ** p<.01; *** p<.001; ^ Estimated parameters multiplied by 1000 to avoid zero entries after rounding off the estimates to 3 decimal places.

The positive effect of primary education rose by about four percentage points between 1986 and 1998. From a seven per cent positive effect of secondary level and above education on the probability of finding employment in the formal sector, the importance of education increased enormously to a 31 per cent effect in 1998. The zero effect of primary level education in the informal sector is replaced by a statistically significant but a negative effect of about one per cent. Secondary level retains a nil effect in the informal sector. Thus, increasing importance of experienced and highly educated males is observed in formal sector employment.

Estimates for females are in Tables 16 and 17. Beginning with the 1986 sample, estimates in Table 16 show that for both sectors, the age and age-squared variables are statistically significant and have the expected signs. The peak age in the formal sector is about 53, which is much higher than the peak age for males. The greater importance of experience in determining female access to formal sector employment suggests that there is a greater competition amongst females for a limited range of formal sector positions.

TABLE 16
Determinants of formal and informal employment 1986 – females

Variable	Formal				Informal			
	Coef.	Std. Err.	ME	Std. Err.	Coef.	Std. Err.	ME	Std. Err.
Age	0.191***	0.047	0.03	0.01	0.188***	0.053	0.011	0.007
Agesq^	-0.170*	0.068	-0.028	0.014	-0.152*	0.074	-0.008	0.01
Marital	-0.803***	0.172	-0.244	0.035	0.513*	0.218	0.151	0.026
Head	0.938***	0.215	0.049	0.043	1.598***	0.244	0.174	0.037
Hsize	-0.019	0.027	-0.006	0.006	0.017	0.032	0.005	0.005
Relatives	-0.304	0.178	-0.054	0.039	-0.236	0.23	-0.009	0.032
Primary	1.413***	0.238	0.273	0.047	0.724**	0.225	-0.026	0.029
Secondary+	2.061***	0.236	0.487	0.04	-0.192	0.246	-0.208	0.028
Constant	-4.697***	0.738			-5.571***	0.875		
Number of obs		1355						

Variable	Unemployed	
	ME	Std. Err.
Age	-0.041	0.009
Agesq^	0.036	0.014
Marital	0.093	0.033
Head	-0.223	0.034
Hsize	0.002	0.005
Relatives	0.063	0.038
Primary	-0.247	0.039
Secondary+	-0.28	0.037
Constant		
Number of obs		

Note: * p<.05; ** p<.01; *** p<.001; ^ Estimated parameters multiplied by 1000 to avoid zero entries after rounding off the estimates to 3 decimal places

Married women are about 24 percentage points less likely to be employed in the formal sector compared to single women and 15 percentage points more likely to be employed in the informal sector. On the one hand, married women may be more susceptible to discrimination in the labour market as employers try to safeguard productive costs such as mandatory and paid maternity leave and anticipated interruption from work due to care work or to give birth. On the other hand, due to reproductive responsibilities and care work, married women (especially the less educated) may seek refuge in the informal sector where it may be possible to combine productive and care work as hours of work are not fixed.

Women who head a household are 5 percentage points and 17 percentage points more likely to be employed in the formal and informal sectors respectively compared to those who do not head their households. These effects may be contrasted with effect for male household-heads (13 and 7 per cent respectively). Thus, while there is a household-head effect for both males and females, the effect of this variable in securing male household access to formal sector employment is much greater than for females. The presence of female relatives and household size exert a zero effect.

Regarding the effect of education on the choice of sector, women with any level of education are far more likely to be employed in the formal sector as compared to uneducated women with the marginal effect increasing with the level of education (about 27 per cent for primary level and 49 per cent for secondary level and above). These results are quite distinct from those of men where the ME is much smaller – about five per cent for the primary level and seven per cent for the secondary level and above. The higher effect of education among women may reflect the higher barriers to entry imposed on women's access to formal sector jobs. While education is not as important for men to secure a formal sector job, it seems that unless a woman is educated, it is very unlikely that she can access a formal sector job.

In 1998 (Table 17), age continued to exert a statistically significant effect in terms of influencing access to both formal and informal sector employment. The 24 per cent negative marginal effect associated with marriage dropped sharply to about ten per cent in 1998. This sharp decline supports the idea that over time, married women are increasingly likely to insert themselves in the labour market and to compete for jobs against single women. In terms of employment in the informal sector, in 1986, estimates indicated that married women were 15 percentage points more likely to work in the informal sector, however, over time, they lose this advantage and in 1998, married and single women were equally likely to work in the informal sector. These patterns suggest that over time, while married women are more likely to work in the formal sector their increased presence in this sector combined with shrinking jobs in this sector has led single women to seek work in the informal sector. With the result that the informal sector, which in 1986 may have been viewed in terms of allowing married women to combine care and productive work, no longer serves this purpose and has become equally likely to serve as an employment outlet for single women who are less likely to have childcare responsibilities.

TABLE 17
Determinants of formal and informal employment 1998 – females

Variable	Formal				Informal			
	Coef.	Std. Err.	ME	Std. Err.	Coef.	Std. Err.	ME	Std. Err.
Age	0.361***	0.055	0.041	0.008	0.255***	0.042	0.032	0.009
Agesq^	-0.461***	0.079	-0.052	0.012	-0.333***	0.058	-0.043	0.012
Marital	-0.681***	0.192	-0.098	0.03	-0.235	0.171	-0.002	0.034
Head	1.523***	0.233	0.115	0.036	1.620***	0.212	0.236	0.041
Hsize	-0.042	0.036	-0.009	0.005	0.033	0.029	0.01	0.006
Relatives	0.267	0.184	0.048	0.029	-0.039	0.167	-0.028	0.033
Primary	1.333***	0.4	0.208	0.067	0.277	0.222	-0.038	0.049
Secondary+	2.464***	0.394	0.391	0.057	0.124	0.226	-0.144	0.045
Constant	-8.658***	0.914			-5.206***	0.668		
Number of obs	1547							

Variable	Unemployed	
	ME	Std. Err.
Age	-0.073	0.009
Agesq^	0.094	0.013
Marital	0.1	0.037
Head	-0.352	0.035
Hsize	-0.001	0.007
Relatives	-0.02	0.036
Primary	-0.17	0.057
Secondary+	-0.247	0.053
Constant		
Number of obs		

Note: * p<.05; ** p<.01; *** p<.001; ^ Estimated parameters multiplied by 1000 to avoid zero entries after rounding off the estimates to 3 decimal places.

There are sharp changes in the importance of education in determining formal and informal sector employment; although both levels continued to wield a positive effect on formal sector employment, the marginal effects declined by about six percentage points for the primary level and by ten percentage points for those with at-least secondary level education. The declining importance of education is probably a reflection of the increase in the proportion of educated women entering the labour force. Despite the decline, the importance of education in determining female access to formal labour market jobs remained very high at 21 percentage points for primary education and 39 percentage points for secondary education (compared to 31 percentage points for males as regards secondary level education and above in 1998 from a zero effect of 7 percentage points in 1986; 9.1 percentage points for the primary level in 1998 from 4.6 percentage points in 1986).

As discussed in Wamuthenya 2010a&b, most of the rise in urban female LFPR during the period 1986-98 was driven by an upsurge of married women in the labour-force; determinants of sectoral choice are presented below for married women separately (Tables 18 and 19). As in Wamuthenya 2010a:56-80 & b, the aim of the following section is to examine the link between a

household's financial situation proxied by husband's earnings and employment characteristics in determining sector sorting.¹²

TABLE 18
Determinants of formal and informal employment 1986 – married women

Variable	Formal				Informal			
	Coef.	Std. Err.	ME	Std. Err.	Coef.	Std. Err.	ME	Std. Err.
Age	0.396***	0.099	0.08	0.019	0.102	0.089	-0.014	0.015
Agesq^	-0.358*	0.144	-0.079	0.027	-0.008	0.13	0.029	0.021
Hsize	-0.086	0.051	-0.021	0.01	0.016	0.048	0.01	0.008
Relatives	0.624	0.34	0.156	0.074	-0.09	0.386	-0.071	0.054
Primary	1.144**	0.44	0.206	0.092	0.6	0.347	0.009	0.061
Secondary+	2.263***	0.46	0.471	0.078	0.13	0.4	-0.161	0.061
Hus-Real	-0.006	0.009	-0.001	0	-0.003	0.008	0	0
Earnings								
Hus-Primary^	0.45	0.505	0.004	0.106	1.007*	0.44	0.16	0.091
Hus-Secondary+	1.402**	0.501	0.217	0.092	1.030*	0.462	0.079	0.076
Constant	-10.63***	1.636			-4.753**	1.448		
Number of obs	607							

Variable	Unemployed	
	ME	Std. Err.
Age	-0.065	0.02
Agesq^	0.05	0.029
Hsize	0.01	0.01
Relatives	-0.085	0.07
Primary	-0.214	0.076
Secondary+	-0.31	0.074
Hus-Real	0.001	0
Earnings		
Hus-Primary^	-0.164	0.086
Hus-Secondary+	-0.296	0.091
Constant		
Number of obs		

Note: * p<.05; ** p<.01; *** p<.001; ^ Estimated parameters multiplied by 1000 to avoid zero entries after rounding off the estimates to 3 decimal places.

¹² There was considerable improvement in spouse education levels (especially the secondary level) with an increase of about 14 percentage points in the proportion of male spouses with secondary level education in 1998 (from about 43 per cent in 1986) and a decline in average male spouse real earnings (as noted).

As shown in the tables, over time, the importance given to age in determining married women's prospects for formal sector employment declined – from a ME of about eight per cent in 1986 to five per cent in 1998. Their peak age in the formal sector was 53 in 1986 and 40 in 1998. The importance of a woman's education in determining her prospects for formal sector employment also fell steeply – from a positive marginal effect of 21 per cent, the 1998 estimates show that having primary level education had no statistically significant effect on formal sector employment while the positive ME of secondary level education declined by about 16 percentage points.

TABLE 19
Determinants of formal and informal employment 1998 – married women

Variable	Formal				Informal			
	Coef.	Std. Err.	ME	Std. Err.	Coef.	Std. Err.	ME	Std. Err.
Age	0.616***	0.126	0.049	0.011	0.319***	0.081	0.046	0.016
Agesq^	-0.759***	0.183	-0.061	0.016	-0.370**	0.117	-0.052	0.023
Hsize	-0.136	0.075	-0.013	0.007	0.01	0.051	0.006	0.01
Relatives	0.671*	0.333	0.067	0.041	0.217	0.288	0.019	0.056
Primary	1.382	0.949	0.146	0.114	0.086	0.393	-0.031	0.081
Secondary+	3.069**	0.948	0.313	0.105	0.157	0.416	-0.072	0.081
Hus-Real	-0.034	0.03	-0.001	0	-0.078*	0.036	-0.015	0.01
Earnings								
Hus-Primary^	-1.381	0.803	-0.114	0.046	0.453	0.495	0.131	0.108
Hus-Secondary+	-0.684	0.759	-0.09	0.089	0.526	0.506	0.123	0.089
Constant	-13.51***	2.17			-7.238***	1.342		
Number of obs	724							

Variable	Unemployed	
	ME	Std. Err.
Age	-0.095	0.018
Agesq^	0.113	0.025
Hsize	0.007	0.011
Relatives	-0.087	0.063
Primary	-0.115	0.106
Secondary+	-0.241	0.102
Hus-Real	0.016	0.01
Earnings		
Hus-Primary^	-0.017	0.11
Hus-Secondary+	-0.032	0.11
Constant		
Number of obs		

Note: * p<.05; ** p<.01; *** p<.001; ^ Estimated parameters multiplied by 1000 to avoid zero entries after rounding off the estimates to 3 decimal places.

In 1986, husband's earnings had no bearing on a woman's labour market status; however, in 1998, the picture was quite different. Estimates show that a decline in husband's real earnings is associated with an increase in a wife's employment in the informal sector but has no bearing on entry into the formal sector. This pattern supports the idea that constrained economic circumstances faced by households have forced women to insert themselves into the labour market and turn to the informal sector for employment. As far as the effects of partner's education are concerned, while in 1986, women married to partners with higher levels of education had a higher probability of working in the formal and informal sector, consistent with the decline in positions for educated labour we see that in 1998, husband's education levels played no role in securing better access to jobs. Thus, women married to husbands with better education are equally likely to work in the formal/informal sector compared to women married to less educated men.

The patterns revealed by the estimates are consistent with the macro picture outlined in Wamuthenya 2010a: 8-45 and strongly confirm the conclusions she draws on the rise in female LFPR in urban areas of Kenya in which she shows that the average education level of women rose whereas job opportunities in the formal sector declined and therefore, the massive growth in informal sector employment where remunerations for education are not high in practice, may partly explain the declining importance of education and experience in securing a formal sector job. Wamuthenya 2010a&b, where she investigates the rise in female LFPR, also shows that in 1998 as husbands' earnings increased, their wives were less likely to secure employment. The results in this paper show that in essence, the decline in real earnings in particular spousal earnings prompted married women to join the labour-force in large numbers and take up informal sector employment. This may explain the importance of male earnings on women's choice of informal sector employment in 1998. Thus, the worsening of economic conditions from the 1990s onwards resulted in more women especially married women joining the informal sector due to economic need.

5 Conclusion

This paper assessed the main attributes associated with formal and informal sector employment in 1986 and 1998. This period witnessed a number of macroeconomic changes, a tremendous increase in female LFPR (particularly of married women) and an increase in educational attainment. The analysis shows that in both periods, experience and education were highly valued in the formal sector, and while both characteristics were important for males and females, they had a much higher impact on securing formal labour market access for women. The temporal patterns show the importance of education in securing labour market access increased by about 5 and 16 percentage points for primary and secondary education levels respectively. However, there are sharp gender differences. For men, the importance of education increased (from 7 to 31 percentage points for secondary education) while for women it declined (from 49 to 39 percentage points for secondary education). As far as men are concerned, over time, there are minimal increases in labour force

participation and the greater importance attached to education may reflect the use of educational qualifications and experience as a way of screening employees hence the greater importance of education in securing access to a formal labour market job. As far as women are concerned, there has been significant increase in labour force participation of (educated) women, which in turn may have worked towards reducing the importance of education in determining entry into the formal sector. The sharp gender differences in the role of education in determining formal labour market access despite an overall pattern of increasing supply of educated workers (mainly women) suggests the presence of labour market segregation, with women being restricted to certain types of jobs in the formal sector. This is also reflected in the figures in the Appendix (Table A.2), which show that women are restricted to certain sectors and to certain occupations within sectors. For example, in 2007, education services accounted for 27 per cent of female employment, followed by trade and manufacturing at about ten per cent each. In contrast, men were more evenly spread across sectors and in 2007, education, trade and manufacturing accounted for 14, 11 and 16 per cent of male employment.

For both years, the analysis showed that marital status (a proxy measure of domestic burdens), undermined women's prospects of working in the formal sector while it enhanced the employment prospects of men in both sectors. However, there were sharp and interesting temporal differences. Over time, the negative effect of marital status on formal sector participation declined by 14 percentage points reflecting the increasing insertion of married women in the labour market. The substantially higher informal sector participation rate of married women, at least in 1986, supports the feminist version of the dualist view that the informal sector allows women who have a higher domestic burden to combine reproductive and productive work. While this interpretation seems valid for 1986, in 1998, marital status no longer played a role in determining access to the informal sector and both single and married women were equally likely to be working in this sector. This suggests that over this ten-year span, the informal sector may no longer have been characterised only as a sector that allows women to combine domestic and market activities but as one that provides a last resort – that is, a sector, which offers vulnerable low quality employment and one heavily populated by women. Underscoring the use of the informal sector as an employer of last resort the estimates show that while in 1986 there was no effect of husbands' earnings on their wives labour market status, in 1998 there was a clear effect of husbands' earnings. Over the period under scrutiny, on average there was a decline in monthly real earnings of nearly 50 per cent (in real terms, a decline in monthly earnings of Ksh 4,235 in 1986 to about Ksh 2,059 in 1998). The estimates suggest that this decline is associated with nearly 30 percentage points (Ksh 2,000 times the marginal effect of 0.015-Table 19) increase in women's participation in the informal sector.

The shift in employment from formal to informal sector employment and the deteriorating economic circumstances of urban households appears to have driven women's participation in the most vulnerable sector of the economy. This pattern is consistent with the feminist version of the structuralist view of the informal sector, which emphasises the vulnerable conditions of women's work. As discussed and shown in Wamuthenya 2010a, in Kenya, a majority of

informal sector paid employees are hired as casual workers and the formal sector (mostly private sector) also employs informal labour arrangements primarily in the form of casual work – women are mainly employed in export-oriented cut flower horticulture, textile and garment industries (Were and Kiringai 2004).¹³ On the whole, informal and precarious forms of employment were more prevalent during the period of intense enforcement of adjustment policies. Thus, during the ten-year period between 1986 and 1998, economic circumstances drove women into the labour market and while their labour force participation rates were comparable to men, in terms of access to jobs, in both quantity and quality, they lagged behind men.

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¹³ As discussed in Wamuthenya 2010a, although the absolute number of men and women engaged in the manufacturing sector has expanded over time, most of the growth has been the result of an influx of women workers that occurred in the 1990s mainly. Most of this female labour went into EPZ (started in Kenya in 1990). For instance, growth in casual employment was highest during the 1991-97 period (the adjustment period) and particularly high among females – during 1986-91, 1991-97 and 1997-02, casual wage employment growth within modern wage employment was 1.4 per cent, 7.0 per cent and 0.7 per cent for males. Corresponding figures for females are 9.5 per cent, 12.9 per cent and 2.2 per cent.

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Appendices

Table A.1
Variable description

Variable	Description
Employed	Dummy dependent variable taking the value '1'. If the respondent reported any form of employment including unpaid family work and '0' otherwise (for unemployed and the inactive together).
Age	Age in years
Age-squared (agesq)	Age in years - squared
Sex	Dummy variable:1=male; 0=female
Married	Dummy variable:1=married; 0=not married
Head of household	Dummy variable:1=Yes; 0=No
Household size (hsize)	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 or has nursery level; 0=otherwise
Presence of female relatives in a household (relatives)	Dummy variable: 1 =Yes; 0=No
Partner's Income (Hus_earn)	Husbands real monthly earnings from both wage employment and/business earnings, computed using consumer price index (CPI) for urban areas with 1986 as base year.
Partner's Education (highest level completed)	Hus-Primary dummy variable: 1=has primary level education; 0=otherwise; Hus-Secondary dummy variable: 1=has secondary level education; 0=otherwise; Hus-University dummy variable: 1=has university level education; 0=otherwise; Hus-None /nursery (omitted category) dummy variable: 1=has no schooling/has nursery level; 0=otherwise

Table A.2
Wage employment by industry and sex, selected years (000s)

Year	1983	1986	1989	1991	1992	1994
Male employment						
Industry						
Agriculture & forestry	196	200	198	207	210	215
Mining & quarrying	3.4	5.4	6.8	3.4	3.5	3.4
Manufacturing	135	148	165	168	168	174
Electricity & water	16.1	16.7	19.2	19.2	19.1	19.1
Building & construction	57.5	52.6	64.4	68.3	69.1	69.7
Wholesale & retail trade, hotels & restaurants	68.9	78.9	93.8	97.8	98.3	104
Transport & communications	47.8	50.4	66.9	65.2	66.1	66.1
Finance, insurance, real estate & business services	36.4	44.8	50.5	51.5	55.1	57.6
Public administration	116	130	143	145	143	154
Education services	125	144	160	172	164	164
Domestic services	41.7	44.2	49.8	0.6	55.3	40.3
Other services	54.7	57.9	69.5	126	75.4	61
Total	898	972	1087	1124	1127	1128
Female employment						
Industry						
Agriculture & forestry	35.4	48.8	63.5	65	64.4	65.5
Mining & quarrying	0.1	0.1	1.7	0.9	0.9	1.2
Manufacturing	13.9	16.9	18	21.4	21.9	24.1
Electricity & water	1.2	1.5	3.2	3.2	3.1	3.2
Building & construction	2.7	3.1	4.3	4.1	4.1	3.8
Wholesale & retail trade, hotels & restaurants	11.4	15.6	16.5	18.9	20.2	22.4
Transport & communications	7.2	7.1	8.9	11	10.8	12.1
Finance, insurance, real estate & business services	9.2	11.2	13.1	14.8	15.5	17.4
Public administration	23.9	33.4	39.2	42	41.8	45.9
Education services	46.8	61.9	64.2	78.6	90.6	99.4
Domestic services	15	18	19.3	0.3	20.8	38.7
Other services	28.3	30.9	34	57.8	40.7	43.6
Total	195	249	286	318	335	377
Total Male & Female	1093	1221	1373	1442	1462	1506
Ratio Female to Total Employment	17.8	20.4	20.8	22.1	22.9	25.1

Table A.2
(Continued)

Year	1996	1998	2001	2003	2007
Male employment					
Industry					
Agriculture & forestry	226	232	235	238	253
Mining & quarrying	3.5	3.9	4.2	4.2	4.9
Manufacturing	177	181	179	198	214
Electricity & water	19.3	19.2	17.8	17.3	15.5
Building & construction	72.5	74.2	71.9	71.7	75.9
Wholesale & retail trade, hotels & restaurants	107	109	114	119	142
Transport & communications	68.5	67.6	66.7	69.2	118
Finance, insurance, real estate & business services	60.3	62.1	62.5	62	69.6
Public administration	108	102	96.4	94.4	78.8
Education services	174	178	178	185	193
Domestic services	56.4	58.6	60.5	58.9	61.9
Other services	85.4	89.3	95.4	98.2	106
Total	1158	1178	1180	1216	1333
Female employment					
Industry					
Agriculture & forestry	76.6	76.5	78	78.5	87.2
Mining & quarrying	1.3	1.1	1.1	1.2	1.4
Manufacturing	33.8	36	38	41.8	47.1
Electricity & water	4	4	3.6	3.8	3.5
Building & construction	6.3	5	4.8	4.9	5.4
Wholesale & retail trade, hotels & restaurants	36.4	41.3	42.6	43.6	54.1
Transport & communications	17.7	17.4	17.6	17.6	31.2
Finance, insurance, real estate & business services	20.7	21.9	21.3	21.7	25.4
Public administration	64.7	64.1	55.2	55.7	49.1
Education services	111	124	134	141	156
Domestic services	38.9	40.4	40	39	43.1
Other services	50.3	55.9	60.4	62.2	71
Total	461	487	497	511	575
Total Male & Female	1619	1665	1677	1727	1907
Ratio Female to Total Employment	28.5	29.3	29.6	29.6	30.1

Source: Republic of Kenya. Economic Survey (various issues).