YOUTH TIME ALLOCATION IN KENYA: EDUCATION AND WORK

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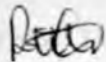
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Declaration

This research paper is my original work and has not been presented for the award of a degree in any other university.

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This research paper has been submitted for examination with our approval as university supervisors.

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Abstract

This paper examines the factors that determine youth participation in either work or schooling or work and schooling or none of the two activities in Kenya. A multinomial logit model was specified and then estimated using data drawn from the 2005/2006 Kenya Integrated Household Budget Survey. The factors examined include youth's characteristics, parental and household characteristics and area characteristics. It was found that area of residence, gender, marital status, household headship and parental education influence the youth's participation in education and work. Young men are more likely to participate than young women in education and work related opportunities. Married youth are more likely to be working and less likely to be in school or combining both school and work. Parental education increases the chances of youth schooling and reduces the probability of youths working. Results from different regions show that the extent of youth combining work and schooling differ from one region to another.

Therefore the government can use these results to formulate policies which can best fit the unique conditions of the youth in the country. This will also address labour force challenges which are region specific affecting the youth. This paper has extended the existing literature on youth labour participation by examining youth schooling and work jointly in Kenya.

Dedication

This study is dedicated to my late parents; mum Lydia and dad Kitonyi to whom I owe so much.

Further dedication is to my loving daughters, Lynn and Brigid and my dear husband, Charles for their great inspiration and support.

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List of Abbreviations and Acronyms

GAR   Gross Attendance Ratio

ICT   Information Communication Technology

KIHBS   Kenya Integrated Household Budget Survey

MDG   Millennium Development Goals

OECD   Organization for Economic Co-operation and Development

SACCO   Savings and Credit Co-operative Society

UN   United Nations

UNECA   United Nations Economic Commission for Africa

YEDF   Youth Enterprise Development Fund

CHAPTER ONE

INTRODUCTION

1.1 Background

There is growing concern and emphasis from both governments and international organizations on youth issues and challenges in Africa and the whole world (World Bank, 2009; UN, 2003) According to United Nations (UN), individuals aged between 15 to 24 are classified as youth (UN, 2003). By 2003, youths in the world were more than 1 billion (18 per cent of the world's population) and more than 85 per cent of them were in developing countries (UN, 2003). Youth is a transition period and the decisions youth make in this stage determine their labor market outcomes in future. Among the youth, some are still in school, others may combine school and work while others are neither in school or work. (Fares et al, 2006).

School to work transition in Africa is not smooth as many youth are unemployed, underemployed or secure low productivity jobs (UNECA, 2005). In many African economies, many youths of secondary school age fail to attend school due to inadequate schools, resources, or pregnancy (World Bank, 2007). This is likely to affect skill attainment and future labor market outcomes of such youth. As early as 2003, more than 40 per cent of the unemployed in the world were youth and for those who were working, many were in low paying casual jobs without job security or in unpaid family work (UN, 2003).

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Understanding youth time allocation is important to understanding the current and future welfare of the youth in an economy. Time allocation refers to apportioning of time to different activities. Time is a scarce resource and human beings aim at maximizing utility given the time constraint. The welfare of individuals and households depends on their income or consumption patterns and in their time allocation decisions. The way individuals allocate time to labour market and non labour market activities can influence income and poverty levels.

In developed countries, most youth are in school while in developing countries, they are either in school, or in home production activities (Fares et. al, 2006). In addition, there are large gender and regional differences in school enrolment by youths in developing countries. Some youths combine school and work, a decision that could affect learning adversely and even lead to dropping out of school.

There are also youth who are not in school and not in labour force. Some youths especially females are engaged in home chores like child care and elderly care while others face barriers in labour market entry and become discouraged (Fares et al, 2006). Understanding these time use patterns is important to understand schooling attainment which determines future labour market outcomes.

1.2 Youth in Kenya's Labour Market

In Kenya a person aged 15 – 30 years is classified as youth. This definition considers the "physical, psychological, cultural, social, biological and political dimensions", (Republic of Kenya, 2007b). According to the Kenya National Population and Housing Census, 2009, the

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youth population was 11,991,214 persons (5,815,641 males and 6,175,573 females) constituting about 32 percent of the total population of 38,610,097 persons (Republic of Kenya, 2010). The youth (15-30 years) population has been growing over the years and in 2005/06, youth population constituted almost 60 percent of the labour force.

Table 1.1 shows the distribution of Kenya's working age population (15-64 years) by activity status for the years 1998/99 and 2005/2006. The country's working age population increased from 15.9 million persons in 1998/99 to 19.8 million persons in 2005/2006. The largest rise in the working age population was reported among the youth aged 15-30 years. The youth working population has been changing with both active and inactive youth increasing. Labour force participation rates for the youth aged 15-24 years increased while the participation rates for the other age cohorts (25 to 54 years) declined. More youths are participating in the labor force but unemployment rates are still high. The proportion of the unemployed to the working age population increased from 44.6 percent in 1998/99 to 51.6 percent in 2005/2006.

The proportion of the inactive labour force to the working age population increased from 22.6 percent in 1998/99 to 26.6 percent in 2005/2006. The data presented shows that majority of the inactive population were between the age of 15 to 19 years and most of them are in school.
Inactive youth are persons without a job during the reference period and did not search for work because they were either full time student, incapacitated or had other reasons. Majority of Kenya's inactive population are full time students with a percentage of 68.2. Majority of the inactive population (61%) are aged between 15-19 years and are in school (Republic of Kenya, 2008d). It is expected that some of these youth combine work and school.

Table 1.1: Youth Labour Force status in Kenya

Age groups	Working		Unemployed		Inactive		Total	
	1998/99	2005/06	1998/99	2005/06	1998/99	2005/06	1998/99	2005/06*
15-19	843,909	1,056,015	270,217	352,357	2,349,270	3,210,685	3,463,396	4,677,503
20-24	1,435,405	1,895,834	533,078	605,167	485,067	992,053	2,453,550	3,561,987
25-29	1,584,271	2,088,468	291,679	388,747	165,931	335,359	2,041,881	2,848,926
30-34	1,541,604	1,897,206	185,927	154,360	94,668	169,531	1,822,199	2,242,844
35-39	1,533,196	1,497,662	140,147	122,725	91,739	101,214	1,765,082	1,729,081
40-44	1,128,190	1,357,371	113,165	92,262	68,964	91,978	1,310,319	1,546,998
45-49	992,261	1,070,783	88,596	64,636	67,260	81,760	1,148,117	1,227,636
50-54	702,199	787,417	66,839	38,666	82,769	95,607	851,807	926,534
55-59	412,639	624,308	64,235	26,350	87,107	91,389	563,981	745,980
60-64	351,936	432,972	46,739	11,024	106,457	96,536	505,132	541,772
Total	10,525,609	12,708,035	1,800,623	1,856,294	3,599,231	5,266,112	15,925,463	20,049,262

Source: Kenya Integrated Household Budget Survey 1998/99 and 2005/06

Note: *218,821 persons were not classified in 2005/06

1.3 Youth School Attendance

Gross Attendance Ratio is the indicator of school attendance which is typically used ((Republic of Kenya, 2008d). The Gross Attendance Ratio (GAR) for primary school is defined as the total number of primary school pupils expressed as a percentage of the population in the official primary school age (6-13) years. GAR for secondary school is defined as the total number of

secondary school students expressed as a percentage of the population in the official secondary school age (14-17 years).

GAR for both primary and secondary school has increased over the period (Table 1.2). Primary school GAR increased from 89.1 in 1998/99 to 117 in 2005/06. This may be partly due to introduction of free primary education programme by the government in 2003. Secondary school GAR increased from 30.7 in 1998/99 to 40 in 2005/06.

The number of students attending universities also increased. The number increased from 46,965 persons in 1998/99 to 129,989 persons in 2005/06. Those in other tertiary institutions were 74,400 and 427,959 persons in 1998/99 and 2005/06 respectively.

The male - female gender gap in school attendance was wide in pre-school and primary levels but narrower at the secondary and university levels. In pre-school and primary levels there were more males attending than females while at secondary and university level, the gap between males and females in attendance was lower. In 1998/99, the proportion of females in preschool was 48.4 per cent while in 2005/06 this proportion reduced to 47.3 per cent. In 1998/99, the primary GAR for males and females was the same but in 2005/06, there was a difference even though both attendances improved. The secondary school GAR in 1998/99 and in 2005/06 for males and females shows a difference of 4.9 per cent and 5.0 per cent respectively thus the gap remained the same with more males attending school than females. At the university level, over the years the gap narrowed as the proportion of females attending was 41.3 per cent in 1998/99 while in 2005/06 it was 39.4 per cent.

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Table 1.2 Youth school attendance

Educational level	1998/99			2005/06		
	Male	Female	Total	Male	Female	Total
Pre-school	406,757	381,194	787,951	999,053	896,389	1,895,442
Primary	3,276,566	3,029,410	6,305,976	4,728,670	4,623,436	9,352,106
Population 6-13	3,671,528	3,403,607	7,075,135	3,955,956	4,010,119	7,966,075
Attendance Ratio (%)	89.2	89.0	89.1	120	115	117
Secondary	517,474	429,937	947,411	795,483	714,809	1,510,293
Population 14-17	1,561,397	1,523,344	3,084,741	1,852,102	1,896,378	3,748,480
Attendance Ratio (%)	33.1	28.2	30.7	43	38	40
University	27,552	19,413	46,965	78,800	51,190	129,989
Level not stated	26,219	48,181	74,400	214,428	213,531	427,959
Total	4,254,568	3,908,135	8,162,703	6,816,435	6,499,355	13,315,790

Source: Kenya Integrated Household Budget Surveys 1998/99 and 2005/06

1.4 Youth Challenges and Policy Responses in Kenya

According to the labour, youth and human resource development sector plan 2008-2012, (Republic of Kenya, 2008b) high unemployment rate among the youths is a major challenge. Lack of employable skills among the youth makes it difficult for them to compete for jobs

locally and internationally (Republic of Kenya, 2007a). Lack of skills may be attributed to weak policy on training and career development which led many institutions to offer poor quality training and producing youth ill equipped for employment (Republic of Kenya, 2007b). High rural-urban migration among the youth has also led to increased pressure on social infrastructure in urban areas (Republic of Kenya, 2008b).

The government of Kenya in collaboration with other stakeholders has undertaken several measures to address education and work related challenges among the youth.

At least one youth polytechnic in every constituency has been constructed and equipped to help youths acquire technical, vocational and entrepreneurial skills to increase their productivity. (Republic of Kenya, 2008a, 2008b). The youth polytechnics will help youths who do not pursue further education to acquire training in carpentry, metalwork, tailoring and other tertiary courses.

The government has also increased bursary allocation to secondary and tertiary institutions. As a result many poor youths have continued with education. The free primary education, free day secondary education and education loans for college and university students have helped to make education affordable and accessible to more youths. Enrolment rates at both public primary schools and public day secondary schools and also at colleges and universities have increased in recent years (Republic of Kenya, 2007b, 2008a, 2008b).

Revision of the education and training curriculum has been conducted at all levels of learning and will lead to institutions producing graduates with demand driven skills. The curriculum will teach youth both behavioural and life skills to enable them acquire positive traits in life (Republic of Kenya, 2007a).

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Availability of credit has been enhanced since the government has established Youth Enterprise Development Fund (YEDF) to deal with youth unemployment. The YEDF aims at tackling youth unemployment by empowering the youth through enterprise development, market support and linkages. YEDF policies have been on review to allow flexible collateral and social sanctions to make credit accessible. This fund has been reviewed to facilitate the development of youth SACCOs that can be used in disbursing the fund to the youth without financial intermediaries who are an obstacle to fund access (Republic of Kenya, 2008b).

Youth Empowerment Centres have been established in every constituency in the country aimed at engaging youths creatively by tapping their talents and creating opportunities for them. Through these centres, drug abuse among the youth will be minimized. The centres have been equipped to provide services like counselling and health services, ICT facilities, library and information services, and training facilities for music, dance and the performing arts (information kiosk). The centres will also provide basic literacy and continuing education opportunities for school leavers in each constituency (Republic of Kenya, 2008b).

1.5 Research Problem

Working age youth population (15-24 years) has increased around the world especially in developing countries. As a result there is increasing interest among researchers and policy makers on how the youth population is allocated across education and work activity. Previous research in a few African countries and Latin America has found that youths are in school, working, combining work and school or doing neither (Fares et. al, 2006; Levison and Moe, 1998, and Levison et al, 2001). Like in other African countries, the youth constitute a large share

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of working age population (15-64 years). However, there is little information on the activity status of youth. In particular, the extent to which youths in Kenya combine school and work and the factors determining such decisions by the youth. Without this information, it is not possible to assist youth in their transition to work and understand youth labour market outcomes.

Accordingly, the study seeks to answer the following questions: (i) to what extent do youths combine schooling and work in Kenya? and (ii) what are the factors determining youth time allocation decisions?

1.6 Research Objectives

The general objective of the study is to examine the possible socio-economic factors that influence youth time allocation in Kenya between schooling, working, schooling and work and being inactive. The specific objectives are:

1. Determine the extent to which youths in Kenya combine schooling and working.

2. Analyze the determinants of time allocation decisions of youth in Kenya.

3. Derive policy implications of these findings.

1.7 Justification of the Study

This study can be justified on several grounds: first issues regarding youth are under intense focus in Kenya. This is evidenced by the creation of the Ministry of Youth Affairs in 2005 to address youth concerns in the country and also to help the government in the realization of the UN Millennium Development Goals (MDG). This was followed shortly by the creation of Youth Enterprise Development Fund (YEDF) as a state corporation in 2007. There is also the drafting of the Kenya National Youth Policy 2007. Second there is a gap in the literature on youth

schooling and work activity. Previous studies in Kenya have focused on youth unemployment (Oiro, 2002) and youth labour force participation (Kyalo, 2007, Nyamboke, 2006) but none examined youth education and work decisions. This paper complements these studies by analyzing factors determining youth education and work time allocation. Third the results of the study can inform existing policies and help formulate new policies to address issues of youth education and work.

1.8 Organization of the Study

The research paper proceeds as follows. In Chapter Two the related literature is reviewed. In Chapter Three the theoretical framework underlying the study is discussed. Chapter Four presents the descriptive statistics of variables used as well as regression results. Chapter Five consists of the summary of the study, findings and policy recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This study examines factors determining youth work and education decisions. This chapter reviews literature on youth time use by focusing on studies on choices or alternatives made by the youth. Section 1 reviews the household production approach and section 2 reviews the empirical contributions on youth time use. Section 3 looks at overview of the literature.

2.1 Time Allocation: Household Production Approach

Studies on time allocation use household production approach. In this approach, households combine time and market goods to produce the basic commodities and choose the optimal combination of commodities by maximizing utility subject to a budget constraint (Becker, 1965). According to his model, allocation of time depends on earnings, other income, prices of goods and productivity of consumption and working time.

Gronau (1977) extended this time allocation model to include home production. A household will maximize utility subject to budget constraint, time and home production function. This model assumes a household which combines goods and services and consumption time. The goods and services can be bought from the market or produced at home; and home goods face diminishing marginal productivity. Utility is derived from leisure, market production and home production. Time allocation depends on marginal productivity of labour at home and prices of market goods and non labour income. An increase in the non labour income generates an income

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effect which reduces the time spent on market work and increases home production and/ or leisure .There is tradeoff between market work and home production in that an individual, who prefers a goods intensive consumption technology, will work less at home and increase leisure due to pure income effect. There is also opportunity cost involved because an individual with higher preference for goods will join the labour force whereas the one with higher preference for leisure will not enter the market and he/she thus divides his time between leisure and home production. Increased labour force participation leads to less leisure and home production. According to this model, there is an incentive within the household to exchange goods for time and this tradeoff largely relies on the marginal cost of producing these goods.

Rosenzweig and Evenson (1977) developed a household time allocation model from the general household production model. This model assumes that parents will maximize a utility function which consists of number of children, leisure, schooling per child and the household living of living. These four components are each produced by different types of goods which are bought from the market. The model was used to examine how joint family decisions influence the allocation of children time to schooling and work in developing countries. This model restricts the derivation of utility to parents only and also restricts the characteristics of household production function. Their model analyses the many activities performed by children in developing countries. The model shows the economic contribution of children through the price effects. The shadow price of children is a function of price of goods, wife's wage, level of child schooling and leisure time and earnings per child. For parents with large land holdings, the returns to school are higher and thus schooling might improve the children's ability in future to mange and run big enterprises. The model predicts that rural district children are more likely to work in agriculture and that the shadow wage of children hinders schooling.

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In summary, the household production approach suggests that youth time allocation depends on the opportunity cost of time in market work or school, the parents' preferences, marginal productivity in home production and non labour income. Thus this study also assumes that an increase in the non labour income reduces the supply of labour to market work by the youth; it reduces the probability of youth combining work and school and thus increasing the attractiveness of schooling option.

2.2 Empirical Evidence

The study of time allocation decisions has focused on different dimensions. Some empirical studies on time allocation have focused on hours of work. Others have used binary response models to study whether individual is in school or work. Another line of research has used multinomial response models to analyze education and work decisions.

2.2.1 Studies on Hours

Zick and Allen (1996) examined the impact of parents' marital status on the hours adolescents aged 12 to 17 years spend in productive activities in California. A tobit model was estimated to correct for sample censoring. They used time-diary data from single-mother and two-parent families to examine different time use by adolescents in three activities: housework, school work, and paid employment. This study found that adolescent's age, mothers' education and employment status have more impact than family structure on how adolescents allocate their time. Adolescents who live in a single parent household spent more time in paid employment and less time in school. This was not the case for both female and male adolescents living in two parent families.

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Warren and Cataldi (2006) examined the relationship between high school students (aged 15-17 years) paid employment status and drop outs in America. The study used several nationally representative data sources. Both multinomial regression models and logistic regression models were estimated. The dependent variable was number of hours worked. The results show that many high school students hold paid jobs during the school period and a number of these students work intensively. The study also found that students who work for many hours per week are more likely to drop out of school without completing.

Levison and Moe (1998) analyzed the determinants of hours spent in home chores and in school for adolescent girls (aged 10-19 years) in Peru. Data from 1985-86 Peru Living Standard Survey (PLSS) on hours spent in paid work, unpaid work, household chores, and school was used. A generalized tobit method was employed to estimate equations for hours in school and hours of chores separately. This study found that girls living in better conditions with more educated mothers spend fewer hours doing household tasks and more hours doing schoolwork. Girls (10-19 years) in families with more preschool age sibling spend more time doing household tasks and less time schooling. The presence of other girls (10-19 years) and women (25-54 years) in the household reduces time adolescents spend on household tasks.

De Tray (1983) studied children's (aged 5 to 19 years) work activities in Malaysia using data drawn from the 1976 Malaysian Family Life Survey (MFLS). The study found that marital status does not affect conditional hours for young children (5-14 years), but older children (15 - 19 years) work fewer hours if they live with a single mother. Older children of female headed

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households participate more in labor force activities. Children of single mothers participate more in market activities at the expense of their schooling.

2.2.2 Binary Response Time Allocation Studies

Ahmad and Azim (2010) analyzed youth (15-24 years) labour force participation in Pakistan. Micro data of Labour Force Survey (2006-07) was analyzed using logistic regression analysis with maximum likelihood estimation. The dependent variable was labour force participation. The analysis results show that the probability of youth employment depends on age, sex, marital status, migration, training, location, education level and characteristics of household. Having a household head who is employed increases the probability of youth being employed and having female headed household head increases the chances of youth working which was attributed to family expectations and financial obligations. It was also found that living in rural areas increases chances of being employed. However this study is not consistent with other studies as it found out that a higher educated household head reduces the chances of youth being employed.

Tzannatos (1998) examined time allocation of children aged 11 to 15 years in Thailand using data from Labor Force Surveys conducted between 1985 and 1992. A probit model was estimated and the dependent variable was time allocation to work or school. This study found out that children's allocation of time depends on parental education combined with household income. There is a strong intergenerational transfer of human capital from parents to children since those households with more educated parents are more likely to keep their children in school and less likely to have child workers. The study also found that poor households are more likely to have

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child labourers and more children not attending school because of their inability to finance education and not due to pressing need for paid or unpaid work.

Another study (Parker and Skoufias, 2000) analyzed the Survey of Household Socio-economic Characteristics (ENCASEH) and the Evaluation Survey of PROGRESA (ENCEL) in Mexico to determine the impact of *progresa* on time allocation of children aged 8 to 17 years and adults aged 18 years and above in Mexico. *Progresa* is a cash subsidy given to school going children aimed at reducing the cost of schooling. A binary probit model was estimated and the dependent variable is time allocation to school or work. The results show working interferes with schooling, particularly for boys in the poor areas of Mexico. The study also found that school and work are incompatible and that work can be reduced through subsidizing schooling.

Levison and Moe (1998) also found that mother's presence reduces school hours but increases the probability of school enrollment. Individual characteristics and household characteristics were also important determinant of youth time use. Older girls (15-19 years) are more likely to be doing home activities and less likely to be in school. Whether or not the girl was the daughter of the household head did not significantly affect her household activities or her schooling in this study. However, family income was found to have a significant negative effect on the probability of doing both household work and attending school.

Holloway and Mulherin (2004) explored the adverse labor market effects on adolescent (aged 14 to 22 years) future employment in America. This study used longitudinal data from the National Longitudinal Survey of Youth (NLSY) augmented with 1980 and 1990 census data. Both linear

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and logistic regression model were estimated and the dependent variable was being employed or not. This study found that the probability of being employed is higher for individuals who have more work experience, with college education, are members of a union and have lived in an independent household at an early age.

2.2.3 Multiple Response Time Allocation Studies

Hou (2011) studied youth (15-24 years) employment and education decisions in Pakistan using the Labor Force Survey (LFS) data from 2005/2006. A multinomial logit model was used to determine which factors affect youth activity decisions. The results show that in a family with an educated head and or employed head, the youths are more likely to be in school and less in the labour force or inactive. If a household have more employed individuals, youths are more likely to get jobs and youths from rich families are likely to remain in school unlike those from poor families. Older and married male youth are more likely to work and male youth are likely to work when there are younger children or more girls in the household in the same age bracket. Majority of female youth remain inactive, neither in the labour force nor in school. Female youth are less likely to be in school when there are more domestic needs and fewer substitutes. Young and unmarried female youth are more likely to be schooling unlike the older and married ones. From the study, the likelihood of being employed in the formal sector is higher for male adults than for male youth with the same level of education, same case applies to female youth and female adults. Better educated females are more likely to be employed in the formal sector than their male counterparts. Having a family member who is employed in the formal sector increases the probability of youth being employed in the formal sector due to network effect.

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Filho et al. (2002) analyzed micro data from household surveys conducted in 17 countries in Latin America and the Caribbean to examine the time allocation decisions of adolescents aged 12 to 19 years. A time allocation decision model to explain individual, household and country characteristics was estimated using maximum likelihood estimation. The dependent variable was time allocation to either schooling or working or combining. The results show that higher income increases the probability of studying and reduces probability of working. Further, adolescents in poor families are more likely to work on full time basis and have less time for formal schooling or working and studying at the same time compared to those in rich families. Older adolescents (16-17 years) were less likely to be studying and males more likely to be working. The number of siblings decreases the probability of studying while parental education and living in urban areas increases the probability. Youth unemployment affects schooling among adolescents aged 12 to 13 years by discouraging those in school. However this study found that family composition does not influence time allocation decisions significantly and neither does the occupation of household head.

Levison et al. (2000) estimated the determinants of youth education and work decision in Mexico. Data from National Urban Employment Survey (ENEU) were analyzed using multinomial logit. The study found out that age is an important determinant of time use and older youth are more likely to work. Youth who are sons or daughters of the household head, as opposed to youth relatives living in the household, have a higher chance of schooling and less likely to be working or combining work and school. The presence of a mother in the family decreases the likelihood that a youth specializes in work and increases the likelihood that the youth will go to school. The presence of a father increases the probability of youth attending

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school and decreases both the likelihood of working and of combining work and school. Increases in parental education reduce chances of working and of combining school and work, while increasing specialization in school. If the father is employed in the formal sector, the likelihood that the youth will work or combine work and school is decreased and these youth are also more likely to specialize in school. If the father is employed in a family business, the probability that the youth will combine school and work is higher. Family businesses have a negative effect on female youth education as they shift their time into housework, to the detriment of their schooling. The presence of very young children in the household consistently decreases the probability of a youth specializing in schooling.

Leung (2004) examined delinquency, schooling and work for youth aged 15 to 24 years using the Montreal Longitudinal Study data. The study used multivariate probit model. The results show that social institutions like family and church promote capital accumulation and thus influence youth time allocation decisions. High youth unemployment rate reduces youth economic activity rate. In addition, youth delay their labour market entry if there are difficulties in securing a job. The study also found that living with both parents increases probability of schooling for the youth.

De Tray (1983) studied children's (aged 5 to 19 years) work activities in Malaysia using data drawn from the 1976 Malaysian Family Life Survey (MFLS). Multinomial regression model was estimated. The dependent variable was work activities: schooling, market work, home production and housework. The explanatory variables were grouped into children characteristics: age and sex; parent characteristics: education levels and age; and household characteristics: ethnicity,

income sources, location, household composition, and family income. The results show children whose mothers are widowed, divorced, or separated from their husbands (single mothers) are more likely to work than attend school. Children (5-19 years) of single mothers participate much more in labor market activities than children of married mothers. The study also found that presence of a family business increases older children's value to parents as they help in running them and therefore affect young children's time use patterns. The study deviated from other studies as it found that family income does not determine whether a child works or not. The usual idea of children from poor families working to earn a living for the family does not hold for Malaysia; family income does not affect child labor force participation for older youths.

2.3 Overview of Literature

Predictions about determinants of youth education and work decisions are based on time allocation models by Becker, (1965); Gronau, (1977) and Rosenzweig and Evenson, (1977). These models postulate that households choose an optimal utility maximizing allocation of time of household members. They predict that time allocation depends on the opportunity cost of time and the parents preferences, non labour income, marginal productivity in various activities. The empirical studies on youth time allocation identify several characteristics that influence their time allocation. Some have used hours worked as dependent variable, others have used binary dependent variables on schooling and work. Others have used multiple response dependent variables to analyze education, work and combination of the two. From these studies youth time allocation depends on individual, household and area characteristics but this may vary from country to another. These youth specific characteristics include age, gender, and marital status. Household characteristics include household headship, occupation of the parents, education level

of parents, family income, family composition and the area characteristics include the region of residence. From these studies schooling and work seem to be incompatible although relatively few studies have analyzed this as a joint decision problem.

Previous studies in Kenya have focused on youth employment (Oiro, 2002) and labour force participation (Kyalo, 2007, Nyamboke, 2006).This study extends the literature by testing the effect of individual, household and area characteristics on youth education and work decisions using the 2005/06 Kenya Integrated Household Budget Survey data. The study will fill the research gap by studying determinants of youth education and work in Kenya.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter looks at the analytical framework for youth education and work decisions. Section 1 looks at the multinomial logit model, section 2 is the interpretation of parameters, section 3 looks at the process of estimation and section 4 is on data used and variables definitions.

3.2 Specification of the Multinomial Logit Model

The study will estimate the relationship between youth time allocation decisions and their individual and household characteristics using multinomial logit. Multinomial logit will be used in this paper because the time use responses are multiple.

Suppose that there is an underlying relationship between a latent variable and a set of explanatory variables

$$y_i^* = \beta x_i + \varepsilon_i \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

Where

y_i^* is the latent or unobserved variable underlying youth time use choices. However what is observable is a categorical variable y_i representing the variable alternatives. The time use alternatives considered in this study include schooling, working, both working and schooling or doing neither. A youth chooses one alternative from the group of choices.

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β is a vector of unknown parameters to be estimated, x_i is a vector of individual, household and area characteristics and ε_i is the error term with a mean of zero.

Following Long (1997), let y denote a dependent variable with values $0, 1, \ldots, J$ where J is positive and shows the number of categories or outcomes. The multinomial logit model is as follows:

Let $P(y = m / x)$ be the probability of observing outcome m given x; where β_j is a vector and includes $\beta_{0j} \ldots \ldots \beta_{km}$

To ensure nonnegativity of probability, the exponent is taken and to ensure the probability sums to unity (1), then the $\exp(x\beta_m)$ is divided by $\sum_{h=1}^{J} \exp(x\beta_j)$. Thus the equation for probability of choosing an alternative m is;

$$P(y = m / x) = \frac{\exp(x_i \beta_m)}{\sum_{h=1}^{J} \exp(x_i \beta_j)} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

The probabilities now sum to unity but are not identified, so restrictions on β should be imposed and one of the $\beta's$ is restricted to be equal to zero; $\beta_1 = 0$

$$P(y = m / x) = \frac{\exp(x_i \beta_m)}{\sum_{h=1}^{J} \exp(x_i \beta_j)}, \quad j = 1, \ldots, J \quad \text{and } \beta_1 = 0 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

where x is a $1 \times K$ vector with first-element unity, β_j is $K \times 1$, $j = 1, \ldots, J$ (Long, 1997).

3.3 Interpretation of Parameters

In multinomial model just like in the binary response case, the interest is on how changes in the elements of x affect the response probabilities ceteris paribus, $P(y = m / x), j = 0,1,2,...,J$

The partial effects or the marginal effect for continuous x_k, can be written as,

$$\frac{\partial P(y = m / x)}{\partial x_k} = P(y = m / x)\left\{ \beta_{km} - \sum_{j=1}^{J} \beta_{kj} P(y = m / x) \right\} \quad\text{.. (4)}$$

where β_{km} is the k th element of β_m

This marginal effect shows the change in the probabilities of each outcome category with respect to changes in the explanatory variables.

For discrete variables, the change in the predicted probability when x_k changes from x_A which is the starting point to the end point x_B is

$$\frac{\Delta P(y = m / x)}{\Delta x_k} = P(y = m / x, x_k = x_B) - P(y = m / x, x_k = x_A)$$

$$\text{................................. (5)}$$

where the $P(y = m / x, x_k)$ is the probability that $y = m$ given x, noting the specific value of x_k. In this case then the discrete case can be interpreted as: for a change in variable x_k from x_A to X_B, the predicted probability of outcome m changes by $\Delta P(y = m / x) / \Delta x_k$, holding all other variables constant (Long, 1997).

3.4 Estimation Procedure

The multinomial logit is estimated using maximum likelihood. If the sample observations are independent, the likelihood function is

$$L(\beta) = \prod_{m=1}^{J} \prod_{y_i=m} p_i \quad \text{.. (6)}$$

Where p_i is defined in equation 3 and

$\prod_{y_i=m}$ is the product over all cases for which y_i is equal to m.

Taking the logarithm of the above equation gives the log likelihood function as follows;

$$\log L(\beta) = \sum_{j=1}^{J} \sum_{y_i=j} \ln p_i \quad \text{... (7)}$$

β is estimated by maximizing $\log L(\beta)$

The log likelihood function is more appropriate because it is easier to solve the derivative of the log likelihood than of the likelihood function.

The advantages of using maximum likelihood estimation are that ML estimates are consistent, asymptotically normal, and asymptotically efficient (Long, 1997).

An estimation issue with multinomial logit model is the assumption of independence of irrelevant alternatives (IIA). This means that the ratio of the probabilities of the outcome and the base category is not affected by the presence of another alternative (Long, 1997).

3.5 Data and Variable

This study is based on the analysis of data drawn from the 2005/2006 Kenya Integrated Household Budget Survey (KIHBS). This is a micro data set which is nationally representative of the whole population. It provides information on labour force participation, household

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characteristics and employment in Kenya. This survey was carried out by the Kenya National Bureau of Statistics over a period of twelve months therefore covering all seasons of the year. The details of this survey can be found in Republic of Kenya (2008d). The sample of individuals in this study is aged 15-24 years. This age is the internationally recognized age of youth and can be used for comparing this study with other studies. Table 3.1 presents the variables and their definitions as used in the current study.

Table 3.1 Definition of Variables

Variable	Definition
Time allocation	0 schooling 1 working 2 working and schooling 3 doing neither
Age of the youth and age squared	Age in years
Marital status of the youth	1 Married 0 otherwise
Gender of the youth	1 Male 0 Female
Education level of youths mother	1 secondary and above 0 otherwise
Education level of youths father	1 secondary and above 0 otherwise
Employment type of the mother	1 employed 0 otherwise
Employment type of the father	1 employed 0 otherwise
Household wealth	1 Permanent dwelling unit 0 temporary dwelling unit 1 permanent roofing type 0 otherwise 1 standard floor type 0 otherwise
Family composition	1 children (under 5 years) present 0 otherwise 1 Old person (above 65 years) present 0 otherwise
Area characteristics or region of residence	1 Urban 0 Rural
Household headship	1 male headship 0 female headship

Dependent variable is time allocation. In this study a youth is classified as working, schooling, schooling and working or doing none if during the past one week's reference period he responded in either choice.

Age of the youth and age squared: Youth age and age squared is assumed to be positively related to working and negatively related to schooling. As years increase youth leave education or

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schooling and join the labour force. Thus as their age increases, the youth become more independent from their parents and increase their labour market participation. Experience in the job increases with age also.

Gender of the youth: Males are expected to have an advantage in both schooling and working and thus being male is expected to be positively related with schooling or working while it is expected to be negative for females. Females are expected to help in household chores during their schooling age years thus lacking the education and skills required in future job.

Marital status of the youth: It is assumed that marital status is positively related to working and negatively related to schooling. Married youths are expected to work and provide for their families.

Education level of parents: Parental education is assumed to be positively related to schooling decisions by the youth. Parents who are educated are expected to give their children schoolwork a priority. Children whose parents are educated are expected to acquire enough human capital and thus have no problems in labour market. Parental education is thus positively related to working decisions by the youth.

Occupation of the parents: It is assumed that most youth take after their parents' occupation and so a positive relationship is expected. Occupation of the parents can have significant impact on not only their wages, but indeed on the ultimate career choices taken up by their children. On the other hand, parents who spend most of their time outside the house, force their children to compensate for their lost time at home, by taking up their duties. If the mothers occupation is home making or if she is not usually busy in her work, the youth is likely to be in school or it can

also be that the youth has to work to substitute family income. In the case where the mothers occupation is time consuming, the youth may have to work at home to substitute for her mother's absence. Mothers wage is positively related to working and schooling decisions by the youth.

Region or area characteristics: Different labour market conditions exist in different areas. Ones area of residence affects the time allocation to various activities depending on the regions socio-economic characteristics. Urban residence is assumed to be positively related to schooling and working but it can also reduce employment opportunities. It is expected that being a rural resident reduces schooling options by the youth and increases the employment opportunities but it can also reduce the job opportunities available due to low industrialization which is associated with urbanization. Most farming or agricultural activities take place in the rural areas unlike in urban areas thus the increased employment by rural youth.

Household composition: Small children and older or aged adults are assumed to be negatively related to schooling decision by the youth and positively related to working at home. This is because small children and older children need to be taken care of in the family and the burden may fall on the youths.

Household wealth: This is proxied by type of dwelling unit, roofing type and type of floor. They are assumed to be positively related to schooling and negatively related to working decisions by the youth. It is expected that a wealthy household will take their children to school because they can afford the education expenses.

Household headship: Female headed household is assumed to be negatively related with child schooling and the opposite holds for working. Male household heads are expected to provide for all family needs and thus their children are expected to be in school.

CHAPTER FOUR

EMPIRICAL RESULTS

4.0 Introduction

This chapter presents descriptive statistics and regression results for youth time allocation in Kenya. Section 1 presents sample mean and proportions and section 2 presents estimation results of the multinomial logit model.

4.1 Descriptive Statistics : Sample Means and Proportions

Table 4.1 presents the distribution of the sample by activity status.

Table 4.1: Descriptive Statistics for dependent variable

Dependent Variable	Observations	Mean
Schooling	14910	0.3869
Working	14910	0.2722
Schooling & working	14910	0.0309
Doing neither	14910	0.3099

Time is the dependent variable which is modelled as follows: Time = 0 if schooling, time = 1 if working, time = 2 if both schooling and working, and time = 3 if doing neither. Table 4.1 shows that, of the 14910 youths in the study, 27.22% were engaged in working only. About 3.09% engaged in both schooling and working and 31 % were doing neither. Therefore, it can be inferred that majority of the youth (38.69%) are engaged in schooling only.

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The explanatory variables include: Age and age squared of the youth , their Marital Status, the gender, the type of dwelling, the type of floor, type of roof which are proxy for household wealth, family composition, as to whether there are younger siblings below 5 years of age or above 65 years of age, household headship, the employment status of both father and mother, as well as the level of education of both parents.

Table 4.2: Descriptive statistics for youths in school, working, combinig work and school or Doing Neither

Variable	Schooling		Working		Schooling and Working		Doing Neither		Full Sample	
	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.
Age	17.40745	2.241568	20.56418	2.470328	17.63774	2.300521	19.78225	2.621003	19.0098	2.7913
Age squared	308.0432	82.83602	428.9864	99.17441	316.3709	85.54266	398.2056	102.9717	369.1631	107.7528
Married	.0038128	.0616356	.2448879	.4300737	.010846	.1036903	.2675325	.4427203	0.1514	0.3584
Male	.5516464	.4973686	.5599901	.4964493	.6507592	.4772481	.3534632	.4780967	0.4956	0.4999
Child under 5 years present	.502773	.5000356	.5424982	.498252	.4815618	.5002027	.6333333	.4819466	0.5534	0.4972
Adult 65 years present	.1615251	.3680465	.1552106	.36215	.1453362	.3528224	.1510823	.3581678	0.1561	0.3629
Male head	.6809359	.4661543	.7063316	.455498	.6854664	.4648343	.6922078	.46163	0.6915	0.4619
Fathers education	.2119584	.408731	.062577	.2422304	.1149675	.3193292	.0796537	.2707856	0.1273	0.3333
Mothers education	.1473137	.3544491	.0384331	.1922631	.1106291	.314013	.0614719	.2402198	0.0899	0.2861
Fathers working	.6180243	.4859127	.6306972	.4826755	.5878525	.4927562	.5417749	.4983057	0.5969	0.4905
Mothers working	.5162912	.4997778	.6484356	.4775176	.5140998	.5003441	.5504329	.4975039	0.5628	0.4961
Permanent roof	.7757366	.4171325	.764474	.4243794	.8112798	.3917113	.6995671	.4584959	0.7502	0.4329
Standard floor	.3889081	.4875447	.4052722	.4910051	.2429501	.4293311	.4192641	.4934921	0.3983	0.4896
dwelling	.6873484	.4636139	.6324218	.4822051	.7136659	.4525385	.5651515	.4957908	0.6353	0.4813
urban	.2611785	.4393151	.2961321	.4566062	.1214751	.3270334	.3880952	.4873692	0.3057	0.4607
Central	.0866551	.2813534	.1194876	.3244013	.1344902	.3415489	.071645	.2579271	0.0924	0.2896
Coast	.0915078	.2883549	.0790835	.2699023	.0368764	.1886629	.1220779	.3274112	0.0959	0.2945
Eastern	.1830156	.3867128	.2168022	.4121175	.154013	.3613534	.1712121	.376735	0.1877	0.3905
North Eastern	.0325823	.1775561	.0123183	.1103157	.0043384	.0657949	.0768398	.266366	0.0399	0.1957
Nyanza	.1700173	.3756806	.1621089	.3685961	.2429501	.4293311	.1454545	.3525967	0.1625	0.3689
Rift Valley	.269844	.4439171	.2675536	.442738	.2104121	.4080442	.2422078	.4284658	0.2588	0.4380
Western	.1353553	.3421323	.1111111	.3143084	.2104121	.4080442	.1287879	.3350013	0.1290	0.3353

Older youths are mostly working while young youths are in school. On average, age of the youth had a mean value of 19.01 years, with the youngest individual having 15 years, and the eldest having 24 years of age. Age had a mean value of 17.41 years for those in school, the average age for working youths is 20.56 years, youths combing work and school have an average age of 17.64 while those doing neither have an average age of 19.78 years with the youngest individual having 15 years, and the eldest having 24 years of age for all outcomes.

The descriptive statistics reveal that 50 per cent of the sample is male. 55.16 per cent of those schooling are male, 55.99 per cent of those working are male, 65.08 cent of those combining school and work are male while 35.35 per cent of those doing neither are males.

Most youth in the sample are not yet married. The statistics show that only 15.14 per cent of those sampled are married. Of those schooling, only 3.81 per cent are married, 24.5 per cent of those working are married, 1.08 per cent of those combining school and work while only 26.75 per cent of those doing neither are married. This is expected since by their age, they are more interested in gaining knowledge from school, which should then prepare them for the marriage life ahead.

Of the sampled youths, 55 per cent of them have siblings who are below five years while only 15 per cent have siblings whom are older than 65 years. Hence, for most youth, they tend to have siblings younger who are less than 5 years while few youth have siblings who are older than 65 years. Of the sampled youths, 50.28 per cent of those in school have siblings who are below five years, 54.25 per cent of those working have siblings who are below five years, 48.16 per cent of those working and schooling have siblings who are below five years and 63.33 per cent of those doing neither have siblings who are below five years. For those in school only 16.15 per cent of

them have siblings who are 65 years and older, 15.52 per cent of those working have siblings who are above 65 years, 14.53 per cent of those working and schooling have siblings who are above 65 years and 15.10 per cent of those doing neither have siblings who are above 65 years. Hence, for most youth, they tend to have siblings younger who are less than 5 years while few youth have siblings who are older than 65 years. This can be explained partly by natural attrition, i.e., mortality increases with age.

Household headship shows that there are many male headed households (1) than female headed households (0), such that approximately 69 per cent of the households are male headed, leaving the rest to be female headed. Household headship shows that there of those schooling, 68.09 per cent live in male headed households, 70.63 per cent of those working live in male headed households, per cent of those working and schooling live in male headed households and per cent of those doing neither live in male headed households.

Education level of parents is expected to be positively related to youth schooling decisions. Overall statistics show that only 9 per cent of the youths had mothers whose education level was secondary and above while 13 per cent had fathers with at least secondary education. Majority of those youths in school have educated parents while very few of those working have educated parents. 21.20 per cent of youth in school had fathers with at least secondary school education level, 6.26 per cent of youths working had fathers with at least secondary school education level, 11.49 per cent of youth combining school and work had fathers with at least secondary school education level and 7.96 per cent of youth doing neither had fathers with at least secondary school education level. 14.73 per cent of youth in school had mothers with at least secondary school education level, 3.84 per cent of youths working had mothers with at least secondary

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school education level, 11.06 per cent of youth combining school and work had mothers with at least secondary school education level while only 6.15 per cent of the youth doing neither had mothers with at least secondary school education level.

Parents are assumed to be either working (1) or otherwise (0). From table, most youths (60 per cent) have fathers who are working while only 56 per cent of youth's mothers work. Therefore, for most youth, their parents tend to be engaged in some occupation with slightly more fathers working than mothers. Of the youths in school, 61.80 per cent have fathers who work, 63.07 per cent of those working youths have fathers who work, 58.79 per cent of the youths who work and school have fathers who work, 54.18 per cent of youths doing neither have fathers who are working. Of the youths in school, 51.63 per cent have mothers who work, 64.84 per cent of those working youths have mothers who work, 51.41 per cent of the youths who work and school have mothers who work, 55.04 per cent of youths doing neither have fathers who are working. Therefore, for most youth, their parents tend to be engaged in some occupation with slightly more fathers working than mothers.

Household wealth in this study is proxied by dwelling type, floor type and roofing type. From the table 64 per cent of the surveyed youths reside in permanent dwelling units, most of the youths (60 per cent) reside in houses without cemented floor, tiles or wood. For the roofing type, 75 per cent of the youths live in houses with permanent roofing type. Of the youths in school, 77.57 per cent reside in houses with roofs made of iron sheet, concrete or tiles, 38.89 per cent reside in houses without cemented floor, tiles or wood while 68.73 per cent live in permanent dwelling units. Of the youths working, 76.45 per cent reside in houses with roofs made of iron sheet, concrete or tiles, 40.53 per cent reside in houses without cemented floor, tiles or wood while

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63.24 per cent live in permanent dwelling units. For the youths combining school and work, 81.13 per cent reside in houses with roofs made of iron sheet, concrete or tiles, 24.30 per cent reside in houses without cemented floor, tiles or wood while 71.37 per cent live in permanent dwelling units. Of the youths neither working nor schooling, 69.96 per cent reside in houses with roofs made of iron sheet, concrete or tiles, 41.93 per cent reside in houses without cemented floor, tiles or wood while 56.52 per cent live in permanent dwelling units.

Ones area of residence affects the time allocation to various activities depending on the regions socio-economic characteristics. The results show that 31 per cent of the youth reside in urban areas. Ideally therefore, a large number of the youth surveyed significantly reside in the rural areas. The results show that of the schooling youths, 26.12 per cent of them live in urban areas, with 29.61 per cent of those working living in urban while 12.15 per of those combining work and school reside in urban areas. Ideally therefore, a large number of the youth surveyed significantly reside in the rural areas.

Results from the eight former administrative units or provinces also show different results on youth time use. The dummies for provinces show that approximately 9.24 per cent of the sample youth population reside in Central province, 9.59 per cent of the youths reside in Coast province, 18.77 per cent live in Eastern, 3.99 per cent live in North Eastern, 16.25 per cent live in Nyanza, 25.88 per cent live in Rift Valley and 12.90 per cent reside in Western province. Thus it be inferred that only 3.38 per cent of the sampled youths live in Nairobi province. These dummies also show that of the youths in school, majority live in Rift Valley province (26.98 per cent) and the lowest schooling population reside in Nairobi province (3.01 per cent). For the youths who are working, majority reside in Rift Valley (26.75 per cent) while the least working population is

found in North Eastern (1.23 per cent). For the youths who are working and schooling, majority are found in Nyanza province (24.30 per cent).

4.2 Determinants of Youth Time Allocation

Youths schooling, working, schooling and working or doing neither can be determined by individual characteristics: age, marital status, gender; household characteristic: household composition, household headship, family composition, household wealth; parental characteristics: education and employment status or can also be determined by area or region characteristics. Table 4.3 reports the estimated coefficients and table 4.4 reports the associated marginal effects. The base category is schooling.

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Table 4.3: Multinomial Logit Estimates for the Determinants of Youth Activity Status (Base category is schooling)

Variable	Working			Schooling and working			Doing Neither		
	Coefficient	Robust std Error	P>z	Coefficient	Robust std Error	P>z	Coefficient	Robust std Error	P>z
Age	1.090775	.151459	0.000	.1227573	.3168491	0.698	.8943345	.1393791	0.000
Age squared	-.0166521	.0039251	0.000	-.0020284	.0085385	0.812	-.0148241	.0036577	0.000
Married	3.4735	.2206207	0.000	.9442201	.5010936	0.060	3.618295	.218608	0.000
Male	.3246485	.0513297	0.000	.4301864	.1047002	0.000	-.5719897	.0477408	0.000
Child under 5 years present	.0300097	.0505739	0.553	-.1383248	.1002355	0.168	.2895538	.0478161	0.000
Adult 65 years and above present	.0960784	.0658644	0.145	-.3136822	.1416261	0.027	.1147029	.0629553	0.068
Male head	.0876441	.0544151	0.107	.2630699	.1124533	0.019	-.0248216	.0514686	0.630
Fathers education	-1.028645	.0848138	0.000	-.8270534	.17225	0.000	-.6874393	.0791407	0.000
Mothers education	-.9659371	.1059815	0.000	.1632135	.1748701	0.351	-.3746932	.0902358	0.000
Fathers working	-.0681359	.0527583	0.197	-.0088213	.1024729	0.931	-.3769183	.0498633	0.000
Mothers working	.2659999	.0525881	0.000	.0672497	.0997759	0.500	-.1390802	.0499787	0.005
Permanent roof	-.1462472	.0722374	0.043	.3978387	.157317	0.011	-.3417164	.0688169	0.000
Standard floor	.0418663	.0593776	0.481	-.4747471	.129576	0.000	.1255139	.0578955	0.030
Dwelling	-.1906506	.0619056	0.002	-.2242752	.1398751	0.109	-.1521583	.0604893	0.012
Urban	.1745133	.0638932	0.006	-.7248457	.1675415	0.000	.602394	.0595298	0.000
Central	.7639272	.1628585	0.000	1.164222	.6158817	0.059	.2541748	.1514173	0.093
Coast	-.0815924	.1649251	0.621	-.1898527	.6511199	0.771	.2276776	.1464247	0.120
Eastern	.4730691	.1559624	0.002	.4531848	.614161	0.461	.272896	.1418247	0.054
North Eastern	-.8585292	.2267049	0.000	-1.282434	.9220226	0.164	.7937257	.1725821	0.000
Nyanza	.0258474	.1562165	0.869	1.077938	.6068586	0.076	-.1553613	.1429054	0.277
Rift Valley	.0925158	.152066	0.543	.3676703	.6056911	0.544	-.0104486	.1380974	0.940
Western	.0412481	.1598697	0.796	1.174769	.6082618	0.053	.0793541	.1444995	0.583
Constant	-15.29178	1.456559	0.000	-4.863939	2.999339	0.105	-11.30237	1.319051	0.000

Number of observations   =   14910
Log pseudolikelihood   =   -14193.31
Wald chi2 (66)   =   4119.20
Prob > chi2   =   0.0000
Pseudo R2   =   0.2015

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Table 4.4: Multinomial Logit Results (marginal effects) for Schooling only, Working only, Working and Schooling and Doing Neither

Variable Name	Schooling			Working			Working and Schooling			Doing Neither		
	dy/dx	Std.Err.	P>|z|	dy/dx	Std.Err.	P>|z|	dy/dx	Std.Err.	P>|z|	dy/dx	Std.Err.	P>|z|
Age	-0.202	0.02744	0.000	0.125	.02576	0.000	-0.012	.00712	0.097	0.088	0.02723	0.001
Age squared	0.00322	0.00072	0.000	-0.00178	.00065	0.006	.00019	.00019	0.317	-0.00163	0.0007	0.020
Married*	-0.404	0.00732	0.000	0.154	.01429	0.000	-0.023	.00238	0.000	0.273	0.01457	0.000
Male*	0.034	0.00881	0.000	0.127	.00902	0.000	0.012	.00245	0.000	-0.173	.00926	0.000
Child under 5 years present*	-0.035	0.00896	0.000	-0.025	.00903	0.006	-0.006	.00221	0.011	0.066	0.00956	0.000
Adult 65 years and above present*	-0.020	0.01138	0.080	0.009	.01194	0.467	-0.007	.00241	0.002	0.019	0.013	0.153
Male head*	-0.007	0.00968	0.499	0.019	.00946	0.043	0.005	.00223	0.023	-0.018	0.01041	0.089
Fathers education*	0.191	0.01615	0.000	-0.124	.01261	0.000	-0.006	.00293	0.039	-0.061	0.01646	0.000
Mothers education*	0.129	0.01859	0.000	-0.139	.01446	0.000	0.014	.00577	0.013	-0.004	0.01989	0.830
Fathers working*	0.050	0.00922	0.000	0.028	.00904	0.002	0.003	.00211	0.109	-0.082	0.00993	0.000
Mothers working*	-0.008	0.00926	0.415	0.069	.00918	0.000	0.001	.0021	0.659	-0.063	0.0102	0.000
Permanent roof*	0.050	0.01238	0.000	0.007	.0123	0.567	0.011	.00269	0.000	-0.068	0.01381	0.000
Standard floor*	-0.015	0.01067	0.152	-0.002	.01036	0.812	-0.011	.0027	0.000	0.029	0.0116	0.013
dwelling*	0.036	0.01113	0.001	-0.021	.01065	0.048	-0.002	.00303	0.441	-0.013	0.0118	0.289
urban*	-0.081	0.01068	0.000	-0.030	.01069	0.005	-0.019	.00291	0.000	0.130	0.01192	0.000
Central*	-0.102	0.02393	0.000	0.127	.03318	0.000	0.024	.02436	0.330	-0.049	0.02881	0.089
Coast*	-0.020	0.02778	0.478	-0.041	.02609	0.118	-0.005	.01159	0.661	0.066	0.02963	0.027
Eastern*	-0.074	0.02501	0.003	0.066	.02848	0.021	0.004	.01478	0.764	0.004	0.0275	0.888
North Eastern*	-0.062	0.03088	0.044	-0.200	.01836	0.000	-0.018	.00563	0.001	0.281	0.03366	0.000
Nyanza*	0.004	0.02805	0.889	0.011	.02818	0.685	0.036	.02738	0.186	-0.052	0.02767	0.063
Rift Valley*	-0.010	0.02668	0.714	0.018	.02641	0.499	0.008	.01524	0.599	-0.016	0.02652	0.544
Western*	-0.024	0.0274	0.372	-0.012	.02784	0.669	0.038	.02913	0.196	-0.001	0.0296	0.966

(*) dy/dx is for discrete change of dummy variable from 0 to 1

4.2.1 Age and Age Squared

The marginal effect on age for schooling, working and doing neither is statistically significant. The marginal effect on age for working is 0.1255. Hence, a one year increase in age increases the probability of time spent working by 12.55 per cent vis-a-vis schooling, holding all other factors constant. A one year increase in age reduces the probability of youth schooling by 20.21 per cent, holding all other factors constant. Age does not statistically influence combing schooling and working. However, if a youth's neither age increases by one year, his /her probability of neither working nor schooling increases by 8.84 per cent with reference to the time spent they spend in school, holding all other factors constant. There is a convex relationship between age squared and the probability of schooling and the probability of combining school and work and a concave relationship between age squared and the probability of working and the probability of doing neither. These results are expected since an increase in age from 15 to 24 years, is a movement outside the schooling age bracket, while an entry into the job age bracket. These results are in agreement with Levison et al., (2000) findings.

4.2.2 Marital Status

Being married significantly increases the probability of working as compared to schooling by 15.37 per cent, and significantly decreases the probability of combining work and school as compared to schooling by 2.30 per cent, holding other factors constant. Being married also significantly increases the probability of a youth doing neither work nor being in school as compared to schooling by 27.37 per cent, and significantly reduces the probability of youth schooling by 40.43 per cent, holding other factors constant.

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4.2.3 Gender

Gender too plays an important role as far as time allocation is concerned. Male youth have a 12.69 per cent higher probability for working than schooling, and 1.19 per cent higher probability of combining school and work than their female counterparts, holding all other factors constant. Male youth are also 1.77 per cent less likely to be neither in school nor working as opposed to schooling only, than their female counterparts and are 3.39 per cent more likely to participate in schooling than females, holding all other factors constant. These results are as expected and are consistent with Hou (2011) study.

4.2.4 Household Composition

Family composition plays an important role in determining youth time allocation. Having siblings under the age of 5 years increases the likelihood of youth working by 2.49 per cent, and decreases the likelihood of youths combining working and schooling by 0.56 per cent, holding other factors constant. Youths with siblings under the age of 5 years are 3.52 per cent less likely to attend school than a youth without such siblings. Such youths are also 6.57 per cent more likely to be doing neither as compared to schooling, holding other factors constant. Similarly, having siblings over 65 years of age reduces the chances of youth combining schooling and working by 0.74 per cent as compared to schooling alone holding all the other factors constant. There is no difference in time allocation between youths with siblings who are over 65 years and those without such siblings for working, schooling and doing neither outcome. These results are as expected and conform to previous empirical studies like Hou (2011) and Levison et al. (2000).

4.2.5 Household Headship

Gender of household head plays a critical role in explaining how youth allocate their time. The associated marginal effects on all outcomes are not statistically significant. This implies that there is no difference in time allocation for youths living in male headed households and those in female headed households. Therefore gender of the household head does not explain youth time allocation differences.

4.2.6 Parental Education

Parent's education has a part too in describing youth education and work activity. The marginal effect of father's education is statistically significant at 5 % significance level for all other outcomes except combining schooling and work. Youth whose fathers have at least secondary school education level, have 12.41 per cent higher probability of working and 19.10 per cent higher probability of schooling as compared to their counterparts whose fathers level of education is below secondary school level, holding all other factors constant. For the doing neither outcome, it shows that youths with fathers of at least secondary school education level, have a 6.08 per cent lower likelihood of neither working nor schooling as compared to their counterparts whose fathers level of education is below secondary school level, holding all other factors constant.

The marginal effect of mother's education is also statistically significant at 5% level of significance for working only and schooling only and shows that youths whose mothers have at least secondary school education level, have a 13.89 per cent lower probability of working as compared to their counterparts whose mothers level of education is below secondary school level, holding all other factors constant. These youths also are also 12.88 per cent more likely to

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be schooling than their counterparts, whose mothers' level of education is below secondary school level, holding all other factors constant. The same empirical results were found out by Levison et al. (2000).

4.2.7 Parental Employment

The employment status of parents is an important factor in determining how youths allocate time between education and work. Father's employment status significantly influences youth's time allocated to work, school and being neither in school nor working at 5% significance level. Holding all other factors constant, youth whose fathers are working are 2.83 per cent more likely to be working and 8.16 per cent less likely to be doing neither as opposed to schooling than youth whose fathers do not work. These youth are also 19.10 per cent more likely to be schooling than their counterparts whose fathers are not working.

Similarly, mother's employment status significantly influences youth's time allocated to work and being neither in school nor working at 5% significance level. Youths whose mothers are working are 6.94 per cent more likely to be working as opposed to schooling than youth whose mothers do not work and are 6.28 per cent less likely to be doing neither compared to schooling than the youths whose mothers do not work, holding all other factors constant. This is as expected since work here includes even those working on their own businesses and youths are expected to assist their parents in running the businesses.

The marginal effects of employment type of parents are not statistically significant for combining schooling and work. This implies that there is no difference in allocating time to both schooling and working as opposed to schooling alone for youths whose parents are working and those whose parents are not working.

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4.2.8 Household Wealth Proxies

Youth time allocation effect of family wealth shows mixed results. Family wealth was proxied by type of roofing, floor, and dwelling type. The marginal effect for the type of roof is statistically significant at 5% significance level for schooling only, combining work and schooling and doing neither outcome. Youth who live in houses with roofs made of iron sheet, concrete or tiles are 1.09 per cent more likely to be combining work and school and 6.78 per cent less likely to be doing neither as opposed to schooling only compared to youths who do not reside in such houses holding all the other factors constant. Youths whose houses have roofs made of iron sheet, concrete or tiles have a 4.99 per cent higher chance of schooling compared to those whose houses have temporary roofs. Youths whose houses are roofed by concrete, iron sheets and tiles grouped as permanent are considered to come from wealthy families.

The marginal effect for the type of floor is not statistically significant at 5% significance level except for combining work and schooling outcome. Youths who reside in houses with cement, tiles or wooden floors have a 1.10 per cent lower probability of combining school and work as opposed to schooling only than their counterparts who do not reside in such houses holding all the other factors constant.

The marginal effect for the type of dwelling unit is only statistically significant at 5% significance level for schooling only. Holding all other factors constant, youths who live in permanent dwelling units are 3.59 per cent more likely to be in school than those living in temporary dwelling units. This is as expected since a wealthy or rich household is more likely to send their children to school than the poor families.

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4.2.9 Region

The type of residence is also an important explanatory variable for the time youth will spend on working, schooling, combining school and work or doing neither. Marginal effect for the type of residence is statistically significant at 5% significance level for all the outcomes. Youth who stay in urban areas have a 3.11 per cent lower probability of working and 1.87 per cent lower probability of combining working and schooling as opposed to schooling only, compared to youths who stay in the rural areas. Urban youths are 12.96 per cent more likely to be neither in school nor working as opposed to schooling only, in reference to those who stay in the rural areas. These urban youths are 8.09 per cent less likely to be schooling than those in rural areas. This result is indeed expected, since most work in the rural areas involves farm work that targets the youth, compared with urban areas in which that is the prime age for schooling.

Province of stay too dictates the time allocation factor among the youth. The time allocation by youth varies from province to province, since the various provinces vary in terms of their socio cultural characteristics, which actually explain how youth can spend their time. The marginal effects for Central, Eastern, North Eastern and Rift Valley provinces are statistically significant at 5% significance level, but the rest are not. Youth from Central, Eastern, Nyanza and Rift Valley provinces have a higher probability of working as opposed to schooling compared to their counterparts in Nairobi province by 12.72, 6.56, 1.14, and 1.79 per cent respectively.

Only the marginal effect of North Eastern Province for schooling and working is statistically significant at 5% level of significance but the rest are not. This implies that there is no difference in time allocation between schooling and working as opposed to schooling by youths in Central, Eastern, Nyanza, Rift Valley, Western and Coast provinces compared to their counterparts in

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Nairobi province, holding all other factors constant. Holding all the other factors constant, youths in North Eastern province have a lower chance of combining school and work compared to schooling alone than youths in Nairobi province by 1.79 per cent.

The marginal effect of Coast and North Eastern provinces for doing neither outcome are statistically significant at 5% significance level. The probability of doing neither as opposed to schooling for youth in Coast and North Eastern provinces are 6.55 and 28.07 per cent higher respectively than their fellow youth in Nairobi province, holding all other factors constant.

The marginal effect of Central, Eastern and North Eastern provinces for schooling outcome are statistically significant at 5% level of significance. Youths who live in Central, Eastern and North Eastern provinces are 10.20, 7.40 and 6.22 per cent less likely to be in school than youths living in Nairobi. This is because the regions vary in terms of their socio cultural characteristics, which actually explain how youth can spend their time.

CHAPTER FIVE

CONCLUSION AND POLICY RECOMMENDATIONS

5.0 Conclusions

The overall development of Kenyan economy requires the role of youths. This study adds to the existing literature on youth activity status by studying the determinants of youth time allocation in Kenya. It focused on education and work decisions using multinomial logit model and the 2005/2006 Kenya Integrated Household Budget Survey data.

Descriptive statistics show that most youths aged 15-24 years are in school (38.69 per cent) with very few youths combining schooling and working (3.09 per cent). Those working alone are 27.22 per cent while those who are neither in school nor working are 30.99 per cent. Time allocation along gender lines shows some degree of equality. These statistics also show that most youths are single implying that this is the prime age for schooling.

The analysis shows that youths age, marital status, gender, household headship, parental education, employment status of parents and area of residence influence youths decision to allocate time to work. Schooling decisions by the youth are influenced by youth's age, marital status, gender, household headship, parental education, employment status of the father and area of residence. At young ages, most youth are in school but as years progress most of them join the labour force. The decision by youths to combine schooling and work is influenced by factors like marital status, gender, household headship, parental education and area of residence. Youths living in rural areas are likely to combine school and work. The working decision is influenced by age, marital status, gender, presence of young siblings, parental education, parental employment status and region of residence. Youths whose parents are much educated have lower

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likelihood of working and combining school and work. Married youths have higher chances of working than single youths. Thus time allocation decisions by the youth generally, are influenced by his/her area of residence, gender, marital status, household headship as well as parental education.

5.1 Policy Recommendations

One recommendation from the results is that there is need for solutions or policies which best fits their unique conditions will improve time use by the youth. This is because the result show that different regions have different social cultural characteristics. Another recommendation is that the government should implement policies to increase gender equity in education and employment opportunities. The third recommendation is that the government should increase funding for adult education and sensitization programmes on the need for education should be increased. Youths who have dropped out of school or those idle should be facilitated to go for skill formation courses and encouraged to start small and micro enterprises.

Besides the above recommendations the government should increase access to education opportunities. Most youths drop out after primary school, since the secondary education is not fully subsidized. Secondly, youths should be encouraged to delay their marriage life so that they can pursue education to higher levels. Lastly the government should invest in special training and skill formation activities to ensure that the youths are engaged in productive activities and thus are not idle.

5.2 Areas for Further Research

There is need to do a time use study to establish how youths allocate their time in hours to schooling, work or to both school and work.

There is also need to conduct research on delinquency as a time allocation option since a number of youths are neither in school nor at work.

REFERENCES

Ahmad, R and Azim, P 2010, 'Youth Population and the Labour Market of Pakistan: A Micro Level Study.' *Pakistan Economic and Social Review* Vol., 48, No. 2, pp. 183-208.

Becker, G 1965, 'A Theory of the Allocation of Time', *Economic Journal* Vol.75, pp. 493-517.

David, A, Rodríguez, J and Robles, H 1998, 'The Allocation of Children's Time in Mexico and Peru.' *Population Research Institute Working Paper 98-108,* Pennsylvania State University.

De Tray, D 1983, 'Children's Work Activities in Malaysia.' *Population and Development Review* Vol.9 No.3, pp 437-455.

DeGraff, DS and Bilsborrow, RE 1993, 'Female-Headed Households and Family Welfare in Rural Ecuador.' *Journal of Population Economics*, Vol.6 No. 4 pp 317-336.

Fares, J, Montenegro, C and Orazem, P 2006, 'How are Youth Faring in the Labor Market? Evidence from Around the World.' *Background paper for World Development Report 2007; Policy Research Working Paper 4071*, World Bank,Washington, DC.

Garcia, M and Fares, J 2008, 'Youth in Africa's Labor Market.' *The International Bank for Reconstruction and Development / The World Bank,* Washington, DC.

Gronau, R 1977, 'Leisure, Home Production, and Work: The Theory of the Allocation of Time Revisited.' *Journal of Political Economy*, Vol. 85 pp 1099- 1123.

Holloway, SR and Mulherin, S 2004, 'The Effect of Adolescent Neighborhood Poverty on Adult Employment.' *Journal of Urban Affairs*, Vol. 26 No. 4 pp 427–454.

Hou, X 2011, 'Challenges for Youth Employment in Pakistan: Are They Youth-Specific?' *Policy Research Working Paper 5544 The World Bank*, Human Development Unit, South Asia Region.

Kyalo, R 2007, 'Determinants of Youth Labour Force Participation in Kenya.' *Unpublished MA Research Paper*, University of Nairobi, School of Economics.

Leung, A 2004, 'Delinquency, Schooling, and Work: Time Allocation Decision of Youth.' *Applied Economics* Vol. 36 No. 9 pp 987-993

Levison, D and Moe, KS 1998, 'Household Work as a Deterrent to Schooling: An Analysis of Adolescent Girls in Peru.' *The Journal of Developing Areas*, Vol. 32 No. 3 pp 339-356.

Levison, D, Moe, K and Knaul, F 2001, 'Youth Education and Work in Mexico.' *World Development* Vol. 29 pp 167-188.

Long, JS 1997, *Regression Models for Categorical and Limited Dependent Variables*, Sage Publications, London.

Menezes-Filho, NA, Fernández, R, Picchetti, P, Barros, R, Corseuil, C, Fogel, M, Santos, D, Wajnman, S and Leme, M C 2002, 'Adolescents in Latin America and the Caribbean: Examining Time Allocation Decisions with Cross-Country Micro Data.' *Research Network Working paper 470 Inter-American Development Bank,* Washington, DC

Nyamboke, P 2006, 'Determinants of Female labour Force Participation in Rural Kenya.' *Unpublished MA Research Paper*, University of Nairobi, School of Economics.

Oiro, M 2002, 'Poverty and Employment in Kenya.' *Unpublished MA Research Paper*, University of Nairobi, School of Economics.

Parker, SW and Skoufias, E 2000, 'The Impact of Progresa on Work, Leisure, and Time Allocation.' *International Food Policy Research Institute*, Washington, D.C. 20006, U.S.A.

Patrinos, HA and Psacharopoulos, G 1997, 'Family Size, Schooling and Child Labor in Peru: An Empirical Analysis.' *Journal of Population Economics*, Vol. 10 No. 4 pp 387- 405.

Republic of Kenya, 2003, *The 1998/99 Labour Force Budget Survey Report 1998/1999*, Central Bureau of Statistics, Ministry of Planning and National Development, Nairobi

Republic of Kenya, 2007a, *Vision 2030 Strategy for National Transformation: Accelerating Equitable Economic and Social Development for a Prosperous Kenya*, Ministry of State for Planning, National Development, Government printer, Nairobi.

Republic of Kenya, 2007b, *Strategic Plan 2007-2012*, Ministry of Youth Affairs, Government printer, Nairobi.

Republic of Kenya, 2008a, *First Medium Term Plan: Kenya Vision 2030 - A Globally Competitive and Prosperous Kenya*, Office of The Prime Minister, Ministry of State for Planning, National Development and Vision 2030, Government printer,Nairobi.

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Republic of Kenya, 2008b, *Sector Plan for Labour, Youth and Human Resource Development, 2008-2012*, Ministry of Labour, Government printer, Nairobi.

Republic of Kenya, 2008c, *Strategic Plan 2008-2012*, Ministry of Labour, Government printer, Nairobi.

Republic of Kenya, 2008d, *The 2005/06 Kenya Integrated Household Budget Survey: Labour Force Analytical Report*, Kenya National Bureau of Statistics. Nairobi.

Republic of Kenya, 2010, *2009 Kenya Population and Housing Census*, Vol. 1C, Kenya National Bureau of Statistics. Nairobi

Rosas, G and Rossignotti, G 2005, 'Starting the new millennium right: Decent employment for young people.' *International Labour Review*, Vol. 144, No. 2

Rosenzweig, M and Evenson, R 1977, 'Fertility, Schooling, and the Economic Contribution of Children of Rural India: An Econometric Analysis.' *Econometrica*, Vol. 45 No. 5 pp 1065-1079.

Tzannatos, Z 1998, 'Child Labor and School Enrollment in Thailand in the 1990s.' *Social Protection Discussion Paper Series*, Human Development Network, World Bank.

United Nations, 2003, 'World Youth Report 2003: Global Situation of Young People.' *United Nations, Department of Economic and Social Affairs*, New York.

United Nations Economic Commission for Africa, 2005, 'Youth, Education, Skills and Employment.' *Economic and Social Policy Division*, Addis Ababa.

Warren, J and Cataldi, E 2006, 'A Historical Perspective on High School Students' Paid Employment and its Association with High School Dropout.' *Sociological Forum*, Vol. 21 No. 1 pp 113-143.

World Bank (2009), 'Youth and Employment in Africa.' Africa Development Indicators (2008/09)

Zick, C and Allen, C 1999, 'The Impact of Parents' Marital Status on the Time Adolescents Spend in Productive Activitiesm.' *National Council on Family Relations*, Vol. 45, No. 1:65