

CSAE Working Paper WPS/1996-07

The Gender Wage Gap in Three African Countries

Simon Appleton
John Hoddinott
Pramila Krishnan

May 1996

Centre for the Study of African Economies
Institute of Economics and Statistics
University of Oxford
St. Cross Building, Manor Road
Oxford OX1 3UL
United Kingdom

Abstract

This paper extends the Oaxaca-Ransom (1994) method for decomposing wage gaps to account for sectoral choice by men and women. We apply this method to data from three African countries. We find that differences between actual and gender-neutral returns accounts for much of the gender wage gap in Ethiopia and Uganda, rather less in Côte d'Ivoire. In all three countries, the wage gap is narrowed because women are over-represented in the higher-paying public sector. This result would not have been obtained had we used conventional decomposition techniques.

Acknowledgements

Our thanks to Jennifer Roberts and John Knight for comments on an earlier draft and to Kerry Max who provided excellent research assistance. Work on this paper was initially funded by the World Bank, in preparation for the 1995 *World Development Report*. The Centre for the Study of African Economies is a Designated Research Centre of the Economic and Social Research Council. All errors and opinions in this paper are those of the authors.

JEL classification numbers: J16, O55
Keywords: Gender, labour, Africa, wages

CSAE RESOURCES CENTRE
21 WINCHESTER ROAD
OXFORD
OX2 6NA

ALBUQUERQUE, N.M.
SEPTEMBER 1941

I. Introduction

The presence of gender discrimination in labour markets has attracted the attention of economists for several reasons. Non-discriminatory treatment of workers of different sexes, races or religions can be regarded as a worthy social goal in itself. The elimination of discrimination can also improve both efficiency and growth. Becker (1975) posits a model in which labour provided by men and women are perfect substitutes¹. Employers hiring decisions are based on workers' perceived productivity and their characteristics. Suppose employers prefer to hire men over women. The cost of hiring an additional woman is the wage rate plus an additional factor that Becker calls the "discrimination coefficient" - the loss of utility experienced by the employer when he hires an additional woman. In equilibrium, the wages of men will equal those of women plus the discrimination coefficient. Consequently, a suboptimal number of women will be employed. If all firms are equally discriminatory, the economy-wide impact is a gain for men at the expense of women with firms' profits (and hence their savings, investment and growth) also reduced.

The importance of this issue has spurred much research activity - there are literally hundreds of studies based on data from developed countries. With respect to the gender wage gap, a substantial literature now exists on countries in Latin America and East Asia. Psacharopoulos and Tzannatos (1992) contains 21 studies of 15 different Latin American countries. Correcting for selectivity biases, they find that, on average, discrimination accounts for about 88 per cent of the male advantage in pay. Horton (1994) provides a seven country study of women in East Asian labour markets. Generally, differences in returns to male and female characteristics accounts for at least half the gap between male and female earnings, although this differential appears to be narrowing over time. By contrast, there are virtually no studies of the gender wage gap in Africa. Knight and Sabot (1982), using 1971 data from a sample of Tanzanian manufacturing firms, find that only 17% of gender wage differentials are attributable to factors other than observed characteristics. By 1980, Armitage and Sabot (1991) argue, this had disappeared².

Typically, these studies use methods originally developed by Oaxaca (1973) and Blinder (1973)³. The wage gap is disaggregated into two components: that attributable to differences in wage generating characteristics and that attributable to differences in returns for the same endowment of wage generating characteristics. However, researchers using these methods are confronted with an index number problem. The decomposition of differences in earnings can be based on estimates of what a woman would receive if she faced the male wage structure, or, just as easily, how much a man would earn if he was paid according to the female wage structure. In addition, this approach ignores the possibility that the wage gap is affected by the sectors within which men and women are employed. Methods for addressing these weaknesses have developed along two separate lines. Cotton (1988), Neumark (1988) and Oaxaca and Ransom (1994) have focused on the index number problem. Brown, Zoloth and Moon (1980) and Even and Macpherson (1993) have suggested ways of decomposing the gender wage gap along sectoral lines⁴.

This paper examines the size and determinants of the gender wage gap in three African countries, Ethiopia, Uganda and Côte d'Ivoire. We extend existing methods in a way that addresses both the index number and the sectoral decomposition problem. The paper is organised in the following fashion. Section II outlines our method for decomposing wage differentials. Data sources, methodology and results are reported in section III. We find that differences between actual and gender-neutral returns to characteristics accounts for much of the gender wage gap in Ethiopia and Uganda, rather less in Côte d'Ivoire. In all three countries, the wage gap is narrowed because women are over-represented in the higher-paying public sector. This result would not have been obtained had we used conventional decomposition techniques. Section IV concludes.

II. Decomposing wage differentials

Suppose we estimate separate wage equations for men and women. If W are mean wages, Z is the mean vector of independent variables ("characteristics") and β the least squares parameter, then the Oaxaca (1973) decomposition is⁵:

$$(1) \quad W_m - W_f = \beta_m(Z'_m - Z'_f) + (\beta_m - \beta_f)Z'_f$$

where the subscript m denotes male and f denotes female.

The first term shows that part of the wage gap attributable to differences in characteristics; the second term, the part attributable to differences in returns to those characteristics. In equation (1), the first term is based on estimates of what a woman would receive if she faced the male wage structure. The index number problem is that it could just as easily be expressed in terms of how much a man would earn if paid according to the female wage structure. The decomposition can be quite sensitive to which wage structure is used but neither is preferable to the other *a priori*.

To circumvent this problem, Oaxaca and Ransom (1994) conceived of an average of the two wage structures, β^* , of the form⁶:

$$(2) \quad \beta^* = \Omega\beta_m + (I - \Omega)\beta_f$$

where Ω is a weighting matrix. For ease of reference we will refer to β^* as the "gender-neutral" wage structure, although no significance should be attached to this terminology⁷. For weights, Cotton (1988) used the proportion of men and women in employment⁸. Oaxaca and Ransom show that a generalised weight is:

$$(3) \quad \Omega = (X'X)^{-1}(X'_mX_m)$$

where X is the observation matrix for the pooled sample.

The Oaxaca-Ransom decomposition is thus:

$$(4) \quad W_m - W_f = \beta^*(Z_m' - Z_f') + Z_m'(\beta_m - \beta^*) + Z_f'(\beta^* - \beta_f)$$

The first term is that part of the wage gap explained by differences in characteristics, given gender-neutral returns. The second and third terms shows the contribution of differences between actual and gender-neutral returns for men and women respectively.

Neither equation (1) nor equation (4) take any account of differences in sectoral structures between men and women. To redress this, define wages in the j th sector as W_{mj} for men and W_{fj} for men. Let the sample proportions of men and women in the j th sector be p_{mj} and p_{fj} respectively. The difference in mean wages can then be decomposed into intra-sectoral wage differences and differences in proportions employed in different sectors:

$$(5) \quad W_m - W_f = \sum_{j=1}^J p_{fj}(W_{mj} - W_{fj}) + \sum_{j=1}^J W_{mj}(p_{mj} - p_{fj})$$

However, this formulation is subject to a similar problem to that of the basic Oaxaca decomposition. In particular, there is no reason to prefer this decomposition to the alternative:

$$(5a) \quad W_m - W_f = \sum_{j=1}^J p_{mj}(W_{mj} - W_{fj}) + \sum_{j=1}^J W_{fj}(p_{mj} - p_{fj})$$

This index number problem can be overcome in an analogous way to the Oaxaca-Ransom decomposition in equation (4). We can posit a sectoral structure that would prevail in the absence of gender differences in the impact of characteristics on sectoral choice. If p_j^* is the proportion of individuals in each sector under the gender-neutral structure, then:

$$(6) \quad W_m - W_f = \sum_{j=1}^J p_j^*(W_{mj} - W_{fj}) + \sum_{j=1}^J W_{mj}(p_{mj} - p_j^*) + \sum_{j=1}^J W_{fj}(p_j^* - p_{fj})$$

To calculate p_j^* we need to specify the process determining which sector an individual is employed in. We assume that the p_{ij} , the probability of individual i being in a particular sector j , is determined by separate multinomial logits for the two sexes. Hence, if Q_i is a vector of relevant characteristics:

$$(7) \quad p_{sji} = \exp(\gamma_{sj}Q_i) / \sum_{j=1}^J \exp(\gamma_{sj}Q_i) \quad s=m,f$$

Now let Q be the pooled observation matrix of males and females and define a weighting matrix analogous to Ω as Δ , where:

$$(8) \quad \Delta_j = (Q_j'Q_j)^{-1} Q_j'Q_{mj}$$

By analogy to (2), we have:

$$(9) \quad \gamma_j^* = \Delta_j \gamma_{mj} + (I - \Delta_j) \gamma_{fj}$$

Hence, if the distribution of men and women across sectors is determined by the same set of coefficients, γ_j^* , then the probability of an individual with characteristics Q_i being in sector j is:

$$(10) \quad p_{ij}^* = \exp(\gamma_j^* Q_i) / \sum_{j=1}^J \exp(\gamma_j^* Q_i)$$

Let p_{mj}^* be the sample mean of (10) for men only and p_{fj}^* that for women only.

Equation (6) can then be expanded to give:

$$(11) \quad \begin{aligned} W_m - W_f = & \sum_{j=1}^J p_j^* (Z_{mj} - Z_{fj}) \beta_j^* + \sum_{j=1}^J p_j^* Z_{mj} (\beta_{mj} - \beta_j^*) + \sum_{j=1}^J p_j^* Z_{fj} (\beta_j^* - \beta_{fj}) \\ & + \sum_{j=1}^J W_{mj} (p_{mj} - p_j^*) + \sum_{j=1}^J W_{fj} (p_j^* - p_{fj}) \\ & + \sum_{j=1}^J W_{mj} (p_{mj} - p_{mj}^*) + \sum_{j=1}^J W_{fj} (p_{fj}^* - p_{fj}) \end{aligned}$$

The first three terms represent Oaxaca-Ransom decompositions of the within sector wage gaps. The fourth and fifth terms account for differences in earnings due to gender differences in characteristics determining sectoral structure. The fifth term gives differences in earnings resulting from the deviations between men's predicted and actual sectoral composition not accounted for by differences in characteristics. The sixth term is the analogous expression for women.

III. Empirical Results

Data

Our results are based on data from Ethiopia, Côte d'Ivoire and Uganda. The Ethiopian data are taken from the 'Survey of Adolescent Fertility, Reproductive Behaviour and Employment Status of the Youth Population in Urban Ethiopia', conducted in June 1990. The Ivorian data are taken from the World Bank's Living Standards Surveys of Côte d'Ivoire in 1985, 1986 and 1987. The World Bank's 1992 Integrated Survey of Uganda provides our third source of data. By applying appropriate weights, both the Ivorian and Ugandan surveys can be made nationally representative; the results presented for these countries are restricted to women and men aged 15 to 59 residing in urban areas only. The Ethiopian survey covers individuals aged 15 to 30 and residing in urban centres. Only those in the labour force are included, the main exclusion being students. All three surveys contain data on wages, employment, sector (public-private), education, demographic characteristics and some household characteristics. There is also information on family background, specifically on parents' education and occupation.

A summary of important descriptive statistics is given in Table 1. Women slightly predominate in all three samples. This occurs primarily because, on average, women drop out of school earlier and therefore are less likely to be students past the age of 15. This gender imbalance tends to disappear after about age 25. Men are more likely to be in wage employment in all three countries, though this difference is less marked in Ethiopia where male conscription was still in place. On average, wages are higher in the public sector, although this is less pronounced in Uganda where the state

sector was still recovering after two decades of instability. In all countries, male wages in each sector exceed those of women, though this is less marked in the Côte d'Ivoire. However, these inequalities are somewhat offset by the fact that women are more likely to be employed in the public sector, where average wages are higher.

Methods

Throughout, we distinguish between the public and private sector. There can be no presumption that the earnings are determined by the same process in both sectors. To some extent, government pay policies may be insulated from competitive pressures; similarly, private earnings may be less affected by the political economy influences that determine public sector pay. Therefore, for each sector j , we estimate separate earnings functions for those in wage employment. We assume that these take a Mincerian form; the log of earnings of person i depends on her schooling and other observable characteristics. (Appendix Table 1 provides details of the variables used for each country.)

As not everyone is in wage employment concern arises over possible sample selection biases. One might expect those in wage employment to have a particular talent for it; in which case, *ceteris paribus*, the unobserved determinants of earnings should be higher for these people on average. Failing to control for this will lead to biased OLS estimates. Controlling for this is slightly complicated by the requirement to distinguish two sectors: public and private. We follow Lee's (1978) two stage method⁹. In the first stage, the probability of employment is modelled using a multinomial logit. As in the collected studies found in the volumes edited by Psacharopoulos and Tzannatos (1992) and Horton (1994), identification is achieved here by the exclusion of a number of individual and household characteristics; that is, we assume these affect participation but not wages¹⁰. In the second stage, we take the probabilities of an individual i being in sector j as predicted by the multinomial logit and construct inverse Mill's ratios, λ_{ij} , to correct the earnings functions for sample selectivity. The inclusion of these ensures that OLS estimation provides consistent estimates of the augmented earnings functions¹¹.

A final methodological issue relates to the relevant set of W_m and W_f . Suppose we measure these in terms of observed wages received by individuals in our samples. The difference between these is a measure of the difference in wages accepted by men and women. But if the sample is self-selected, the observed distribution of wages is inappropriate in analysing wage differentials. For example, suppose discrimination reduces women's wage offers. If women and men have the same reservation wage, the lower average wage offers for women would be offset by greater selectivity bias and this would narrow the gap in observed wages. A better approach involves using the difference between wages offered to men and women (Reimers, 1983)¹². This is net of the impact of the selectivity correction, that is: $W_m - W_f - (\tau_m \lambda_m - \tau_f \lambda_f)$, where τ are the parameter estimates for the inverse Mill's ratios in the earnings functions. In Ethiopia and Uganda, selection bias lowers the wage differential between the sexes; if the unobserved characteristics that are correlated with wages were to be

randomly distributed across men and women, the observed wage differential would be larger. The converse is true in the Côte d'Ivoire.

Findings

Table 2 gives the gender wage gap decomposition for Ethiopia, Côte d'Ivoire and Uganda as derived using the Oaxaca and Oaxaca-Ransom methods¹³. The Oaxaca decomposition shows that the gender wage gap in these countries is due almost entirely to differences in returns to wage generating characteristics. Only when using the male wage structure in the Ugandan case, does the percentage of the wage gap accounted for by differences in returns fall below 90%. The Oaxaca-Ransom decomposition indicates that in all three countries, around half the wage gap is explained by the difference between the returns to female characteristics and those that would exist in the absence of gender differences in the returns to wage generating characteristics. However, in Ethiopia, differences between the returns to male characteristics and those that would exist under a gender-neutral wage structure account for a similar proportion of the gender wage gap.

Table 3 presents the Oaxaca-Ransom decomposition by sector. There is no common cross-country pattern in the relative magnitudes of the gender wage gaps in the public and private sector. Consider first, the gender gap in actual wages. In Ethiopia, there is a wider gap in the private sector than in the public sector; in Côte d'Ivoire, the reverse is true; in Uganda, the gaps are comparable. Once selectivity is allowed by focusing on offered wages, the situation in Ethiopia is reversed, while in Uganda, the gender gap increases in the private sector and diminishes in the public sector. Clearly, one must be careful of generalising about public-private gender differences.

Within each country, there is no *a priori* reason to believe that the processes generating the gender wage gap are the same in the private and public sector. In the public sector in Uganda, two-thirds of the wage gap is generated by differences in characteristics between men and women. By contrast, this accounts for less than 10% of the wage gap in the private sector in Uganda. In Côte d'Ivoire, women receive higher wage offers in the private sector and lower offers in the public sector. Both gender gaps are driven largely by the difference in the returns women receive relative to those from a gender-neutral structure. However, in Ethiopia, differences in characteristics, and in returns relative to a gender-neutral structure, explain roughly similar proportions of the offered wage gaps in the two sectors.

Table 4 shows the decomposition of the gender wage gap using our method. The first three terms are the Oaxaca-Ransom decompositions of the within sector wage gaps, abstracting from gender differences in sectoral choice. In Ethiopia and Uganda, these terms are broadly similar to in the Oaxaca-Ransom decompositions in Table 2. Differences in sectoral location are of limited importance in explaining the gender gap in these two countries. However, the Côte d'Ivoire presents a different picture since the last three terms - those concerning gender differences in sectoral choice - are all sizable. One finding common to all countries concerns the last term of table 4. This shows that differences between the actual and predicted sectors for women narrow

the wage gap. Specifically, given their characteristics, women are relatively more likely to be found in the public sector which, as table 1 shows, pays higher wages on average.

This last finding is important in the context of ongoing policy reform in sub-Saharan Africa. The governments of Ethiopia, Côte d'Ivoire and Uganda are all under pressure to reduce the size of their public sectors. What impact will such a change have on the gender wage gap in these countries? Making the very strong *ceteris paribus* assumption that the parameters in the earnings functions would remain unchanged, we note the following. The Oaxaca and Oaxaca-Ransom decompositions presented in table 2 tell us nothing about the effect of such changes on the wage gap. Separate Oaxaca-Ransom decompositions for the public and private sector would suggest that in Uganda, the gender wage gap would worsen - there is relatively little difference in actual and gender-neutral returns in the public sector, but a large difference in the private sector. In Côte d'Ivoire, such a policy would seem to reduce the gender gap whereas in Ethiopia there would be little effect. However, these separate decompositions by sector take no account of the fact that women in all three countries are, given their characteristics, over-represented in the public sector. If fiscal retrenchment makes it more difficult for women to retain their ability to obtain public sector work, given their characteristics, this will exacerbate the wage gap in all three countries.

IV. Conclusion

In this paper, we have extended the Oaxaca-Ransom method for decomposing wage gaps to account for sectoral choice by men and women. Applying this method to data from three African countries, we find that differences between actual and gender-neutral returns accounts for much of the gender wage gap in Ethiopia and Uganda, rather less in Côte d'Ivoire. In all three countries, the wage differential due to the difference in actual and predicted sectors for women narrows the wage gap because women are over-represented in the better-paid public sector. This result, which has implications for public sector retrenchment, would not have been obtained had we used conventional decomposition techniques.

Table 1: Sample Characteristics

	Ethiopia		Côte d'Ivoire		Uganda	
	Women	Men	Women	Men	Women	Men
Percent of individuals:						
employed in the public sector	17.0	28.0	3.8	16.0	9.5	18.7
employed in the private sector	4.7	9.4	5.0	27.0	10.2	38.8
not employed in the wage labour market	78.3	62.6	91.2	57.0	80.3	42.5
Percent of employed individuals:						
employed in the public sector	78.3	74.9	43.2	37.2	48.2	32.5
employed in the private sector	21.7	25.1	56.8	62.8	51.8	67.5
Mean of log accepted wages						
all individuals	-0.464	-0.221	5.951	5.986	10.027	10.357
public sector	-0.262	-0.008	6.232	6.468	10.079	10.386
private sector	-1.194	-0.634	5.567	5.624	9.959	10.337
Mean of log offered wages	-0.249	0.273	5.612	5.935	10.112	10.381
Education						
% of individuals with						
none	30	11	..	..	..	..
primary or less	10	7	..	..	..	..
some secondary	58	74	..	..	..	..
tertiary	2	8	..	..	..	..
mean grades completed						
primary	..	..	2.1	3.4	5.1	5.8
secondary	..	..	0.4	1.0	0.9	1.6
tertiary	..	..	0.01	0.4	0.5	2.8
Sample size	1252	733	3216	2551	3381	2869

Table 2: Decomposing the gender-wage gap using the Oaxaca and Oaxaca-Ransom methods

	Ethiopia	Côte d'Ivoire	Uganda
Difference in log of offered wages:	0.522	0.322	0.270
The Oaxaca (1973) decomposition: using the female wage structure			
$\beta_f(Z_m' - Z_f')$	0.005 (1%)	0.033 (10%)	-0.061 (-23%)
$(\beta_m - \beta_f)Z_m'$	0.517 (99%)	0.289 (90%)	0.330 (122%)
The Oaxaca (1973) decomposition: using the male wage structure			
$\beta_m(Z_m' - Z_f')$	-0.049 (-9%)	-0.019 (-6%)	0.082 (30%)
$(\beta_m - \beta_f)Z_f'$	0.571 (109%)	0.341 (106%)	0.187 (69%)
The Oaxaca-Ransom (1994) decomposition:			
$\beta^*(Z_m' - Z_f')$	0.023 (4%)	0.088 (27%)	0.057 (21%)
$Z_m'(\beta_m - \beta^*)$	0.258 (48%)	0.045 (14%)	0.062 (23%)
$Z_f'(\beta^* - \beta_f)$	0.249 (48%)	0.188 (58%)	0.150 (56%)

Table 3: The Oaxaca-Ransom decomposition by sector

	Ethiopia	Côte d'Ivoire	Uganda
Public sector:			
Actual wage gap	0.178	0.235	0.307
Offered wage gap	0.648	1.022	0.153
$\beta^*(Z_m' - Z_f')$	0.049 (8%)	0.266 (26%)	0.100 (65%)
$Z_m'(\beta_m - \beta^*)$	0.306 (47%)	0.165 (16%)	0.019 (12%)
$Z_f'(\beta^* - \beta_f)$	0.293 (45%)	0.591 (58%)	0.034 (22%)
Private sector:			
Actual wage gap	0.560	-0.052	0.378
Offered wage gap	0.209	-0.176	0.430
$\beta^*(Z_m' - Z_f')$	0.038 (18%)	0.072 (-41%)	0.040 (9%)
$Z_m'(\beta_m - \beta^*)$	0.079 (38%)	-0.044 (25%)	0.093 (22%)
$Z_f'(\beta^* - \beta_f)$	0.092 (44%)	-0.204 (116%)	0.297 (69%)

Table 4: Full decomposition of the gender-wage gap

	Ethiopia	Côte d'Ivoire	Uganda
Difference in log of offered wages:	0.522	0.322	0.270
Difference due to differences in: characteristics	0.045 (9%)	0.138 (43%)	0.063 (23%)
$\sum_{j=1}^J p_j^* (Z_{mj} - Z_{fj})\beta_j^*$			
actual and gender neutral returns to male characteristics	0.243 (47%)	0.027 (8%)	0.064 (24%)
$\sum_{j=1}^J p_j^* Z_{mj}(\beta_{mj} - \beta_j^*)$			
actual and gender neutral returns to female characteristics	0.237 (46%)	0.065 (20%)	0.194 (73%)
$\sum_{j=1}^J p_j^* Z_{fj}(\beta_j^* - \beta_{fj})$			
characteristics that generate different sectoral choice	0.017 (3%)	0.092 (29%)	0.017 (6%)
$\sum_{j=1}^J W_{mj}(p_{mj}^* - p_j^*) + \sum_{j=1}^J W_{fj}(p_j^* - p_{fj}^*)$			
differences in actual and predicted sectors for men	0.013 (2%)	0.048 (15%)	-0.001 (0%)
$\sum_{j=1}^J W_{mj}(p_{mj} - p_{mj}^*)$			
differences in actual and predicted sectors for women	-0.034 (-7%)	-0.048 (-15%)	-0.068 (-26%)
$\sum_{j=1}^J W_{fj}(p_{fj}^* - p_{fj})$			

Appendix table 1: Definitions of explanatory variables

Variable Name	Definition
PEXP(SQ)	potential experience (squared) = age - 14 - years of schooling
AGE(SQ)	age (squared)
PGRAD	number of completed primary grades
LSGRAD	number of completed lower secondary grades
USGRAD	number of completed upper secondary grades
UNIV	=1 if completed University
URBAN	=1 if born in an urban area
MARRIED	=1 if married
LAMBDA	selectivity correction
FWSELF/MWSELF	= 1 if father/mother ever ran own business
<i>Côte d'Ivoire only:</i>	
ABIDJ	=1 if lives in Abidjan
BOUAK	=1 if lives in Bouake
AFRICA	=1 if African but non-Ivorian nationality
MNONE	=1 if mother has no school certificates
FNONE	=1 if father has no school certificates
VILLROMO	=1 if born in town or village
M012,M034,M056,M078, & M910	monthly dummy variables
Y85,Y86	yearly dummy variables
<i>Ethiopia only:</i>	
PRIMARY	=1 if completed at least primary education
JUNIOR	=1 if completed at least junior secondary education
HIGHER	=1 if completed at least higher secondary education
AREA1	=1 if lives in capital, Addis Ababa
AREA2	=1 if lives in second city, Dire Dawa
FPROF	=1 if father is a professional, administrator or manager
FSALES	=1 if father is clerk/in sales
FARMY	=1 if father is in army
FEDN1/MEDN1	=1 if father/mother has at least primary education
<i>Uganda only:</i>	
FWWAGE/MWWAGE	=1 if father/mother wage employee
FLIT/MLIT	=1 if father/mother literate
FPPRIM/MPPRIM	=1 if father/mother has incomplete primary schooling
FFPRIM/FFPRIM	=1 if father/mother has complete primary schooling
FFED/MFED	=1 if father/mother has post primary schooling
KAMPALA	=1 if resident in Kampala or Entebbe
LTOWN	=1 if resident in Jinja, Mbarara, Mbale or Masaka
MTOWN	=1 if resident in a district capital (excluding Kampala, Entebbe, Jinja, Mbarara, Mbale and Masaka)
SEAS2 though SEAS7 are dummy variables for timing of survey (at two monthly intervals)	
Where variable "=1 if ...", it is 0 otherwise	

Appendix table 2: Earnings functions for the Côte d'Ivoire

Variables	Women		Men	
	Private	Public	Private	Public
	Coeff	T-ratio	Coeff	T-ratio
Constant	4.310	(5.36)***	2.178	(2.40)**
PEXP	0.017	(0.39)	0.115	(3.49)***
PEXPSQ	0.00073	(0.66)	-0.002	(-2.17)**
AGE*MARRIED	0.054	(0.73)	-0.066	(-1.73)*
AGESQ*MARRIED	-0.001	(-0.71)	0.001	(1.67)*
PGRADE	0.040	(1.06)	0.084	(4.63)***
LSGRADE	0.271	(3.80)***	0.166	(4.17)***
USGRADE	0.343	(3.20)***	0.284	(5.52)***
UNIV	0.334	(0.77)	0.698	(2.95)***
ABIDJ	0.718	(2.67)***	0.486	(3.56)***
BOUAK	0.225	(0.67)	0.462	(3.20)***
URBAN	0.194	(0.75)	0.008	(0.05)
VILLROMO	-0.211	(-0.79)	0.069	(0.52)
MARRIED	-0.463	(-0.69)	1.263	(3.79)***
MWSELF	0.097	(0.64)	-0.029	(-0.33)
FWSELF	0.323	(1.94)*	-0.075	(-0.74)
MNONE	-0.765	(-2.48)**	0.420	(0.57)
FNONE	0.128	(0.71)	-0.172	(-0.87)
M012	0.425	(1.39)	0.090	(0.68)
M034	-0.150	(-0.45)	0.159	(1.23)
M056	0.224	(0.63)	0.051	(0.39)
M078	-0.269	(-0.96)	0.142	(1.10)
M910	-0.077	(-0.25)	-0.043	(-0.36)
Y85	-0.017	(-0.07)	0.082	(0.86)
Y86	-0.024	(-0.13)	0.055	(0.71)
LAMBDA	0.105	(0.28)	0.270	(1.12)
Adjusted				
R-squared	0.555	0.673	0.581	0.519
Mean of dependent Variable	5.677	6.233	5.625	6.468
Number of observations	113	110	527	395

For this and subsequent tables: coeff. = coefficient estimate; t-ratio uses White's heteroscedasticity consistent standard errors

Appendix table 3: Earnings functions for Ethiopia

Variables	Women			Men		
	Private Coeff	Private T-ratio	Public Coeff	Private Coeff	Private T-ratio	Public Coeff
Constant	-1.989	(-1.80) *	-1.722	-1.250	(-0.81)	-0.071
AGE*MARRIED	-0.054	(-0.83)	0.040	-0.012	(-0.10)	0.043
MARRIED	1.412	(0.94)	-0.742	-0.025	(-0.01)	-1.160
MIGG1	-0.750	(-1.99) **	0.253	-0.004	(-0.02)	0.305
AREA1	-0.055	(-0.15)	0.052	0.203	(0.49)	-0.084
AREA2	-0.061	(-0.24)	0.132	0.476	(1.29)	0.087
FEDN1	0.633	(1.56)	0.122	0.011	(0.04)	-0.147
MEDN1	-0.101	(-0.32)	-0.002	0.283	(1.12)	0.406
FPROF	-0.234	(-0.53)	0.104	-0.163	(-0.56)	0.429
FSALES	0.162	(0.41)	-0.047	0.022	(0.07)	0.369
PEXP	0.126	(0.78)	0.154	-0.034	(-0.26)	0.037
PEXPSQ	-0.002	(-0.19)	-0.008	0.005	(0.61)	-0.004
PRIMARY	0.319	(0.47)	-0.209	-0.534	(-1.56) ***	0.551
JUNIOR	0.560	(0.83)	0.387	0.973	(2.64) ***	-0.678
HIGH	-0.277	(-0.68)	0.738	0.263	(0.64)	0.475
LAMBDA	-0.289	(-0.57)	-0.116	-0.051	(-0.06)	-0.623
Adjusted R-squared	0.043		0.340	0.097		0.225
Mean of dependent Variable	-1.119		-0.262	-0.512		-0.076
Number of observations	59		213	68		207

Appendix table 4: Earnings functions for Uganda

Variables	Women		Men	
	Private	Public	Private	Public
	Coeff	T-ratio	Coeff	T-ratio
Constant	8.345	(20.19) ***	8.725	(13.00) ***
PEXP	0.062	(3.53) ***	0.039	(1.97) **
PEXPSQ	-0.120E-02	(-2.41) **	-0.483E-03	(-1.00)
PGRAD	0.026	(1.10)	0.080	(1.98) **
LSGRADE	0.170	(4.13) ***	0.065	(1.98) **
USGRADE	0.082	(0.40)	0.318	(2.45) **
UNIV	0.866	(1.25)	0.411	(1.13)
KAMPALA	0.600	(3.94) ***	0.489	(3.92) ***
LTOWN	0.193	(1.19)	0.254	(1.75) *
MTOWN	0.236	(1.84) *	0.054	(0.51)
URBAN	0.142	(1.52)	-0.097	(-1.32)
MARRIED	-0.058	(-0.42)	-0.163	(-1.96) **
MWSELF	-0.106	(-0.69)	0.097	(0.54)
FWSELF	0.296	(2.20) **	-0.015	(-0.13)
MWWAGE	-0.089	(-0.33)	0.084	(0.50)
FWWAGE	-0.213E-02	(-0.02)	-0.157	(-1.60)
FLIT	-0.214	(-1.74) *	0.032	(0.28)
FFPRIM	0.202	(1.55)	0.160	(1.65) *
FFED	0.367	(2.15) **	-0.050	(-0.45)
MLIT	0.119	(1.02)	-0.057	(-0.61)
MFPRIM	-0.236	(-1.40)	0.096	(0.83)
MFED	-0.140	(-0.40)	0.112	(0.61)
SEAS2	0.465	(2.60) ***	0.266	(1.22)
SEAS3	0.078	(0.48)	0.179	(0.90)
SEAS4	0.447	(2.87) ***	0.113	(0.58)
SEAS5	0.480	(1.56)	0.402	(1.64)
SEAS6	0.387	(2.44) **	0.348	(1.77) *
SEAS7	0.491	(2.61) ***	0.495	(2.18) **
LAMBDA	0.014	(0.07)	-0.136	(-0.82)
Adjusted R-squared	0.319	0.267	0.274	0.274
Mean of dependent Variable	9.959	10.079	10.337	10.337
Number of observations	281	358	899	636
				10.386

Notes

1. G. Becker, "Human Capital" (Cambridge, Mass: Harvard University Press, 1975).
2. J. Armitage and R. Sabot, "Discrimination in East Africa's urban labor markets" in *Unfair advantage: Labour market discrimination in developing countries*, ed. N. Birdsall and R. Sabot (Washington D.C.: The World Bank, 1991); S. Horton, "Women and industrialization in Asia", mimeo (Toronto: University of Toronto, 1994); J. Knight and R. Sabot, "Labour market discrimination in a poor urban economy" *Journal of Development Studies* 19 (1982): 67-87; G. Psacharopoulos, G. and Z. Tzannatos (eds.) *Women's employment and pay in Latin America: Overview and methodology*, (Washington D.C.: The World Bank, 1992).
3. A. Blinder, "Wage discrimination: Reduced form and structural estimates", *Journal of Human Resources* 8 (1973): 436-455; R. Oaxaca, "Male-female wage differentials in urban labor markets", *International Economic Review* 9 (1973): 693-709.
4. R. Brown, M. Moon and B. Zoloth, "Incorporating occupational attainment in studies of male-female earnings differentials", *Journal of Human Resources* 15 (1980) 3-28; J. Cotton, "On the decomposition of wage differentials", *Review of Economics and Statistics* 70 (1988) 236-243; W. Even and D. Macpherson, "The decline of private-sector unionism and the gender wage gap", *Journal of Human Resources* 28 (1993): 279-296; D. Neumark "Employers' discriminatory behaviour and the estimation of wage discrimination" *Journal of Human Resources* 23 (1988): 279-295; R. Oaxaca and M. Ransom, "Discrimination and wage decomposition" *Journal of Econometrics* 61 (1994): 5-21.
5. Oaxaca (n. 3 above).
6. Oaxaca and Ransom (n. 4 above).
7. In particular, the "gender neutral" wage structure as defined is not necessarily that which would arise in the absence of gender discrimination. It is merely an average of the existing wage structures for men and women, either of which may or may not exhibit gender discrimination.
8. Cotton (n. 4 above).
9. L. Lee, "Unionism and wage rates: A simultaneous equation model with qualitative and limited dependent variables", *International Economic Review* 19 (1978): 415-433.
10. Psacharopoulos and Tzannatos and Horton (n. 2 above).
11. The presence of the additional constructed selectivity correction renders the standard errors incorrect. In the empirical work, White's standard errors were used to provide asymptotically consistent values.
12. C. Reimers, "Labor market discrimination against hispanic and black men", *Review of Economics and Statistics* 65 (1983): 570-579.
13. Oaxaca (n. 3 above) and Oaxaca and Ransom (n. 4 above). The parameter estimates used to generate these results are based on the wage equations reported in Appendix Tables 1-4. (The multinomial logits used to derive the predicted probabilities and the inverse Mill's ratios are not reported here; they are available on request.)

