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*The Role of Education and Training in  
Reducing Poverty and Unemployment  
in Kenya*

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# Background

- Unemployment and poverty are major socio-economic challenges in Kenya and globally
  - A key policy response by the GOK to tackle unemployment & poverty has been the promotion of greater access to education & training
  - Higher levels of education & training are expected to reduce unemployment, under-employment, and poverty
  - Some evidence, mainly in developing countries, suggest that higher education is not necessarily linked to lower levels of unemployment
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# Background...

- To this end, this study attempts to examine the effects of education on unemployment, underemployment & poverty in Kenya

# Objectives of the Study

- This study examines how education and training affects unemployment & poverty among Kenyans. The specific objectives are:
  - To examine the effects of education and training on unemployment & under-employment in Kenya
  - To examine the effects of education and training on incidence of poverty in Kenya

## Unemployment and Poverty Trends

- Estimates suggest that open unemployment has generally been rising over time
- Unemployment is higher among the youth (aged 15-29)
- Relative to 1998/99, 2005/06 survey data suggests that underemployment rose – from 5% of the employed to 21% respectively

## Table 1: Unemployment Rates in Kenya (%)

Age	1978*	1986*	1998/99*	1998/99**	2005/06**
15 – 19	26.6	36.2	47.0	24.3	25.0
20 – 24	18.5	29.2	47.3	27.1	24.2
25 – 29	4.8	8.6	25.1	15.5	15.7
30 – 34	2.0	2.7	14.3	10.8	7.5
35 – 39	1.8	2.1	12.0	8.4	7.6
40 – 44	0.7	0.7	11.2	9.1	6.4
45 – 49	1.1	2.0	14.7	8.2	5.7
50 – 54	1.4	0.9	18.9	8.7	4.7
55 – 59	1.5	4.1	40.6	13.5	4.0
60 – 64	3.2	---	45.2	11.7	2.5
<b>Urban</b>	<b>7.0</b>	<b>16.0</b>	<b>25.1</b>	<b>25.1</b>	<b>19.9</b>
<b>Total (rural &amp; urban)</b>	<b>6.7</b>	<b>9.7</b>	<b>14.6</b>	<b>14.6</b>	<b>12.7</b>

*\*Urban unemployment rates; \*\*Total unemployment rates*

## Unemployment and Poverty Trends...

- From 1963-1990, poverty may have generally declined given the strong growth record
- The Welfare Monitoring Survey (WMS) data for 1992, 1994, & 1997 suggest an increase in the incidence of poverty in the 1990s
- In 2000, it was estimated that about 57% of the population was poor
- In 2005/06 the incidence of poverty reduced (relative to 2000) to about 46%



## Table 2: Poverty Incidence over Time

Author	Reference Year	Data Source	Poverty Incidence
Mukui (1993)	1992	1992 WMSI	Rural: 46% for 1992 Urban: 29.3 % for 1992
Republic of Kenya (1998)	1994	1994 WMS I	46.8% rural population 29% urban population <b>40% national estimates</b>
Mwabu <i>et al.</i> (2000)	1994	1994 WMS II	39.7% rural population 28.9% urban population <b>38.8% national population</b>
Republic of Kenya (2000) results for WMS III	1997	1997 WMS III	52.9% rural population 49.2% urban population <b>52.3% national population</b>
Mwabu <i>et al.</i> (2002)	2000	Predictions based on GDP and Gini coefficients and poverty estimates for 1997 using WMS III	59.6% rural population 51.5% urban population <b>56.8% national population</b>
KNBS (2007)	2005/2006	KIHBS	49.1% rural population 33.7% urban population <b>45.9% national population</b>

Sources: Mwabu, (2000) and Kimalu *et al.*, (2002).

# Overview of the literature

## Income poverty and education

- Empirically, income poverty is found to decline consistently with increasing levels of education in developing countries (Tilak, 1994)
- In Kenya, poverty has been found to decrease as the level of education attainment increases (Geda et al, 2001; Oiro, et al 2003)
- Bigsten and Shimeles (2003) using a logit model, & WMS III data, conclude that educational attainment of the household head is the most important factor associated with less poverty

# Overview of the literature...

## Unemployment and education

- Generally, in developed countries, a number of studies find the expected inverse relationship between unemployment and education
- Many developing country studies do not find expected inverse relationship between unemployment and education (Tunisia: Rama, 1998; Ethiopia: Serneels, 2004; Cote d'Ivoire, Rwanda, Senegal: World Bank, 2006; West Africa: Kuepie, Norman and Roubaud, 2006;...)

# Models, Data and Variables

- The methodological approach used borrows from Bigsten and Shimeles (2003), (Kuepie *et al* (2006) and Manda, et al (2002)
- Two models are estimated in examining:
  - (i) Link between poverty & education – An *ordered logit model* is used to estimate the *probability of being poor given one's education attainment*, controlling for other factors (age, education, employment status,...)
  - (i) Link between unemployment and education – A *multinomial logit model* is used to estimate the *probability of being underemployed, fully employed or openly unemployed given individual's education/training attainment* controlling for other variables (age, education, gender,...)

# Models, Data and Variables...

Link between poverty & education

Link between unemployment and education

*We specify a model of the form:*  $y_i^* = x_i\beta + \varepsilon_i$

$y_i^*$  = Dependent dummy variable

$\beta_i$  = Vector of unknown parameters

$x_i$  = Vector of observed explanatory variables

$y_i^*$  = Takes values 0 if non - poor; 1 if moderately poor; and 2 if extremely poor

We estimate an ordered logit

$$\text{Pr ob}(y = 0) = \phi(-\beta'x)$$

$$\text{prob}(y = 1) = \phi(\mu_1 - \beta'x) - \phi(-\beta'x)$$

$$\text{prob}(y = 2) = 1 - \phi(\beta'x + \alpha)$$

$y_i^*$  = Takes values 1 (underemployed), 2 (fully employed) and 3 (openly unemployed)

We transform  $\beta x$  into a response probability function using a probit model of the form :

$$\text{prob}(y_i = 1 | x) = P(y = 1 | x_1, x_2, \dots, x_k)$$

# Models, Data and Variables...

- The main data source for this investigation was the Kenya Integrated Household Budget (KIHBS) 2005/06 survey data
- KIHBS contains information on: incomes and expenditures, education of all household members, labour supply, employment status, asset ownership, and land holdings
- Study sample constituted the labour force - individuals aged 15-64 years
- The sample size consisted of 22,792 observations (18.4 percent unemployed, 63.6 percent fully employed and 17.9 percent openly underemployed)

## Table 3: summary statistics and variables used in the analysis

Variable	Observations	Mean	Standard Deviation
Secondary education	22,499		
University education	22,499		
Technical Training	22,488		
Consumption per adult equivalent (Ksh)	28,411	3,289	5632
Years of Education	22,499	8.451	3.313
Age	28,533	33.285	12.440
Gender	28,533		
Experience	21,577	9.600	3.486
Experience squared	21,577	104.308	52.153
Location	28,411		
Household size	28,411	6	3
Monthly Wages (Ksh)	21,577	4,269	20,439
Monthly Public earnings (Ksh)	1,283	20,024	32,095
Monthly Private earnings (Ksh)	1,094	24,021	62,432
Monthly Informal earnings	10,653	1,882	7,274

## Empirical Results: Table 4 - Marginal effects ordered logit of education and training on poverty status

<i>Variables</i>	Marginal effects after ordered logit -dy/dx (z values in parentheses)		
	Extremely poor (2)	Moderately poor (1)	Non-poor (0)
<i>Individual Characteristics</i>			
Secondary Education	-0.078* (-10.48)	0.019* (12.25)	0.0597* (9.70)
University Education	-0.282* (-20.81)	-0.079* (-4.34)	0.361* (11.47)
Technical Training	-0.134* (-17.99)	0.027* (18.81)	0.108* (15.71)
Age in years	0.0012* (3.60)	-0.0004* (-3.58)	-0.0085* (-3.60)
Gender of household head	-0.030* (-4.66)	0.009* (4.62)	0.021* (4.65)
Marital Status	0.052* (6.33)	-0.016* (-6.20)	-0.036* (-6.33)
Location	-0.174* (-21.13)	0.595* (17.30)	-0.114* (22.02)
<i>Household Characteristics</i>			
Household Size	0.069* (51.38)	-0.0208* (-26.70)	0.048* (-51.92)
Employment in agriculture	0.024* (2.99)	-0.007* (-2.93)	-0.016* (-3.01)
Trade/business	-0.030* (-3.24)	0.0083* (3.58)	-0.022* (3.12)*
Wage Employment	-0.040* (-5.29)	0.011* (5.69)*	0.029* (5.11)*
<b>Provincial Dummies (Nairobi Province = 0)</b>			
Central	0.117* (6.99)	-0.0451* (-5.82)	-0.0715* (-7.94)
Coast	0.156* (8.84)	-0.066* (-7.10)	0.0902* (-10.61)
Eastern	0.175* (10.91)	-0.071* (-8.89)	-0.104* (-12.64)
North Eastern	0.258* (7.71)	-0.131* (-5.98)	-0.127* (-10.84)
Nyanza	0.201* (12.78)	-0.085* (-10.25)	-0.116* (-15.13)
Rift Valley	0.186* (12.12)	-0.073* (-10.00)	-0.113* (-13.67)
Western	0.229* (14.12)	-0.1032* (11.13)	-0.126* (-17.45)



## Empirical Results: Table 5 - Marginal effects of education and training on unemployment (open and under unemployment)

<i>Variables</i>	<b>Underemployed (1)</b> Marginal effects - $dy/dx$ (Standard errors in parentheses)	<b>Open Unemployment (3)</b> Marginal effects - $dy/dx$ (Standard errors in parentheses)
<i>Individual Characteristics</i>		
Secondary Education	-0.0071 (0.007)	0.036* (0.0065)
University Education	-0.0343* (0.008)	-0.0076 (0.352)
Technical Training	0.0303 (0.0355)	-0.0433 ** (0.0199)
Age in years	-0.0109 (0.0017)*	-0.190 (0.0017)*
Age in years squared	0.00016 (0.00002)*	0.00013* (0.00002)
Gender	0.0539 (0.006)*	0.085* (0.0052)
Marital Status	-0.0125 (0.0085)	0.0139** (0.0065)
Physical handicap	-0.028 (0.31)	0.105* (0.037)
Location	0.0915 (0.007)*	-0.1074* (0.00696)
<i>Household Characteristics</i>		
Middle Economic Status	-0.0086 (0.0072)	-0.029* (0.00598)
High Economic Status	-0.051 (0.0085)*	-0.063 (0.007)*
Household Size	0.0017 (0.0012)	0.0049* (0.00084)
<i>Provincial Dummies (Province=1)</i>		
Central Province	0.0026 (0.0209)	-0.0468* (0.0089)
Coast Province	-0.009 (0.0215)	0.029** (0.0136)
Eastern Province	0.321 (0.0219)	-0.0386* (0.126)
North Eastern Province	-0.0119 (0.044)	0.254* (0.044)
Nyanza Province	0.136* (0.027)	-0.0611* (0.008)
Rift Valley Province	0.0222 (0.0209)	-0.035* (0.0093)
Western Province	0.183* (0.029)	-0.0384* (0.0093)
No of Observation	18,020	18,020

# Results and Conclusions

- Attainment of only primary education is associated with the likelihood of being poor. Specifically:
  - Secondary education, technical training, and university education reduce the probability of a household member being extremely poor relative to attaining only primary education
  - Individuals with only primary education are more likely to be moderately poor than those with university education

## **Relative to attainment of only primary education:**

- Individuals with secondary education exhibit higher chance of being openly unemployed (underemployment rates not sig. different).  
Possibility of avoiding low paying jobs/queuing for better jobs
- Both technical training and university education reduces the risk of being openly unemployed
- University education significantly reduces the risk of being underemployed

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## Some recommendations

- Government efforts need to be stepped up to increase access to not only primary education but also secondary and tertiary education
- Investments in human capital may have restricted impacts if jobs perceived to be of good quality are not created (e.g. secondary graduates may be queuing for better jobs)
- Experience from other countries suggest the need to not only create more jobs but more jobs that are perceived as good jobs