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Gender Wage Differentials in Uganda: Evidence from the Uganda National Household Survey¹

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Abstract

This paper investigates the causes of gender wage differentials in Uganda. Given the potential differences in wage setting mechanisms between urban and rural labor markets, we break up the sample between rural and urban sub-samples. We use data from the nationally representative Uganda National Household Survey for 2002-03 (UNHS 2002/03). We employ standard decomposition techniques based on Oaxaca (1973) to decompose the gender wage gap into labor market characteristics and treatment components. The Neumark (1988) decomposition technique is used to address the “index number” problem. Further, self-selection into wage employment is controlled for using the Heckman (1979) two-step sample selection correction technique.

Our empirical results suggest that a substantial portion of the gender wage differential results from employer-driven differences in treatment. This is more so in rural areas. Controlling for selection, the unexplained portion of the gender wage gap is between 61 percent and 78 percent in rural areas. In urban areas, the unexplained portion of the gender wage gap is between 41 percent and 68 percent. Further, in urban areas, 24 percent of the gender wage gap is due to nepotism toward males while 22 percent is a result of discrimination against females. In rural areas on the other hand, 68 percent of the gender wage gap is attributed to discrimination against females while only 1 percent is due to nepotism toward males.

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I. Introduction

The International Labor Organization (ILO) convention regarding equal opportunity and treatment in the labor market came into force more than 50 years ago.⁴ The main purpose of the convention was to ensure that remuneration rates are established without discrimination based on gender. This implies equal remuneration for work of equal value.

There are obvious and not-so-obvious reasons for an “equal pay for equal work” convention or similar conventions. The obvious reasons relate to issues of fairness or moral reasons. The more covert reasons, however, are mainly economic. First, discrimination on the basis of gender or any other categorization is likely to adversely impact labor productivity growth. Workers who feel discriminated against have fewer incentives to improve their productivity.

In addition, theoretically, wage differentials should be expected to distort efficient allocation of labor resources. For instance, the disadvantaged groups will tend to have lower labor force participation rates or will concentrate in industries or sectors with less perceived discrimination. In a fairly recent report, the World Bank (2001) observes that gender inequality affects society in general and not just women. The report points out that those societies with more gender equality have better education for children, better child health and good and transparent governments.

Despite the above benefits of more equality, due to reasons ranging from culture or traditions to explicit discrimination, there are apparent differences in wages based on gender, race, ethnicity, etc. It is these apparent wage differentials that have motivated a substantial body of research. Most of this research has attempted to measure the extent of

⁴ Equal Remuneration Convention (1951)

discrimination by decomposing wage differentials between two groups of workers mainly on the basis of race and gender.

Notable among earlier works is the seminal work of Becker (1971). Becker (1971) defined the competitive market discrimination coefficient as the difference between the observed wage ratio and the wage ratio that would prevail in the absence of discrimination. Becker's work provided the background for subsequent work by Oaxaca(1973) followed by Reimers (1983), Neumark (1988), and Cotton (1988). Countless empirical studies have since been done following the methodology developed in these earlier works.

However, most empirical literature on gender wage differentials exists on developed countries and more recently on Latin America (George Psacharopoulos and Zafiris Tzannatos 1992), Asia (Shaheen Akter 2005), and transitional economies of eastern and Central Europe (Vera Adamchik and Arjun Bedi 2003; Elizabeth Brainerd 1998; Stephan Jurajda 2001; Barry Reilly and Andres Newell 2000). A common result in these studies is that a substantial part of the gender wage gap that is not explained by gender differences in labor market observed characteristics. The conventional interpretation of this unexplained part of the gender wage gap is potential discrimination against the "minority" group. Studies on the Caribbean have yielded similar results (L. Julie Hotchkiss and E. Robert Moore 1996; Neil Reed Olsen and Addington Coppin 2001).

A few studies have argued that institutional factors might be responsible for at least part of the gender wage differential. For instance, gender-specific legal requirements affect the cost of employing females. In some of the transitional economies,

female employees are entitled to at least a one-year maternity paid leave. In such cases, the wage offer for females is expected to be relatively lower. Other institutional factors affecting gender wage differentials include minimum wage legislations. Countries with relatively high minimum wage will tend to have more compressed wage structures and therefore smaller gender wage gaps (Francine Blau and Lawrence Kahn 1996; Olga Pavlova 2006). Further, the literature indicates that, in most countries, gender wage differentials are more pronounced in the private sector relative to the public sector. This could be attributed to relatively more strict pay grids in the public sector.

In regard to Sub-Saharan Africa, the literature on gender wage differentials is scarce, perhaps due to the lack of data. Beginning mid 1990s, however, the availability of household surveys has made it possible to study various labor market issues in some Sub-Saharan African countries. A few recent studies on Sub-Saharan Africa suggest discrimination against women in the labor market. Appleton et al. (1999) examine the gender wage gap in urban sectors of three African countries – Uganda, Côte d’Ivoire, and Ethiopia – and find a substantial gender wage gap in Uganda and Ethiopia and a smaller gap in Côte d’Ivoire. They find evidence of discrimination against women and nepotism toward men as being responsible for the lower returns for females.

Glick and Sahn (1997), in a study of the urban labor market in Conakry, Guinea, find that 45 percent and 25 percent of the gender earnings gap is explained by differences in characteristics among the self-employed, and public sector employment respectively. They also find higher earnings for women in private sector employment. A few other studies on African labor markets obtain similar results. For instance Kabubo-Mariara (2003) finds no evidence of discrimination against women in Kenya, but attributes the

unexplained portion of the gender wage differential to favoritism toward men. On the other hand, Siphambe and Thokweng-Bakwena (2001) attribute part of the gender wage gap in Botswana's urban private sector to discrimination against women.

The current study fills the existing literature gap on Sub-Saharan African labor markets by exploring gender wage differentials in Uganda. We use more recent and detailed data from the Uganda Household Survey (UNHS 2002/03). The UNHS is a rich data set that contains detailed information on individual, household, and community characteristics. This allows us to model wage earnings more accurately. To our knowledge, only the Appleton et al (1999) study systematically investigates the gender wage gap in Uganda using data from the 1992 Integrated Survey of Uganda. In addition to the urban labor markets, which are the focus of most of the studies cited above, the current article separates urban and rural labor markets. As we fully discuss later in the paper, this separation is justified by potential differences in wage formation processes between rural and urban areas. Following several studies in the literature, we use the Heckman (1979) two-stage estimation to control for the likely nonrandom selection into the workforce.

The rest of the paper is structured as follows. The subsection provides a brief country background. Section II presents an overview of decomposition techniques developed and applied in past empirical studies. In addition, section II provides an overview of the Heckman (1979) sample selection technique used to correct for the potential bias arising from the nonrandom selection into the wage employment sector. We also discuss the justification for separating the sample into rural and urban sectors.

Section III describes the data. Section IV presents and discusses the results and section VI concludes the paper.

I.1 Country Background

The Republic of Uganda is located in Eastern Africa, a landlocked country bordering Kenya, Tanzania, Rwanda, the Democratic Republic of Congo and the Sudan. Uganda is a former British colony that attained independence in 1962. Like several other African countries, Uganda was faced with political instability in the post-independence era. The rise in both civilian and military dictatorships adversely impacted economic performance (J. Benno Ndulu and Stephen O'Connell 1999) and led to significant levels of brain drain. Since the late 1980s the country's political environment has greatly improved and so has the economy.

With a total population estimated at about 28 millions, Uganda is culturally diverse with several tribal groups. The Bantu (about 50 percent of the total population) inhabit the east, central, western, and southern part of the country. The Nilo-Hamites live in the north, east, and north eastern parts of the country. The Nilotic group, which originated from Southern Sudan, inhabits the West Nile, the northern and eastern parts of the country. These broad ethnic groups are further subdivided into various smaller cultural groupings speaking over thirty languages. The cultural differences are expected to have an impact on labor market outcomes in terms of labor mobility, labor market participation, etc. Statistically, however, the country is divided into four regions – central, Western, Eastern, and Northern. It is important to note that these are not administrative units, but merely statistical areas.

Typical of developing countries population age structures, 50 percent of the population is below the age of 15 (split almost evenly between males and females). About 48 percent of the population is between the ages of 15 and 64, and only 2.2 percent is 65 years and older. The median age is 15 years (14.9 years for males, 15.1 years for females). The size of the labor force is estimated at 13.76 millions, 82 percent of which is in the agriculture sector, 5 percent in industry, and 13 percent in services. The Labour Market Information Status Report (2006) estimates that about 85 percent of the labor force is in rural areas. The report also estimates the labor force participation rate at 80 percent and that rural women had a higher participation rate relative to their urban counterparts.

II. Decomposition of Wage Differentials

This section of the paper describes the methodology used to decompose the gender wage gap in both urban and rural sectors of the Ugandan labor market. A majority of studies analyzing wage differentials have employed a decomposition methodology originally developed by Oaxaca (1973) to estimate the extent of wage discrimination. The Oaxaca type decomposition techniques compare wage structures for two groups (e.g. male and female, minority and majority racial groups, etc) to the wage structure that would exist in the absence of discrimination. The difference between the actual wage structure and the “no-discrimination” structure is the measure of wage discrimination. In other words, wage decomposition techniques attempt to decompose the wage gap into the component due to differences in observed labor market characteristics and the component

due to returns to characteristics. Below is a brief overview of this methodology (Oaxaca 1973; Cotton 1988; Neumark 1988).

If \bar{W}^M and \bar{W}^F denote the observed average wage for males and females respectively, then, the average gender wage gap can be estimated by:

$$\ln \bar{W}_M - \ln \bar{W}_F = \bar{X}'_M \beta_M - \bar{X}'_F \beta_F \quad (1)$$

Where:

\bar{X}_M and \bar{X}_F are vectors of means of explanatory variables in the male and female wage equations respectively; β_M and β_F are parameter estimates from the male and female wage structures respectively.

The right-hand side of equation (1) can be decomposed as:

$$\ln \bar{W}_M - \ln \bar{W}_F = (\bar{X}'_M - \bar{X}'_F) \beta_M + \bar{X}'_F (\beta_M - \beta_F) \quad (2)$$

Or

$$\ln \bar{W}_M - \ln \bar{W}_F = (\bar{X}'_M - \bar{X}'_F) \beta_F + \bar{X}'_M (\beta_M - \beta_F) \quad (3)$$

In equations (2) and (3), the first term on the right-hand side represents the differential in male-female wages that is due to differences in observed average characteristics. The second part on the right-hand side of both equations is due to differences in male-female wage structures and is typically attributed to discrimination or nepotism in the labor market.

Equation (2) assumes that the male wage structure is nondiscriminatory and, therefore, the gender wage gap is due to discrimination against females and differences in average characteristics. On the other hand, Equation (3) implies that the female wage structure is nondiscriminatory and that the gender wage gap is due to nepotism toward males and differences in average characteristics.

The choice of the nondiscriminatory wage structure has been shown to affect the results of the wage gap decomposition. A few studies offer alternative ways to deal with this “index number” problem. As observed by Cotton (1988), the choice of the female wage structure as the wage structure that would prevail in the absence of discrimination minimizes the case for equal wages since female wages would not be affected. Similarly, a choice of the male wage structure as the nondiscriminatory structure implies that males would be indifferent to a move toward equality since their wages would not be affected. Cotton (1988) argues that this is contrary to reality and that the group that is discriminated against is undervalued while the favored group is overvalued. Therefore:

$$\ln \bar{W}_M - \ln \bar{W}_F = (\bar{X}'_M - \bar{X}'_F)\beta^* + \bar{X}'_M(\beta_M - \beta^*) + \bar{X}'_F(\beta^* - \beta_F) \quad (4)$$

Where β^* denotes the wage structure that would exist in the absence of discrimination.

The first term on the right-hand side of equation (4) is the part of the gender wage differential due to gender differences in productive characteristics. The second and third terms, if positive, represent the treatment advantage of males and the treatment disadvantage of females respectively.

Since β^* is unobservable, the nondiscriminatory wage structure has to be estimated. The literature suggests weighting the wage structures for the preferred group and the disadvantaged group (Reimers 1983; Cotton 1988; Neumark 1988). That is:

$$\beta^* = s_M \beta_M + s_F \beta_F \quad (5)$$

Where s_M and s_F are proportions of males and females respectively in the sample⁵.

⁵ Reimers (1983) used 0.5 for both s_M and s_F . Neumark (1988) suggests coefficients from a pooled regression as an alternative to fitted values from separate regressions.

II.2 Selection into Wage Employment

The sample used for the gender wage gap decomposition consists of those individuals in the working age group engaged in wage employment. This particular sample excludes those working for profit (such as small enterprise owners), other forms of self-employment including unpaid family workers and the economically inactive. Therefore, although we observe the demographic characteristics of all the surveyed individuals, we only observe wages for the group engaged in wage employment. This raises the potential for sample selection bias in the earnings equation parameter estimates (Heckman 1979; Reimers 1988). The bias will arise if selection into the wage employment sample is nonrandom.

Reimers (1988) distinguishes between the wage-offer function and the observed wage function. Individuals will choose wage employment if the wage offer is at least as high as their reservation wage. Otherwise, they will choose to engage in non-wage activities (or remain economically inactive)⁶. Let equation (6) represent the wage-offer function for individual i .

$$\ln W_{ij} = X_{ij}\beta_j + \varepsilon_{ij} \text{ for } j = \text{Male, Female.} \quad (6)$$

The regression function for the sub-sample for which we observe wages (those employed for wages or salary) yields the observed wage function as shown in equation (7).

$$E(\ln W_{ij} | X_{ij}, \text{Sample selection rule}) = X_{ij}\beta_j + E(\varepsilon_{ij} | \text{Sample selection rule}) \quad (7)$$

The bias in the least squares parameter estimates arises because if participation in wage employment is not random, $E(\varepsilon_{ij} | \text{Sample selection rule}) \neq 0$. As Heckman (1979) observes, failure to account for this nonrandom selection yields “fitted regressions that

⁶ In the presence of discrimination, the wage offer for the disadvantaged group will be lower than that of the preferred group.

confound parameters of interest with parameters determining the probability of being part of the sample.”

Heckman (1979) suggested a two-stage estimation procedure that yields consistent parameter estimates for the earnings equation. The first stage estimates a probit model to predict the probability of selection into the wage employment sample. The inverse of the Mill’s ratio, λ , is then included in the wage equation as an additional explanatory variable.⁷ Therefore, controlling for selection, the wage equation becomes:

$$\ln W_{ij} = X_{ij}\beta_j + c_j\lambda_{ij} + \varepsilon_{ij} \quad (8)$$

Therefore, equations (2) and (3) can be rewritten as:

$$\ln \bar{W}_M - \ln \bar{W}_F = (\bar{X}'_M - \bar{X}'_F)\beta_M + \bar{X}'_F(\beta_M - \beta_F) + c_M\bar{\lambda}_M - c_F\bar{\lambda}_F \quad (9)$$

Or

$$\ln \bar{W}_M - \ln \bar{W}_F = (\bar{X}'_M - \bar{X}'_F)\beta_F + \bar{X}'_M(\beta_M - \beta_F) + c_M\bar{\lambda}_M - c_F\bar{\lambda}_F \quad (10)$$

And equation (4) is rewritten as follows:

$$\ln \bar{W}_M - \ln \bar{W}_F = (\bar{X}'_M - \bar{X}'_F)\beta^* + \bar{X}'_M(\beta_M - \beta^*) + \bar{X}'_F(\beta^* - \beta_F) + c_M\bar{\lambda}_M - c_F\bar{\lambda}_F \quad (11)$$

II.3. Rural Sector versus Urban Sector

As stated in the introductory section of the paper, our empirical analysis separates urban areas and rural areas. This separation is based on the potential differences in wage setting processes in the two sectors.

⁷ $\lambda_i = \frac{\phi(Z_i\gamma_j)}{\Phi(Z_i\gamma_j)}$ and Z_i is a vector of individual characteristics that determine selection into the sample

and γ_j is a vector of corresponding coefficient estimates. ϕ and Φ are the standard normal density function and the standard normal distribution function respectively (See Heckman 1979 and Reimers 1988 for details on this).

First, the urban sector has much better developed labor markets that resemble labor markets in developed economies. Labor unions are much more active in urban formal markets compared to rural relatively informal labor markets. Rural workers are, on average, less educated and predominantly employed in low level occupations in the agriculture sector. Less education and exposure to the relevant labor rights legislations could imply more exploitation by relatively more knowledgeable employers.

Rural wage setting processes are less likely to be protected by legal contracts since most employment is semi-formal. In addition, most employment in the rural agriculture is likely to be short term or casual employment due to the seasonality of agricultural production.

Further, rural social structures are quite different from urban societies. Rural areas are characterized by more communal support and obligations, which might impact labor participation decisions. Finally, rural societies tend to adhere to social norms and traditions more than urban societies. As such, we are likely to observe more gender occupation segregation in rural areas relative to urban areas.

III. Data

Data used for this analysis comes from the Uganda National Household Survey (UNHS 2002/2003). This is a nationally representative survey designed to provide economic, social and demographic information. As such, the survey contains rich data on labor market activities of the respondents as well on their social, economic, and demographic characteristics.

Our analysis is restricted to the individuals of the working age. These include persons between 14 and 80 years old. The upper boundary of the working age group is higher than the conventional retirement age of 60 to 65. This is due to inclusion of the rural sector where individuals tend to work through their 70s. Table 1 presents means of demographic variables for males and females in urban and rural areas.

TABLE 1
MEANS OF DEMOGRAPHIC CHARACTERISTICS BY AREA AND GENDER (UNWEIGHTED DATA, AGE 14-80)

	Urban		Rural	
	Males	Females	Males	Females
Single	0.488	0.388	0.410	0.271
Married	0.481	0.442	0.553	0.582
Divorced	0.021	0.093	0.025	0.061
Widowed	0.009	0.078	0.012	0.086
Age	28.690	27.946	31.031	30.391
Household Structure				
Number of Persons	6.718	6.819	7.034	6.897
Household Head	0.519	0.227	0.569	0.166
Household Head Migrated	0.741	0.754	0.413	0.441
Number of Toddlers	1.140	1.267	1.455	1.562
Number of Teens	2.905	3.139	3.548	3.621
Number of ill Persons	0.331	0.339	0.466	0.465
Number of Retirees	0.092	0.100	0.164	0.163
Regions				
Eastern	0.280	0.264	0.293	0.287
Northern	0.168	0.178	0.171	0.183
Western	0.263	0.248	0.275	0.268
Central	0.288	0.309	0.261	0.261
Education Level				
Less than Primary	0.347	0.470	0.587	0.739
Primary	0.140	0.132	0.153	0.106
Some Secondary	0.205	0.207	0.143	0.100
O-levels	0.128	0.084	0.052	0.029
A-levels	0.050	0.026	0.014	0.006
Vocational Primary	0.045	0.038	0.030	0.011
Post Secondary	0.054	0.033	0.014	0.005
University	0.026	0.006	0.003	0.001
Number of Observations	4,927	5,787	7,245	7,772

About 18 percent of the respondents are located in the northern region while the rest are split almost evenly between western, eastern, and central parts of the country. The average age of the respondents is relatively low at about 29 years and is slightly higher in rural areas. There are more single individuals among males than females. There is also a higher proportion of single individuals of both genders in urban areas. About 48 percent of males and 44 percent of females are married in rural areas and 55 and 58 percent in urban areas.

Over fifty percent of males are household heads. The survey only indicates the relationship of each household member to the household but not the specific relationships among the other members. For instance, we can not always impute the child parent relationship accurately for each respondent. As such, if the household head has any grandchildren in the household and more than one child, it is not possible to determine which one is the parent of the grandchild. For our empirical analysis, we use the number of children in the household as a proxy for the number of children one has.

To understand the household structure and its effect on labor market-related decisions, the number of children under seven, number of children between seven and fourteen, number of persons with serious illnesses, and number of older persons were imputed. The number of children of both age groups per household is considerably higher than number of old persons reflecting the fact that Uganda's population is relatively young.

In regards to the level of educational, 74 percent of females and 59 percent of males in rural areas have less than primary education. About 14 percent of all the respondents

have primary education. In addition, 3 percent of males and 1 percent of females in urban areas have university degree.

Respondents of working age are either employed for wages, work for profit (for example small shop owners), unemployed or economically inactive. About 26 percent of males and 11 percent of females are employed for wages in urban areas and 10 percent of males and 3 percent of females in rural areas. This gender wage differential analysis focuses on only those individuals who are employed for wages. As mentioned earlier, part of the goal of this, and other similar studies, is to attempt to determine if there is any employer-driven gender wage discrimination. Since the self-employed do not earn wages, wage discrimination at the work place does not apply to those with owner-operated enterprises.

Table 2 summarizes labor market information on individuals of working age who are employed and working for wages by gender and sector of employment as well as for rural and urban areas. The survey uses ILO definitions for industries and occupations. The survey descriptive statistics indicate a high correlation between industry of employment and sector of employment (i.e. public versus private). The highest proportion of males and females in the public sector are employed in Public Administration and Social Services.

TABLE 2
MEANS OF WORK-RELATED CHARACTERISTICS BY AREA AND GENDER (UNWEIGHTED DATA, AGE 14-80, WORKING PERSONS ONLY)

	Urban		Rural	
	Male	Female	Male	Female
Weekly Wages (Uganda Shillings)	51,285	36,145	29,826	20,262
Hourly Wages (Uganda Shillings)	1,157	844	712	475
Weekly Hours of Work	49.544	50.095	44.473	41.864
Tenure at the Last Job	6.311	4.194	6.535	4.900
	Sector of Employment			
Government Permanent	0.218	0.195	0.195	0.235
Government Temporary	0.030	0.029	0.045	0.032
Government Casual	0.009	0.003	0.004	0.009
Private Permanent	0.151	0.159	0.095	0.100
Private Temporary	0.354	0.444	0.337	0.235
Private Casual	0.237	0.171	0.322	0.389
	Industry			
Agriculture/Fishing	0.085	0.040	0.358	0.299
Construction	0.129	0.018	0.094	0.009
Manufacturing	0.096	0.053	0.091	0.050
Sales	0.108	0.070	0.041	0.027
Hotel	0.017	0.130	0.003	0.032
Transportation	0.115	0.009	0.054	0.000
Financial	0.024	0.014	0.010	0.009
Public Administration	0.124	0.063	0.050	0.014
Social Services	0.255	0.340	0.279	0.448
Private Households	0.039	0.259	0.019	0.113
Extra-Territorial Organizations	0.007	0.005	0.000	0.000
	Occupation			
Legislative	0.013	0.003	0.004	0.005
Professional	0.094	0.085	0.083	0.113
Associate Professional	0.151	0.256	0.181	0.262
Shop Worker	0.150	0.230	0.065	0.100
Agricultural Worker	0.032	0.006	0.107	0.032
Crafts	0.118	0.008	0.071	0.009
Blue Skilled	0.076	0.003	0.044	0.000
Basic Occupations	0.348	0.386	0.438	0.475
Other Occupations	0.001	0.000	0.000	0.000
	Other Income			
Income from Crop Framing (Uganda Shillings)	55,029	87,884	132,124	136,322
Value of Enterprise Assets (Uganda Shillings)	700,578	2,835,395	76,314	140,396
Value of Land Assets (Uganda Shillings)	2,111,145	2,272,035	2,692,782	2,450,181
Value of Land Cultivated (Uganda Shillings)	1,119,523	1,060,136	970,717	1,162,321
Personal Non-labor Income (Uganda Shillings)	17,580	48,125	6,982	22,774
Number of Observations	1,294	656	735	221

Further, the highest proportion of males in the private sector is employed in agriculture and fishing as well as construction and manufacturing industries in both urban and rural areas. About 35 percent of employed females are working as housemaids in private households followed by 17 percent working in the private hotel industry in urban areas. In the rural sector, 40 percent of employed females are working in the agriculture and fishing industry followed by social services.

According to the survey, the Ugandan labor market is also characterized by segregation into occupation of employment by economic sector. Over 50 percent of males and females in the public sector in both rural and urban areas are professionals or associate professionals and clerks. In contrast, only about 15 percent of males and females employed in the private sector are professionals or associate professionals.

Since information on hours of work is available, wage per hour is used to calculate the gender wage differential. Persons in the urban areas work more than those in the rural area. Men work longer hours than women in both rural and urban areas. It is also important to note that males work about three hours longer than females on average. Wages are higher in urban areas compared to rural areas. Average wages are relatively higher in the public sector in both urban and rural areas.

TABLE 3
EMPLOYMENT, WAGES, HOURS WORKED, AND WAGE RATIOS BY AREA, SECTOR, AND
GENDER (UNWEIGHTED DATA, AGE 14-80)

	Urban		Rural	
	Male	Female	Male	Female
Total Number of Persons	4,927	5,787	7,245	7,772
Number of Persons Employed for Wages	1,294	656	735	221
Public Sector	333	149	179	61
Private Sector	961	507	556	160
Ratio of Employed for Wages to Total Number of Persons	26%	11%	10%	3%
Average Weekly Wages (Uganda Shillings)	51,285	36,145	29,826	20,262
Public Sector	84,974	91,477	50,702	46,272
Private Sector	39,612	19,884	46,272	23,105
Average Hourly Wages (Uganda Shillings)	1,157	844	712	475
Public Sector	2,041	2,116	1,178	1,014
Private Sector	850	471	562	270
Average Weekly Hours Worked	49.54	50.09	44.47	41.86
Public Sector	49.05	45.66	47.35	45.54
Private Sector	49.72	51.40	43.54	40.46
Wage Ratio unadjusted for hours	70%		68%	
Public Sector	108%		91%	
Private Sector	50%		50%	
Wage Ratio adjusted for hours	73%		67%	
Public Sector	104%		86%	
Private Sector	55%		48%	

IV. Results

This section of the paper presents and discusses the results of our empirical investigation. First, we present the wage earnings equation estimates and later we discuss the gender wage gap decomposition results.

IV.1. The Earnings Equation Results

The estimated wage equation takes the form given in equation (12) below. We run separate wage regressions for males, females, and pooled as well as for urban and rural areas. However, as mentioned earlier, we postulate that wage formation processes differ

for rural areas and urban areas and therefore the wage equations are slightly different. In addition, due to the small number of respondents in certain industries and occupations in rural areas, we use much broader industry and occupational categories compared to those used in the urban areas wage equation estimation.⁸

$$\begin{aligned} \text{Log}(\text{Wage} / \text{hour}) = & \beta_0 + \beta_1 \text{Public} + \beta_2 \text{Tenure} + \beta_3 \text{Married} + \beta_4 \text{Age} + \beta_5 \text{AgeSQ} + \\ & \beta_6 \text{regional_dummies} + \beta_7 \text{Education_dummies} + \beta_8 \text{Industry_dummies} + \quad (12) \\ & \beta_9 \text{Occupational_dummies} + \text{error_term} \end{aligned}$$

As shown in Tables 4 & 5, employment in the public sector has a positive and significant impact on female hourly earnings and has no significant effect on male earnings relative to private sector employment in both rural and urban areas. However, this causal relationship is not significant in urban areas. Other significant and positive factors in the urban area include tenure at the last job, being married, and age. It is interesting to note that marriage has a positive and significant effect on wages for both men and women in urban areas. This is contrary to the findings of Appleton et al (1999) who, using 1992-1993 data, find that while men get a wage premium for being married, women are penalized for it. At the same time, years of tenure at the last job do not have a significant impact on wages of either males or females in the rural area. Perhaps this is due to the nature of jobs in the rural areas, which are mostly menial, where years of tenure do not necessarily add much to productivity.

Higher levels of education have very significant and positive effect on earnings of both men and women. In the urban areas, other things equal, males with university education earn 161 percent and females 197 percent more on average than their

⁸ A summary description of the variables in the wage equation is presented in Appendix 1.

counterparts with no education. In the rural areas the corresponding estimates are 112 and 144 percent. Since the proportion of people who are well educated is relatively low

TABLE 4
WAGE EQUATION ESTIMATES WITH AND WITHOUT CONTROLLING FOR SELECTION FOR URBAN AREA

	OLS Estimates			Estimates Using Heckman Two-Step Procedure		
	Male	Female	Pooled	Male	Female	Pooled
Government Temporary	-0.130 (0.370)	0.115 (0.591)	-0.024 (0.838)	-0.125 (0.377)	0.119 (0.567)	-0.023 (0.844)
Government Permanent	-0.134 (0.167)	0.216 (0.123)	-0.024 (0.761)	-0.137 (0.154)	0.222 (0.105)	-0.029 (0.713)
Private Temporary	-0.098 (0.212)	-0.216* (0.062)	-0.140** (0.030)	-0.081 (0.289)	-0.214* (0.057)	-0.129** (0.043)
Tenure	0.023*** (0.000)	0.013 (0.138)	0.023*** (0.000)	0.025*** (0.000)	0.0112 (0.164)	0.023*** (0.000)
Married	0.149** (0.021)	0.191** (0.025)	0.185*** (0.000)	0.066 (0.301)	0.215** (0.010)	0.153*** (0.002)
Age	0.044*** (0.001)	0.029 (0.118)	0.039*** (0.000)	0.034** (0.012)	0.028 (0.121)	0.034*** (0.002)
Age Sq	-0.000*** (0.002)	-0.000 (0.341)	-0.000*** (0.001)	-0.000** (0.012)	-0.000 (0.425)	-0.000*** (0.007)
Primary	0.068 (0.399)	0.132 (0.268)	0.093 (0.158)	0.022 (0.791)	0.135 (0.246)	0.059 (0.371)
Some Secondary	0.297*** (0.000)	0.278** (0.042)	0.307*** (0.000)	0.337*** (0.000)	0.389*** (0.006)	0.358*** (0.000)
O-Levels	0.252*** (0.008)	0.449*** (0.008)	0.288*** (0.000)	0.271*** (0.005)	0.456*** (0.006)	0.273*** (0.001)
A-Levels	0.569*** (0.000)	0.428 (0.149)	0.569*** (0.000)	0.601*** (0.000)	0.492* (0.090)	0.569*** (0.000)
Vocational Primary	0.455*** (0.000)	0.993*** (0.000)	0.623*** (0.000)	0.196 (0.103)	0.706*** (0.001)	0.352*** (0.001)
Post Secondary	0.836*** (0.000)	1.196*** (0.000)	0.926*** (0.000)	0.479*** (0.000)	0.921*** (0.000)	0.618*** (0.000)
University	1.607*** (0.000)	1.969*** (0.000)	1.693*** (0.000)	1.221*** (0.000)	1.648*** (0.000)	1.343*** (0.000)
Constant	4.8090*** (0.000)	4.774* (0.000)	4.795*** (0.000)	5.798*** (0.000)	5.259*** (0.000)	5.518*** (0.000)
# Obs	1,292	656	1,948	1,292	656	1,948
R-SQ	43.63%	59.73%	50.74%	N/A	N/A	N/A
Lambda	N/A	N/A	N/A	-0.599	-0.301	-0.408

Note: *** means significant at 99% level; ** means significant at 95% level, * means significant at 90% level

Note: Regional, Industry, and Occupation Variables are included as controls in all regressions

TABLE 5

**WAGE EQUATION ESTIMATES WITH AND WITHOUT CONTROLLING FOR SELECTION
FOR RURAL AREA**

	OLS Estimates			Estimates Using Heckman Two-Step Procedure		
	Male	Female	Pooled	Male	Female	Pooled
Government Temporary	-0.259 (0.169)	0.028 (0.930)	-0.131 (0.418)	-0.221 (0.233)	0.021 (0.943)	-0.119 (0.458)
Government Permanent	-0.020 (0.892)	0.470** (0.025)	0.168 (0.177)	-0.028 (0.849)	0.462** (0.022)	0.171 (0.168)
Private Temporary	-0.157 (0.200)	-0.535** (0.013)	-0.220** (0.038)	-0.148 (0.219)	-0.549*** (0.007)	-0.216** (0.038)
Tenure	0.007 (0.227)	-0.009 (0.405)	0.004 (0.377)	0.007 (0.165)	-0.008 (0.430)	0.005 (0.351)
Married	0.206** (0.015)	0.224* (0.052)	0.244*** (0.000)	0.252*** (0.003)	0.232** (0.035)	0.223*** (0.001)
Age	0.041*** (0.007)	0.005 (0.855)	0.035*** (0.007)	0.041*** (0.006)	0.005 (0.837)	0.034*** (0.007)
Age Sq	-0.000** (0.028)	0.0000 (0.829)	-0.000** (0.044)	-0.000** (0.034)	0.000 (0.773)	-0.000** (0.070)
Primary	0.081 (0.432)	0.417 (0.139)	0.160* (0.086)	0.097 (0.348)	0.505* (0.068)	0.158* (0.091)
Some Secondary	0.082 (0.513)	0.106 (0.711)	0.109 (0.340)	0.115 (0.366)	0.138 (0.613)	0.105 (0.354)
O-Levels	0.315** (0.041)	0.562** (0.034)	0.395*** (0.002)	0.199 (0.214)	0.356 (0.234)	0.207 (0.141)
Vocational Primary	0.714*** (0.000)	0.604** (0.039)	0.697*** (0.000)	0.341* (0.086)	0.187 (0.662)	0.250 (0.170)
Post Secondary	0.741*** (0.000)	0.814*** (0.008)	0.777*** (0.000)	0.189 (0.465)	0.254 (0.631)	0.152 (0.513)
University	1.120*** (0.000)	1.435*** (0.004)	1.216*** (0.000)	0.72*** (0.002)	1.033** (0.070)	0.748*** (0.001)
Private Households	-0.476* (0.055)	-0.906*** (0.000)	-0.661*** (0.000)	-0.432* (0.075)	-0.885*** (0.000)	-0.631 (0.000)
Professional Industry	0.181** (0.033)	-0.265* (0.082)	0.081 (0.268)	0.181** (0.029)	-0.248* (0.085)	0.079 (0.265)
Professional Occupation	0.184 (0.199)	-0.140 (0.598)	0.028 (0.820)	0.189 (0.179)	-0.172 (0.495)	0.026 (0.826)
Constant	4.412 (0.000)	5.506*** (0.000)	4.581*** (0.000)	5.151*** (0.000)	6.197*** (0.000)	5.423*** (0.000)
# Obs	735	221	956	735	221	956
R-SQ	34.73%	46.40%	36.80%	N/A	N/A	N/A
Lambda	N/A	N/A	N/A	-0.472	-0.321	-0.441

Note: *** means significant at 99% level; ** means significant at 95% level, * means significant at 90% level

Note: Regional Variables are included as controls in all regressions

in Uganda, it is possibly the undersupply of educated persons that results in such wage premium for them. Returns to education are relatively lower in rural areas perhaps due to less demand for highly educated persons.

As mentioned earlier in the paper, we use the standard Heckman two-step correction procedure to control for selection into the wage employment. Explanatory variables in the selection equation include the number of young children in the household, ratio of ill persons to the number of household members, whether a person is the household head, whether the head of household has migrated to the current area of residence, non-labor income, age, dummy variables for the individual's level of education. For the rural selection equation, we also include earnings from crop farming and value of family assets. A summary description of the variables used in the selection equation is provided in Appendix 2. The estimated results of the wage equations controlling for selection into wage employment are also reported in Table 4 & 5 above.

Controlling for selection in urban areas, the estimated marriage wage premium increases for women and decreases for men. Further, once selection into the labor market is controlled for, returns to higher levels of education including university degrees, post secondary education, and vocational decrease significantly in both rural and urban areas. In general, as expected, returns to higher education decrease when selection into wage employment is controlled for. Without controlling for selection, estimates of returns to higher education may be capturing some of the factors determining the probability of participating in wage employment. In contrast, returns to lower levels of education (primary and some secondary) increase in the rural areas.

IV.2. Gender Wage Gap Decomposition Results

Adjusted for hours worked, the observed female-male average wage ratio is 0.73 and 0.67 in urban and rural areas respectively.⁹ The magnitude of the wage gap is consistent with that in central and eastern European economies. In fact, according to the Global Gender Gap Report (2006), Uganda ranks 47 overall and 28 based on economic participation. This compares with Romania ranked at 46, Ukraine at 48 and the Russian Federation at 49.

The gender wage ratios are different when computed by economic sector (public versus private). In the public sector, the female-male average wage ratio is 1.04 and 0.86 in urban and rural areas respectively. Corresponding ratios for the private sector are 0.55 and 0.48. One plausible explanation for these differences could be the differences in labor legislation enforcement in the public and private sectors. Further, there may be differences in wage-setting mechanisms between private and public sectors. Public sector wages are set based on established salary grids as opposed to the private sector where wages are negotiated between the employer and employee. In addition, the data indicates that a bigger proportion of females in the public sector have either vocational, postsecondary, or university education relative to males in the same sector (77 percent versus 59 percent). This, together with the other reasons discussed above might explain the differences in female-male average wage ratios in the public and private sector.

The data also indicates that females constitute a bigger proportion of employees in less paying industries such as private household workers (maids, nannies, etc). It is however unclear whether these industries are less paying because they predominantly employ females or females are mostly employed in these low-paying industries because

⁹ See Table 3 for details.

men occupy the well-paying industries. A summary of this phenomenon is presented in Table 6 below.

TABLE 6
AVERAGE HOURLY WAGE AND PROPORTION OF EMPLOYED
MALES AND FEMALES BY INDUSTRY

	Average Hourly Wage (Uganda Shillings)	Proportion of Males	Proportion of Females
Extraterritorial Bodies	6,654	75%	25%
Financial	2,562	78%	22%
Social Services	1,542	62%	38%
Public Administration	1,333	82%	18%
Construction	862	94%	6%
Transportation	556	97%	3%
Sale	504	77%	23%
Manufacturing	468	81%	19%
Hotel	427	21%	79%
Agriculture	346	80%	20%
Private Households	266	25%	75%

In Table 7, we present the results of the gender wage gap decomposition for rural and urban areas where different wage structures are assumed to be the non-discriminatory wage structures. We report the estimated results with selection into the wage sector as well as without selection.

There is a clear presence of the “index number” problem. With the female wage structure assumed to be the nondiscriminatory structure, female workers appear to have more favorable labor market characteristics. A relatively bigger portion of the wage gap explained by differences in treatment based on gender compared to when the male or pooled wage structures are assumed to be nondiscriminatory. The opposite is true when

TABLE 7
OAXACA DECOMPOSITION RESULTS

Urban Sector					
	Gender Wage Differential	Difference in Characteristics	Difference in Treatment	Gender Offer Differential	
Non-Discriminatory Wage Structure - Female; w/o selection	0.562	0.299 (53%)	0.263 (47%)		
Non-Discriminatory Wage Structure - Female; with selection	0.562	0.256 (32%)	0.536 (68%)	0.793	
Non-Discriminatory Wage Structure - Male; w/o selection	0.562	0.433 (79%)	0.129 (23%)		
Non-Discriminatory Wage Structure - Male; with selection	0.562	0.469 (59%)	0.323 (41%)	0.793	
	Gender Wage Differential	Difference in Characteristics	Male Advantage	Female Disadvantage	Gender Offer Differential
Non-Discriminatory Wage Structure - Pooled; w/o selection	0.562	0.441 (78%)	0.041 (7%)	0.080 (14%)	
Non-Discriminatory Wage Structure - Pooled; with selection	0.562	0.425 (54%)	0.193 (24%)	0.173 (22%)	0.793
Rural Sector					
	Gender Wage Differential	Difference in Characteristics	Difference in Treatment	Gender Offer Differential	
Non-Discriminatory Wage Structure - Female; w/o selection	0.213	0.038 (18%)	0.176 (82%)		
Non-Discriminatory Wage Structure - Female; with selection	0.213	0.071 (22%)	0.258 (78%)	0.330	
Non-Discriminatory Wage Structure - Male; w/o selection	0.213	0.079 (37%)	0.135 (63%)		
Non-Discriminatory Wage Structure - Male; with selection	0.213	0.129 (39%)	0.200 (61%)	0.330	
	Gender Wage Differential	Difference in Characteristics	Male Advantage	Female Disadvantage	Gender Offer Differential
Non-Discriminatory Wage Structure - Pooled; w/o selection	0.213	0.070 (33%)	0.033 (16%)	0.110 (52%)	
Non-Discriminatory Wage Structure - Pooled; with selection	0.213	0.103 (31%)	0.003 (1%)	0.223 (68%)	0.330

the male wage structure is assumed to be the nondiscriminatory wage structure. When the pooled wage structure is used as the non-discriminatory structure, the estimates of the wage gap decomposition are closer to estimates with the male structure as the nondiscriminatory structure.

Without accounting for self selection into wage employment and with the female wage structure as the nondiscriminatory wage structure, gender differences in characteristics account for 53 percent of the gender wage differential in urban areas. Using the male wage structure as the nondiscriminatory structure, differences in labor market characteristics explain 79 percent of the gender wage gap. The corresponding estimate when the pooled wage structure is used as the nondiscriminatory is 78 percent. Under the pooled wage structure, 7 percent of the gender wage gap in urban labor markets is due to nepotism toward males (male advantage) while 14 percent is due to discrimination against females (female disadvantage).

In rural labor markets however, differences in labor market characteristics explain a smaller proportion of the gender wage gap. Without controlling for self-selection into wage employment, characteristics explain 18 percent, 37 percent, and 33 percent of the gender wage gap when the female, male, and pooled wage structures are used as the nondiscriminatory wages structures respectively. With the pooled structure as the nondiscriminatory wage structure, 52 percent of the gender wage gap is explained by discrimination against females (female disadvantage) and only 16 percent is explained by the male advantage (nepotism toward males).

As noted earlier, there is a distinction between the wage offered and the observed wage. Without controlling for selection, the gender wage gap decomposition is based on

the observed wage rather than the wage offer. This might not be a true reflection of the gender wage gap if indeed individuals self-select into wage employment. In other words, we do not observe wage offers for individuals who declined employment because the wage offer is less than their reservation wages. As such, in addition to the results discussed above, we present results based on the Heckman two-step sample selection correction procedure.

In Table 7, the wage offer gap is 0.793 (0.562 – (-0.231)) and 0.329 (0.213 – (-0.116)) for urban and rural areas respectively.¹⁰ Controlling for selection, only 32 percent of the gender wage gap in urban areas is explained by gender differences in labor market characteristics when the female wage structure is assumed to be the nondiscriminatory structure. When the male structure is assumed to be the nondiscriminatory structure, about 59 percent of the gender wage gap is attributed to differences in characteristics. Using the pooled structure as the nondiscriminatory structure, 54 percent of the gender wage gap in urban areas is attributed to gender differences in labor market characteristics. About 24 percent of the gender wage gap is attributed to nepotism toward males (male advantage) while 22 percent is attributed to discrimination against females (female disadvantage).

In rural areas, controlling for self-selection into wage employment, 22 percent of the gender wage gap is attributed to gender differences in productive characteristics when the female wage structure is assumed to be nondiscriminatory. The corresponding percentage is 39 when the male structure is assumed to be nondiscriminatory. With the pooled structure as the nondiscriminatory structure, 31 percent of the gender wage gap is

¹⁰ The gender wage offer gap is given by $(Ln\bar{W}_M - Ln\bar{W}_F) - (\bar{c}_M \hat{\lambda}_M - \bar{c}_F \hat{\lambda}_F)$.

attributed to gender differences in productive characteristics. About 1 percent of the wage gap is due to nepotism toward males (male advantage) while about 68 percent of the wage gap is attributed to discrimination against females (female disadvantage).

V. Conclusion

The goal of this paper was to analyze the gender wage gap in Uganda. We use a survey data set obtained from the labor force module of the Uganda National Household survey (2002/03). The gender wage gap analysis is conducted using standard decomposition techniques based on Oaxaca (1973) while accounting for selection into wage employment. The analysis splits the sample into sub-samples by gender and by type of area (rural versus urban) in order to facilitate the decomposition of the gender wage gap, but also to account for potential differences in wage formation processes between urban and rural areas.

The earnings equation estimates indicate that, in both rural and urban areas, demographic characteristics such as age and being married are positively associated with wage earnings. Tenure at the current employment is also positively associated with wage earnings, but statistically insignificant in rural areas. In both urban and rural areas, wage earnings are lower for temporary employees in the private sector relative to permanent employees in the private sector (the excluded category). However, this estimate is statistically insignificant for male employees.

We also note that, in rural areas, female permanent employees in the public (government) sector earn significantly more than their counterparts in the private sector other things equal. As expected, our estimates suggest high returns to higher education.

Returns to education are higher in urban areas relative to rural areas. This is perhaps due to higher demand for educated individuals in urban areas.

The decomposition of the gender wage gap indicates substantial “treatment effects” in both rural and urban areas. Without controlling for selection, the portion of the gender wage gap in urban areas attributed to gender differences in treatment (unexplained portion) ranges from 22 percent to 47 percent. Using a pooled wage structure, we find that 14 percent of the unexplained gender wage gap is due to nepotism toward males. Controlling for self-selection into wage employment, the unexplained portion of the gender wage gap in urban areas ranges from 41 percent to 68 percent. We also find that 24 percent of the gender wage gap is due to nepotism toward males while 22 percent is due to discrimination against females.

In rural areas the unexplained portion of the gender wage gap is much larger relative to urban areas. Without controlling for self-selection into wage employment, the unexplained portion of the wage gap ranges from 63 percent to 82 percent. Using a pooled wage structure as the nondiscriminatory structure, 52 percent of the unexplained portion is attributed to discrimination against females while only 16 percent is due to nepotism toward males. When selection into wage employment is accounted for, the unexplained portion of the gender wage gap ranges from 61 percent to 78 percent. With the pooled wage structure as the nondiscriminatory wage structure (and controlling for selection), 68 percent of the gender wage gap in rural areas is attributed to discrimination against females (female disadvantage) while only 1 percent is due to nepotism toward males.

Overall, our results indicate a substantial portion of the gender gap due to gender employer-driven differences in treatment. This is more so in rural areas. This calls for a strong action by government and other capable stakeholders such as civil society organizations (CSOs) against discrimination and/or nepotism. Laws against discrimination should be clear and enforceable. Awareness campaigns through CSOs may help raise awareness especially in rural areas regarding rights of workers.

Further, in urban areas, a substantial portion of the gender wage differential is attributed to differences in productive characteristics. Females tend to have inferior productive characteristics relative to males and hence lower average wages all else equal. To correct this gender inequality, more effort and resources need to be devoted to educating the girl child. In 1996, the government of Uganda introduced universal free primary education (UPE), which has provided more access to education to disadvantaged groups such as the disabled and the poor. Before the introduction of UPE, there was anecdotal evidence suggesting that parents preferred to educate the boy child where financial resources were insufficient to educate both girls and boys in the family. This was more prevalent in rural areas where the majority of people live below the poverty line. Equal opportunity for females and males regarding on-job training is equally important.

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Appendix 1: Construction of Variables Used in Wage Equation

Variable	Label
Variables Used in Urban and Rural Wage Equations	
GOV_TEMP	1 if respondent is employed in public sector/temporary job
GOV_PERM	1 if respondent is employed in public sector/permanent job
PRIV_TEMP	1 if respondent is employed in private sector/temporary job
TENURE	Years of tenure at the last job
MARRIED	1 if a respondent is married
AGE	Age
AGESQ	Age squared
NORTHERN	1 if a respondent lives in the northern region
WESTERN	1 if a respondent lives in the western region
CENTRAL	1 if a respondent lives in the central region
PRIMARY	1 if a respondent has primary education
SOME_SEC	1 if a respondent has some secondary education
OLEVELS	1 if a respondent has O-levels education
ALEVELS	1 if a respondent has A-levels education
VOCAT_PRIM	1 if a respondent has vocational education
POST_SEC	1 if a respondent has post secondary education
UNIVERSITY	1 if a respondent has university education
Variables Used in Urban Wage Equation Only	
CONSTRUCTION	1 if a respondent is employed in construction industry
MANUFACTURING	1 if a respondent is employed in manufacturing industry
SALE	1 if a respondent is employed in sales industry
HOTELS	1 if a respondent is employed in hotels industry
TRANSPORTATION	1 if a respondent is employed in transportation industry
FINANCIAL	1 if a respondent is employed in financial industry
PUBLIC ADMINISTRATION	1 if a respondent is employed in public administration industry
SOCIAL SERVICES	1 if a respondent is employed in social services industry
PRIVATE HOUSEHOLD	1 if a respondent is employed in private household
EXTERORG_BODIES	1 if a respondent is employed in extraterritorial body industry
LEGISLATIVE	1 if a respondent has legislative occupation
PROFESSIONAL	1 if a respondent has professional occupation
SHOPWORKER	1 if a respondent's occupation is a shop worker
AGRICULTURAL WORKER	1 if a respondent's occupation is agricultural worker
CRAFT	1 if a respondent's occupation is craft
BLUESKILL	1 if a respondent's occupation is blue-skill
BASIC	1 if a respondent has basic occupation
Variables Used in Rural Wage Equation Only	
IND_PRIV_HH	1 if a respondent employed in private households
IND_PROFESS	1 if a person is employed in an industry other than agriculture or private households
OCCUP_PROF	1 if a respondent is employed in professional occupations such as legislative or professional

Appendix 2: Construction of Variables Used in the Selection Equation

Variable	Label
SICK_RATIO	Ration of Sick Persons in the Household
OLD_RATIO	Ration of Old Persons in the Household
HH_HEAD	1 if a respondent is a Head of the Household
HH_MIGR	1 if a respondent has migrated
NL_INCOME	Non-Labor Income (10,000 of Uganda Shillings)
AGE	Age (Years)
PRIMARY	1 if a respondent has primary education
SOME_SECONDARY	1 if a respondent has some secondary education
OLEVELS	1 if a respondent has O-levels education
ALEVELS	1 if a respondent has A-levels education
VOCAT_PRIMARY	1 if a respondent has vocational primary education
POST_SECONDARY	1 if a respondent has post secondary education
UNIVERSITY	1 if a respondent has university education
CRPFARM_INC*	Household income from crop farming (10,000 of Uganda Shillings)
ENTER_VAL*	Value of household's enterprise/small business (10,000 of Uganda Shillings)
LAND_VAL*	Value of household's land (10,000 of Uganda Shillings)
ALT_ACTY*	1 if a respondent is also engaged in alternative labor market activity

* Variable was used in the rural selection equation only