YOUTH EMPLOYMENT IN GHANA:

CONDITIONS AND DETERMINANTS

Group Members: Zachary Barrett, Andrea Berrios, Yukuai He,
Sean Larsen, Miguel Novoa, Kwame Twumasi-Ankrah, Camille Vega

Advisor: Dr. Ren Mu, Associate Professor

The Bush School of GOVERNMENT & PUBLIC SERVICE
TEXAS A&M UNIVERSITY

ACKNOWLEDGEMENTS

The World Bank and the United States Agency for International Development have given significant time and effort to the development of this project. However, it would not have been possible without the support of many individuals and organizations. We would first like to thank Ms. Dena Ringold at World Bank for giving us this valuable opportunity and for the support and advice she gave along the way.

We also offer our thanks and appreciation to Dean Ryan Crocker and the International Affairs Department Head, Dr. Gregory Gause, for their outstanding leadership at the Bush School of Government and Public Service at Texas A&M.

We are highly indebted to Dr. Ren Mu, who has supported us throughout this capstone project with her patience and knowledge. One simply could not wish for a more successful relationship with a capstone leader.

We also offer our thanks to the Center on Conflict and Development at Texas A&M and the Scowcroft Institute of International Affairs at the Bush School of Government and Public Service for their encouragement and support. We also praise the enormous amount of support from all administrative staff at the Bush School. All of their work behind the scenes is greatly valued.

Last but not the least, our appreciation goes to our family and friends for their unfailing encouragement, which helped us to reach the successful completion of this project.

EXECUTIVE SUMMARY

Youth employment, and its limitations, is a pertinent problem that most developing nations face. “Youth Employment in Ghana: Conditions and Determinants” is a student-led research project that summarizes and analyzes the conditions of youth employment in Ghana as of 2013. The purpose of this report is to provide a comprehensive analysis of the impacts of individual, household, and community characteristics on youth employment outcomes. This study finds that Ghana’s youth labor issues center around the low quality of jobs rather than unemployment. The findings highlight the issue of gender gap, the importance of family background and community infrastructure in youth labor outcomes. The report provides further policy recommendations.

Research questions:

1. What are the current conditions of youth employment in Ghana?
2. What are the determinants of youth employment?

Results	Policy Recommendations
• Females are less likely to be employed, and even when employed their wages were 53% lower on average.	• National campaign to lessen the gender gap, legislative policies to ensure equal wages for both genders.
• Additional years of education do not yield substantially higher wages until the individual education reaches beyond the secondary level.	• Policies to improve the quality of primary education and to entice parents to keep children in school for longer • Government provides vocational training.
• Specific aspects of community infrastructure (electricity and mobile networks) are associated with existence of higher quality jobs.	• Increase investment in mobile network access and electricity, specifically in areas where such infrastructure is lacking.

Relevant Ghanaian Country Background

The report begins with a survey of the literature pertaining to youth employment. Our data analysis results are consistent with existing literature, suggesting that the Ghanaian youth labor force faces obstacles similar to those of youth labor forces in other developing nations.

There is a major, and growing, divide between Ghana’s northern and southern region, and between rural and urban regions. The northern, mainly rural, region is highly dependent on farming and insecure employment, making it more susceptible to the negative effects that come with natural disasters and Ghana’s unreliable rainfall. The

Ghanaian youth also faces large disparities in opportunities for the female population. Ghanaian females only have a 76% economic participation and opportunity rate in comparison to males. Consistent with this literature, our data analysis results suggest that Ghanaian females face less favorable conditions for employment in general, and even when employed, they usually hold less secure jobs.

Data and Regression Analysis

Our analysis is based on the data from the Ghana Living Standard Survey (GLSS6) conducted in 2012-2013. This database provides us with over 20,000 observations in the youth sample. The summary statistics of the youth employment outcomes are consistent with much of the existing literature. For example, around 2.37% of the Ghanaian youth is unemployed, suggesting that unemployment is not a major issue in the youth labor market.

After summarizing the conditions of Ghanaian youth employment, the report delves into the data analytics of daily wage, as well as the following employment outcomes:

Employment Status
- Employed
- Student and Working
- Student Not Working
- Unemployed
- Idle

Employment Category
- Wage Worker
- Apprentice
- Household Farming
- Household Enterprises
- Other

Employment Sector
- Primary
- Secondary
- Tertiary
- Mining
- Other

In order to best analyze these employment outcomes, we control in the regressions for individual, household, and community characteristics. Employment status, employment sector, and employment category are analyzed using a multinomial logit regression, while an ordinary least squares model is used to estimate the wage outcome.

Results

Our results suggest that gender, years of schooling, family economic status, and community infrastructure have statistically significant effects on the employment status and the type of job the Ghanaian youth have. Overall, females are less likely to be employed, and even when they are employed, their wages are 53% lower on average. The result on individual years of schooling suggests that unless Ghanaian individuals continue their education past secondary school, there is not much return to education. Once the Ghanaian youth obtain vocational training, university or post graduate education, their wages become much higher. Years of schooling also has a positive correlation with working in the service sector, suggesting that education can better prepare the Ghanaian youth to enter this sector. As seen in other existing literature, the unemployment rate is higher in urban areas, but so is the percentage of full-time

students not working. The labor outcomes of Ghanaian youth are positively correlated with their household well-being. The availability of various community infrastructures doesn't seem to have significant effects on the employment status of the Ghanaian youth, but does affect their employment category and sector. For example, youth in communities with a mobile network or electricity are more likely to be employed in as wage workers or have apprenticeships. Additionally, youth in these communities are more likely to be working in the tertiary sector. This suggests that while these forms of infrastructure may not affect whether or not youth are employed, they certainly influence the quality of available jobs.

Policy Recommendations

Based on the findings from the data analysis, this report provides three major policy recommendations in the areas of human capital investment, closing the gender gap, and investing in community infrastructure. Ghana's social policies should focus on providing the youth with specific job training, and programs need to be established that will enrich the quality of education at the primary and secondary levels. This investment in human capital should be structured to provide equal opportunities for both females and males. Additionally, Ghanaian policymakers should make a concerted effort to close the gender gap by forming social policies and campaigns that encourage female empowerment and improve female labor outcomes. Lastly, Ghana should continue to invest in its community infrastructure in order to improve the quality of jobs available to the Ghanaian youth. Ghana's business policies should also aim to alleviate the process by which household farms and enterprises become formal businesses. Ghana's economy is currently largely agricultural and will remain so for decades to come. Therefore, Ghana's policies should aim to formalize household farming to increase productivity and job stability.

TABLE OF CONTENTS

I. INTRODUCTION **1**

II. LITERATURE REVIEW **2**

III. BACKGROUND: THE GHANAIAN LABOR MARKET **4**

A) Characteristics Affecting the Labor Market 4
B) Employment in the Formal and Informal Sectors 5

IV. DATA AND DESCRIPTIVE STATISTICS **6**

A) The Ghana Living Standards Survey (GLSS6) 6
B) Employment Status 7
C) Employment Category 11
D) Employment Sector 15
E) Wages 18

V. EMPIRICAL METHODS **20**

A) Estimation Models 20
B) Explanatory variables 21

VI. REGRESSION RESULTS **22**

A) Working Status 22
B) Employment Category 26
C) Employment Sector 29
D) Wages 33

VII. CONCLUSIONS **36**

VIII. POLICY RECOMMENDATIONS **37**

A) Gender: Improving Social Standing of Females 37
B) Education: Providing Specific Job Training to Ghana's Youth 38
C) Infrastructure: Building Opportunities within the Community 38

APPENDIX 1: DATA **43**

A) Definitions 43
B) Measures of the Employed Youth 43
C) Measures of Unemployed Youth 45
D) Measures of wealth and poverty 45

APPENDIX 2: SUMMARY STATISTICS **47**

APPENDIX 3: WORKING STATUS **49**

APPENDIX 4: EMPLOYMENT STATUS **50**

APPENDIX 5: EMPLOYMENT CATEGORY **51**

APPENDIX 6: EMPLOYMENT SECTOR **52**

APPENDIX 7: REGRESSION RESULTS **53**

TABLES AND FIGURES

Table 1 Working/Student Status 6
Table 2 Vulnerable and Under-Employment 9
Table 3 Average Daily Wages for Youth in Ghana 16
Table 4 Marginal Effects of Individual and Household Characteristics on Working Status (Total) 20
Table 5 Marginal Effects of Individual, Household, and Community Characteristics on Working Status (Total) 21
Table 6 Marginal Effects of Individual and Household Characteristics on Employment Category (Total) 23
Table 7 Marginal Effects of Individual, Household, and Community Characteristics on Employment Category (Total) 24
Table 8 Marginal Effects of Individual and Household Characteristics on Employment Sector (Total) 26
Table 9 Marginal Effects of Individual, Household, and Community Characteristics on Employment Sector (Total) 27
Table 10 Effect of Household and Community Characteristics on Daily Wage (Log) 30
Table A1 Individual and Household Summary Statistics 41
Table A2 Community Level Summary Statistics 42
Table A3 Working/School Status in the Past 12 Months 43
Table A4 Vulnerable and Under-Employment in the Past 12 Months 43
Table A5 Marginal Effects of Individual, Household, and Community Characteristics on Working Status (Age 15-24) 47
Table A6 Marginal Effects of Individual, Household, and Community Characteristics on Working Status (Age 25-34) 48
Table A7 Marginal Effects of Individual, Household, and Community Characteristics on Employment Category (Ages 15-24) 49
Table A8 Marginal Effects of Individual, Household, and Community Characteristics on Employment Category – (Ages 25-34) 50
Table A9 Marginal Effects of Individual, Household, and Community Characteristics on Employment Sector (Ages 15-24) 51
Table A10 Marginal Effects of Individual, Household, and Community Characteristics on Employment Sector (Ages 25-34) 52

Figure 1 Working Status by Age – Total 8
Figure 2 Working Status by Age – Male 8
Figure 3 Working Status by Age – Female 8
Figure 4 Employment Category by Age – Total 9
Figure 5 Employment Category by Age – Male 10
Figure 6 Employment Category by Age – Female 10
Figure 7 Proportion of Employment by Category among Poverty Levels in Urban and Rural Areas 11
Figure 8 Proportion of Employment Category by Education Level in Urban and Rural Areas 11
Figure 9 Employment Sector by Age – Total 12
Figure 10 Employment Sector by Age – Male 13
Figure 11 Employment Sector by Age – Female 13
Figure 12 Proportion of Employment Sector by Education Level in Urban and Rural Areas 14
Figure 13 Proportion of Employment by Sector among Poverty Levels in Urban and Rural Areas 14
Figure 14 Log Daily Wages by Gender in Urban and Rural Areas 17
Figure A1 Employment Status by Age – Total (12 Month) 44
Figure A2 Employment Status by Age – Male (12 Month) 44
Figure A3 Employment Status by Age – Female (12 Month) 44
Figure A4 Employment Category by Age – Total (12 Month) 45
Figure A5 Employment Category by Age – Male (12 Month) 45
Figure A6 Employment Category by Age – Female (12 Month) 45
Figure A7 Employment Sector by Age – Total (12 Month) 46
Figure A8 Employment Sector by Age – Male (12 Month) 46
Figure A9 Employment Sector by Age – Female (12 Month) 46

I. INTRODUCTION

Sub-Saharan Africa is facing enormous socio-economic challenges, including an overbearing lack of reliable work opportunities for its massive youth population. Over the next forty years, Africa's population is projected to double, and every year for the next decade, eleven million youth are expected to enter the labor market (Filmer & Fox 2014; Randers 2012). The youth workforce represents a substantial pool of human capital that can increase labor productivity for the global economy, but also presents a challenge that African countries must address. As the youth population continues to grow at a fast pace, African economies must aim to integrate these youth in the labor force with stable, higher-quality jobs. The World Bank's 2014 report, "Youth Employment in Sub-Saharan Africa," indicates that the urban youth comprises a small portion of the total youth population, as most young people live in the rural areas (Filmer & Fox 2014). Therefore, the challenge of youth transition into the workforce entails two distinct residence types, urban and rural, of which different skill sets are required for local occupations. Proper policy-making requires the analysis and documentation of trends that takes this varied gamut into account.

This study focuses on youth employment in Ghana, which is as much afflicted by this development issue as other parts of Sub-Saharan Africa. The fifth chapter of the World Bank publication on "Improving Skills Development in the Informal Sector" (Adams, et al. 2013) notes that Ghana has experienced substantial poverty reduction and economic growth from 1991 to 2006. However, Ghana still retains a considerable poverty rate that is especially evident in rural areas where low levels of education and low productivity farming are prevalent. This study of household and community characteristics provides a deeper insight into the country's informal labor sector because, as Adams, et al. (2013) report, most of Ghana's workforce belongs to the informal sector. Additionally, this allows us to carefully examine the three main sectors also studied in the 2014 "Youth Employment in Sub-Saharan Africa" report—agriculture, nonfarm household enterprises, and wage employment—as well as other areas, such as apprenticeships and student-workers.

This study contributes to the existing literature on youth employment in Ghana by analyzing the conditions and determinants that affect employment outcomes which will aid policymakers as they seek to improve youth labor development. This report seeks to answer the following questions:

1) What are the current conditions of youth employment in Ghana?

2) What are the determinants of youth employment in Ghana?

Using data from the most recent wave of the Ghana Living Standard Survey (GLSS6 2012/2013), this study describes the contribution of Ghanaian youth to the labor market. This research identifies new areas in the youth employment literature that will prove useful to our client, the World Bank, as well as to the Government of Ghana and other stakeholders.

Such analysis is timely for Ghana, and although similar results may be found in other nations of Sub-Saharan Africa, focusing on the youth employment in Ghana provides a distinct value. Ghana is uniqe from many of its neighbors due to its level of development. Ghana's economy and government are relatively strong compared to many others in the region, providing it with a stable platform upon which to make improvements. Simply put, the nation is in a position where it can make a difference in the lives of its youth. Ghana

is at a critical junction where it can choose to use its youth population to develop, or it continue its development. Consequently, Ghana will be an interesting case to study.

This report will begin by discussing the current literature on employment factors and the background of the labor market in Ghana. It will then take an extensive look at the employment conditions facing Ghana's youth, followed by regression analysis to observe the relationship between individual level characteristics and various employment outcomes. Finally, this study will end with conclusions and policy recommendations.

II. LITERATURE REVIEW

This section serves as an overview of extensive research relating to the key factors affecting employment. In particular, examining macroeconomic factors such as access to credit, the effects of inflation, the role of government spending and globalization. Special attention is given to studies addressing youth employment specifically, such as family income and wages. In general, the majority of macroeconomic factors shown in various labor force studies are not analyzed herein as this research focuses on the individual, household, and community influences to youth employment. Literature on employment factors looks at both macro and micro level influences on youth employment. The general consensus is that employment level, quality, and income can be significantly affected by national financial structures, global influences, and individual characteristics.

A) Global Youth Labor Force

The youth employment challenge is a global phenomenon, although there are differences in the nature and size of its economic and social impacts within and among countries. Young people represent the hope of changing societies for the better, yet there are many of them who cannot find work. There are millions of youth who are unable to transition into an occupation that is sufficient to meet their needs, and consequently face the risk of social exclusion. According to the International Labor Organization, in 2012, almost 75 million young people worldwide were out of work, many of whom had never worked. There were also millions mired in job insecurity and low productivity. There are 4 million more youth who are employed today than in 2007, and there are more than 6 million people who have abandoned their search for a job. This situation is unprecedented since youth unemployment could lead to a long-term "scarring" effect on young people if nothing is done to avert it. The greatest consequence could be among those from disadvantaged backgrounds, especially in developing countries. As long as youth face employment constraints, there are high economic and social costs that may threaten the fabric of societies.

B) Macroeconomic Factors

The existing literature on youth employment, and employment in general, concludes that employment is greatly affected by macroeconomic factors. While an economic downturn in a region can negatively affect the entire labor force, the youth labor force is especially susceptible to changes in the economic well-being of a nation. Some macroeconomic factors

highlighted in the literature pertaining to youth employment are government consumption expenditure as a percentage of GDP, the inflation rate, access to credit, and the level of infrastructure.

Ramney (2011) and Wilson (2012) argue that an increase in the labor supply leads to lower real wages but higher employment and output. Fatàs and Mihov (2002) also find that increases in government consumption lead to a rise in employment. In addition, the International Labor Organization states that increased government expenditure on public salaries and wages, social transfers and benefits has a significantly positive effect on employment, while government spending on interest payments significantly lowers employment. Similarly, Aiyagari et al. (1990) note that persistent changes in government consumption have additional employment and output effects that are larger than those due to momentary changes.

Much of the existing literature also finds correlations between inflation rates and employment rates. Niemi and Lloyd (1981) find an independent and positive impact of inflation on female labor force participation. By virtue of the smaller cash supply commanded by women relative to men, Cardoso (1992) posits that women are less adversely affected than men by higher rates of inflation. Focusing on youth employment, Choudhry et al. (2012) find in a cross-sectional study that inflation has a negative and significant effect on youth unemployment. The literature on youth employment also suggests that as youth wages increase, more youth have an incentive to enter the labor force (Goldin, 1995).

It is also widely agreed upon that heightened access to credit by the private sector has a positive effect on employment. Financial intermediation contributes to enhancing the productivity of assets by the poor, creates opportunities for entrepreneurship and new investments, improves efficiencies in product and factor markets, and stimulates private sector development and job creation (Gandelman, 2012). Improving access to finance enables firms to expand their operations, promoting a positive effect on the quality and number of jobs created (International Finance Corporation 2012). The literature also highlights a positive correlation between developed infrastructure and heightened employment levels. Chen (2004) reveals that increasing the level of information and communications technology infrastructure tends to improve the rates of labor activity. Asiedu (2004) also finds that infrastructure, proxied by phones per 1,000 citizens, has a positive and significant effect on employment.

Two other macroeconomic factors linked to labor activity are the level of globalization and institutionalized democracy. Richards and Gelleny (2007) find that globalization can enhance employment because foreign direct investment (FDI) and international trade can create job opportunities, especially for women. Oostendorp (2009) notes that foreign capital inflows to local markets are held to have positive effects on female employment because multinational corporations frequently provide women with work outside of the home. However, Papart et al. (2000) posit that attracting FDI in the long-term may cause women to either lose their jobs to men or be pushed down the production chain into subcontracting work. Choudhry et al. (2012) find that both openness and FDI have a negative and significant effect on youth unemployment. Despite these findings, Javorcik (2013) indicates that, among the reasons for policy-makers in developing and developed countries to seek and attract FDI, is to create new jobs in their economies.

Additionally, institutionalized democracy seems to have a positive correlation with increased employment activity. Hegre et al. (2001) observed a quadratic relationship between democracy and employment. The authors posit that democracy could expand labor market potential and decision-making processes to the less privileged, resulting in distributive policies benefiting these groups. Democracy may also improve employment levels by increasing expenditures on social programs. Hegre et al. (2001) and Anyanwu (2013) therefore expect democracy to have a positive and significant effect on youth employment.

C) Individual Factors

Apart from macroeconomic factors, the existing literature also identifies numerous individual factors that could serve as determinants of youth employment. Dickens and Lang (1995) show that controlling for sex, sector, and age, the positive relationship between education and unemployment disappears for urban young people and is significantly weakened for rural youth in Sri Lanka. In addition, controlling for age, more educated youth have higher unemployment rates initially after leaving school. Freedman and Wise (1982) also found that unemployment is concentrated among those with the lowest levels of education. Their study demonstrated that those youth with less than 12 years of schooling account for 58% of the unemployed and that unemployment rates are much higher among secondary school dropouts than among secondary school graduates.

It is widely accepted that family characteristics, such as income, have a great effect on the youth's ability to find employment. Freeman and Wise (1982) found, however, that family income shows little relationship to employment, both with the inclination to seek employment and the ability to find jobs. Freeman and Wise (1982) also highlight the issue of not distinguishing between unemployment and being out of the labor force when referring to the youth. Youth, in particular, are more likely to be in between actively seeking work and not finding work, and to switch more frequently from one group to the other. In addition, the youth may not seek work as actively as unemployed adults.

Based on the existing literature about determinants of youth labor outcomes, in the empirical analysis we will include individual and household characteristics together with community infrastructure variables as potential factors that influence the various employment outcomes of the youth of Ghana.

III. BACKGROUND: THE GHANAIAN LABOR MARKET

This section gives a general overview of the labor market situation in Ghana, presenting studies on the population, gender norms, and geographical variations, as well as some key labor market findings. In summary, Ghana has a bulging youth population that needs to be integrated into full and productive employment and decent work. Huge disparities exist by gender and geographical location as women and girls still face barriers to labor force participation, earnings, and socio-economic status than men.

A) Characteristics Affecting the Labor Market

Ghana's youth population, defined here as persons between the ages of 15 to 34, is about 8.6 million, or about 35% of the total population. Approximately 5 million of these, about 20% of Ghana's total population, are between the ages 15 and

24 (Ghana Statistical Service 2012). Considering that the youth account for such a large proportion of Ghana's total population, the youth have considerable importance within the labor force. In addition to age, other vital characteristics play a part in the Ghanaian labor market.

Although gender norms have become less pronounced in post-modern Ghana, a gender gap still exists in the economy. According to the World Economic Forum, while females in Ghana have 76% economic participation and opportunity, males hold 100% in both measures. This measure takes the following into account: 1) the ratio of female labor force participation over male value; 2) the wage equality between women and men for similar work; 3) the ratio of female estimated earned income over male value; 4) the ratio of female legislators, senior officials and managers over male value; and 5) the ratio of female professional and technical workers over male value (World Economic Forum, 2013). In order to view any differences, this study includes gender comparisons for each employment characteristic analyzed. Indeed, the summary statistics herein will show that there are clear gender differences in Ghana's youth employment.

Geographical variations also play a major role in the Ghanaian labor market. There is a divide between the country's north and south, and a growing divide between rural and urban regions. In general, the northern region is more susceptible to natural disasters and unreliable rainfall, making its economy and labor force more vulnerable. Consequently, the northern region remains the most impoverished region, with poverty level even increasing despite the overall reduction in national poverty levels from 1991-2006 (Hesselberg, 2006). The effect of geographical variation is causing increased internal migration, primarily from the poorer rural regions in the north to the more urban regions in the south. In fact, Awumbila and Ardayfio-Schandorf (2008) argue that British colonial policy in Ghana promoted the north as a labor reserve for the south. Consequently, while there were substantial investments in the development of the south, the north was ignored. This neglect of the north has further pushed migration southward. In addition to gender and geographic differences, the Ghanaian labor market is also divided by the formal and informal sectors. To account for the aforementioned geographic differences, this report observes various differences between regions.

B) Employment in the Formal and Informal Sectors

On the subject of youth employment in Ghana, Baah-Nuako (1991) states that the informal sector is comprised of non-capitalist activities with family ownership of the means of production and absence of hired wage labor. The informal sector is dominated by unregulated, unlicensed and untaxed activities.

Prior to Ghana's economic reforms in 1983, the formal sector was an important source of employment for the working population. However, its relevance in terms of the share of employment waned following reform. Boateng and Ofori-Sarpong (2002) ascribed the poor employment performance to retrenchment in the public sector, economic liberalization, withdrawal of subsidies to non-performing state-owned enterprises, liquidity constraints in industry resulting from the drastic depreciation of the Ghanaian cedi and the reduction in tariff protection of local industries.

A person is said to be unemployed in Ghana if he or she has attained the

minimum legal age of 15 years and is jobless, but is currently available and actively seeking employment (Baah-Boateng, 2013). Baah-Boateng (2012) at 8.2% in 2010, to high informality. Nyarko et al. (2014) show that unemployment in Ghana is mainly an urban phenomenon to the extent that the unemployment rate was more than twice and almost five times higher in urban areas than in rural areas in 2006 and 2010, respectively.

Sackey and Osei (2006) identify demographics, firm size, and education level as determinants of both unemployment and underemployment in Ghana. The authors find that while unemployment for the general population in Accra is 15.8%, the incidence of unemployment is about 20% for the labor force aged 20 to 29 years. Nyarko et al. (2014) find that the youth aged 15 to 24 years suffer disproportionately from attributes the unemployment rate in Ghana, which was lower than the Sub-Saharan Africa average

unemployment compared to any other group. They claim that the prevalence of youth unemployment is a result of the rapid rate of population growth. The annual population growth rate of 2.7% increases the labor force growth rate and, therefore, lowers the likelihood of employment for the relatively inexperienced youth. A disturbing characteristic of unemployment in Ghana is that it appears to increase with years of education. Baah-Boateng (2012) estimates that the highest rate of unemployment occurs among the youth with secondary education, followed by tertiary-school graduates. It is those without an education that have the lowest unemployment rate.

IV. DATA AND DESCRIPTIVE STATISTICS

Having reviewed the literature on youth employment and gained a greater insight of Ghana's labor market, this section builds on the aforementioned information through an analysis of the data found in the Ghana Living Standards Survey (GLLS)—a national household survey that has become an essential tool for welfare monitoring in Ghana. The section begins with a description of the GLSS's objectives and its value to our examination. Next, the analysis delves into how different factors, such as gender, age, and education, affects the employment status of Ghana's youth, their employment category (the type of job that the youth may have), their employment sector, and their wages.

A) The Ghana Living Standards Survey (GLSS)

The Ghana Living Standards Survey (GLSS) is a national household survey that provides an understanding of the living conditions of the Ghanaian population. It has become an essential tool for welfare monitoring. Since 1987, Ghana has conducted six rounds of living standards surveys, with its most recent being in 2012/2013 (Ghana Statistical Services, 2014). The sixth round of the Ghana Living Standards Survey (GLSS6) centers on the labor force and the use of financial services by households in Ghana. It provides estimates on a number of indicators for analyzing living standards by region, rural or urban households, and ecological zones, with a particular focus on areas within the Savannah Accelerated Development

Authority (SADA) zone. The survey is conducted over a 12-month period and collects detailed information on the demographic characteristics of household members, including health, education, migration, household agriculture, savings, credit, and access to financial services. Additionally, the survey collects information on the health safety of occupational groups with high poverty levels, as well as fertility, household income, consumption and expenditure patterns. It also measures the structure of Ghana's employment and time-use, including child labor, household farm and non-farm enterprises, and household asset ownership. Ultimately, the GLSS6 seeks to fulfill the following objectives:

1) Provide knowledge of the pattern of household consumption and expenditure, and serve as useful data to construct Ghana's Consumer Price Index (CPI). The CPI estimates consumption as a proportion of household production.

2) Complement other databases such as CountrySTAT (i.e. the Food and Agriculture data network) to support national, regional and district planning, and to increase awareness of financial services available to households.

3) Estimate the number of persons in the labor force (employed, unemployed and underemployed) and their distribution by gender, major age groups, levels of education, rural and urban spread, as well as disability status.

4) Assist policymakers in analyzing the impact of their decisions on living conditions and to identify vulnerable groups for government assistance.

5) Present the important indicators for evaluating Ghana's position with regards to progress made in attaining the Millennium Development Goals (MDGs), particularly MDG 1 which is to "halve poverty by 2015."

The GLSS6 provides a rich source of data for observing and analyzing youth labor factors in Ghana. For further information about the survey methodology, please refer to the GLSS6 Interviewer's Manual (GLSS6 2014a). The remainder of section IV will take a general look at the employment characteristics of those surveyed between the ages of 15 and 34. Later sections will further analyze the likely causes of these trends. Definitions and additional information for indicators used can be found in Appendix 1.

B) Employment Status

Employment status focuses on whether or not the youth are working or in school. Including students and non-students, approximately 69% of Ghanaian youth are employed, while about 2% are unemployed

Table 1 Employment Status

	Total Sample	Male	Female	Age 15-24	Age 25-34
Employment Status					
Working, Not Student	55.34%	53.31%	57.20%	35.39%	84.51%
Working Student	13.40%	17.04%	10.10%	20.61%	2.87%
Unemployed	2.37%	2.14%	2.58%	2.37%	2.37%
Employment Rate	96.66%	97.05%	96.30%	95.93%	97.36%
Unemployment Rate	3.34%	2.95%	3.70%	4.07%	2.64%
Out of Labor Force					
Non-working Student	18.93%	20.66%	17.35%	30.23%	2.40%
Idle	9.96%	6.86%	12.78%	11.40%	7.85%
Num. Obs	22848	10882	11966	13566	9282

but actively seeking work. This gives an overall unemployment rate of just over 3% of youth within the labor force.

In addition, 13% of the total sample are students who are also working. Approximately 29% of youth are not in the labor force, with 19% being students who are not working and the remaining 10% considered idle as they are not actively seeking employment, nor are they students.

The unemployment rate is marginally higher for females (3.7%) than males (2.95%), and higher for the youth aged 15 to 24 (4.07%) compared with the youth aged 25 to 34 (2.64%). The proportion of females who are working, but not in school is higher (57%) than males (53%), and higher for the youth aged 25 to 34 (85%) than those aged 15 to 24 (35%). The percentage of total youth in the sample who are idle is 9.96%—significantly higher for females (12.8%) than for males (6.86%), and higher for the youth aged 15 to 24 (11.4%) than the youth aged 25 to 34 (7.9%). Idle youth are those who are not working or looking for work, and are not going to school. Although startling, idle youth can include not only those who have given up searching for a job, but those who are pregnant, injured, or don't want to work. Further analysis into the reasons for idleness would be valuable, but unfortunately, survey results from the GLSS6 are lacking in this area.

What may be of greater concern is the percentage of youth between the ages of 15 and 25 who are not attending school, almost 66% of the surveyed youth.

Additionally, 32% of youth are currently students, and of these, 41% work while attending school. The percentage of youth who are students but do not work is higher for males (20.7%) than for females (17.4%), and higher for the youth aged 15 to 24 (30.2%) compared to the youth aged 25 to 34 (2.4%).

Employment status also differs greatly by age of the youth. Figure 1 shows the total employment status of Ghanaian youth by age. Not surprisingly, the data shows that the vast majority of youth are employed at an older age, and the majority of younger youth claim student status. As age increases, the proportion of individuals in the labor force increases and the proportion of working and non-working students decreases.

Among male and female youth, a very large proportion of idle individuals are found among those aged 17 to about 25 (See figures 2 and 3). Females are more likely to be non-working students, and males are more likely to be working students at all ages. Although the average of unemployed female youth is slightly higher than that of males, males between 20 and 25 seem to have a higher unemployment rate. At all other ages, male youth have very low unemployment.

Table 2 looks more closely at those youth who are employed, but whose labor may not be sufficient to meet their needs. Vulnerable employment is based on category and includes household farming and enterprises. Underemployment is a measure of the youth who work part-time (less than 40 hours per week) in their primary job (See Appendix 1-B). It is evident that, although the youth employment rate is above 95%, they are anything but secure in their employment. Of the total sample of youth, over 75% are in vulnerable employment categories. This proportion is about 12% higher for women (81%) than for men (69%). Additionally, the younger cohort of youth—those between the ages of 15 and 24—are more likely to be employed in vulnerable categories (80%), versus those aged between 25 and 34 (71%). Although a greater proportion of

the younger cohort would be expected to be in vulnerable employment due to their higher likelihood of working in household farming and enterprises, it is alarming that up to age 34 there is still a large proportion of youth employed in these vulnerable categories.

Underemployment is also a concern

Figure 1 Working Status by Age - Total

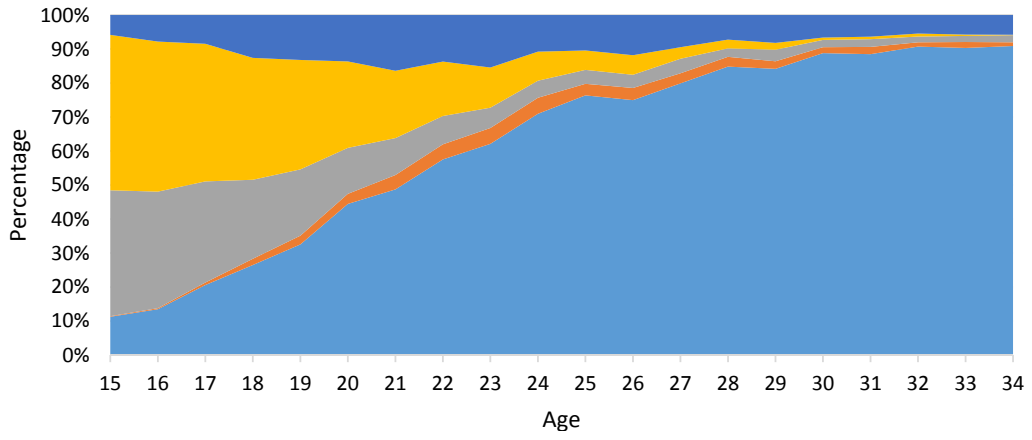


Figure 2 Working Status by Age - Male

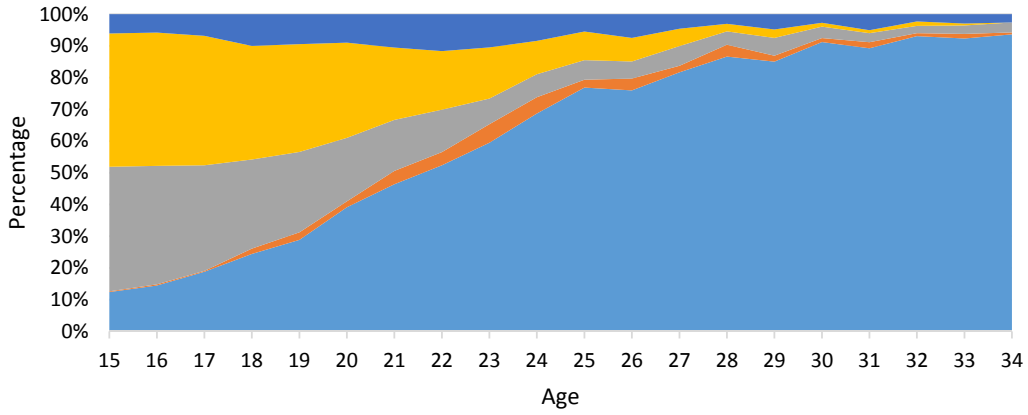


Figure 3 Working Status by Age - Female

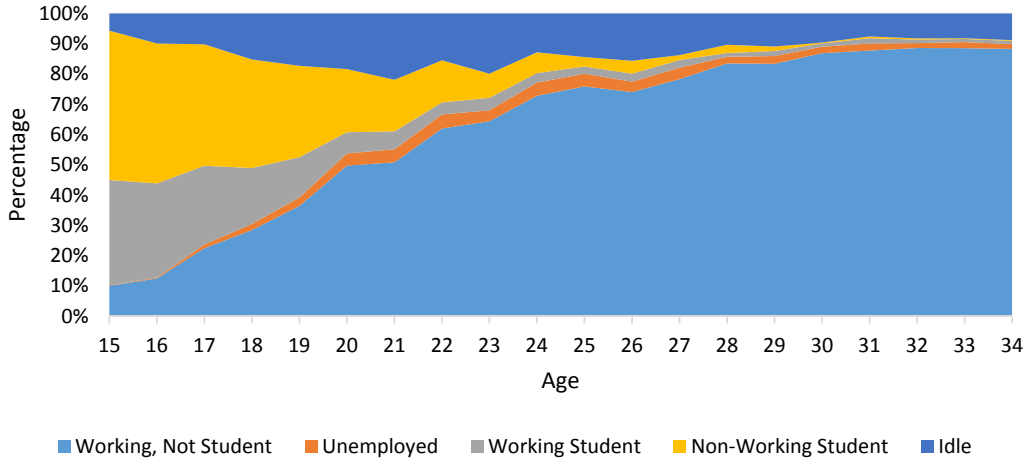


Table 2 Vulnerable and Under-Employment

	Total Sample	Male	Female	Age 15-24	Age 25-34
Vulnerable Employment	75.22%	69.03%	81.10%	80.23%	70.53%
Num Obs.	15686	7644	8042	7584	8102
Underemployment	41.46%	35.82%	46.53%	43.75%	39.97%
Num Obs.	12407	5869	6538	4889	7518

among Ghanaian youth. These youth, even if employed, may struggle to find sufficient income for their needs or the needs of their families. Some of these youth find secondary employment, but many do not. Just over 40% of youth are considered underemployed, with a greater proportion of these being female (47%). Youth aged 15 to 24 have a higher rate of underemployment as well, with approximately 44% working less than 40 hours per week. The older cohort of youth, those aged 25 to 34 have slightly lower underemployment (40%).

C) Employment Category

Figure 4 showcases the employment categories of Ghanaian youth. The employment categories are defined based on where the youth work, and have five types. Household farming is the most common employment category for the youngest cohort. Over 80% of employed 15-year-olds work in the household farming category which diminishes by half to 39% of employed 34-year-olds.

Figure 4 Employment Category by Age - Total

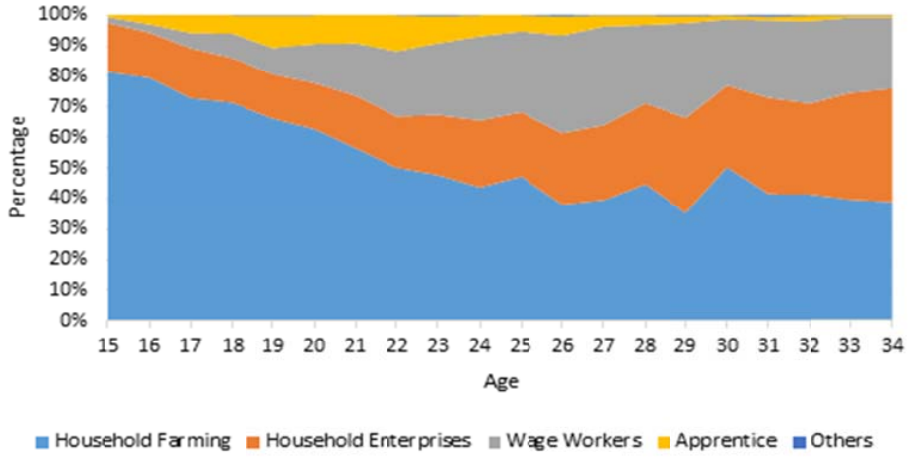


Figure 5 Employment Category by Age - Male

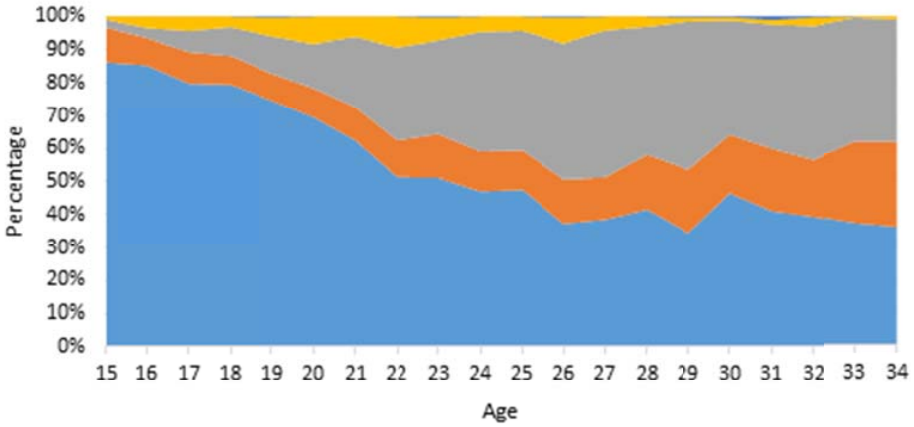
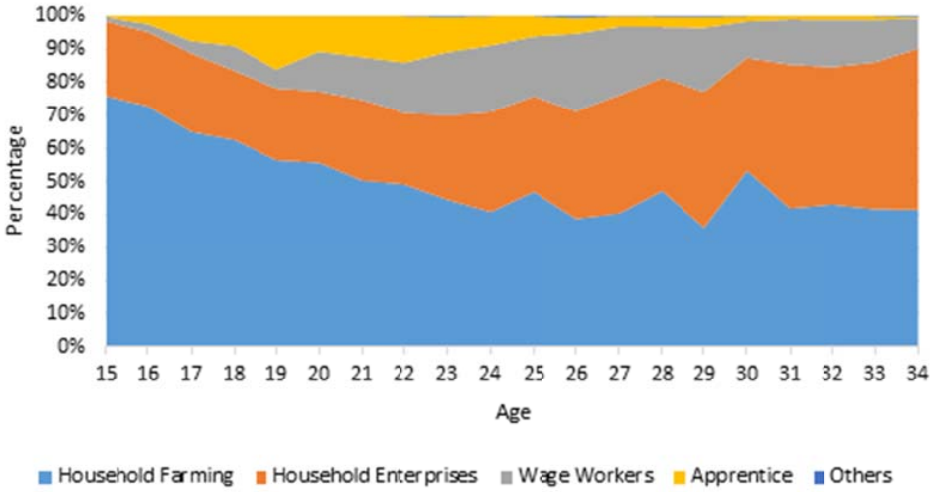


Figure 6 Employment Category by Age - Female



Wage workers display an opposite trend; only 2% of employed 15-year-olds are wage workers, as compared to 27% of 32-year-olds. The category of household enterprises has a similar trend, increasing from 16% of employed 15-year-olds, to 37% of employed 34-year-olds working in household enterprises. These trends hold when the youth are divided by gender as seen in Figures 5 and 6, but the difference between male and female employment across age is stark. Although household farming decreases for both genders as the youth grow older, female youth tend to migrate toward work in household enterprises, whereas their male counterparts are increasingly moving toward wage employment. Females also have a bulge in wage-working between the ages 20 and 28, but the percentage of females in this employment category drastically decreases by age 34 (See Tables 5 and 6). This may simply be evidence of females entering the formal labor market after some schooling and leaving as they get married several years later. It is also apparent, and interesting to note, that a higher percentage of females are working in apprentice positions.

Among the youth, household farming accounts for the largest share of employment category among all poverty levels in the rural sector, comprising 86% of very poor and 63% of non-poor working individuals (Figure 7). In the rural areas, less poverty is associated with a greater proportion of individuals participating in wage work, possibly due to higher education attained. In urban areas, employment is more diverse among all poverty levels. Household farming still holds the most employment share among the very poor and poor, with 45% and 43% of

individuals in those sector, respectively, but falls sharply, to only 15% of the non-poor. In the urban sector, a decrease in poverty is associated with an increase in household enterprises, rising from 20% of workers among the very poor to 39% of non-poor. Urban areas also have a much higher percentage of wage workers, with the highest proportion found among the non-poor. (See Appendix 1D for more information on the measurement of poverty level).

Employment category of youth also differs greatly by level of education. Figure

Figure 7 Proportion of Employment by Category among Poverty Levels in Urban and Rural Areas

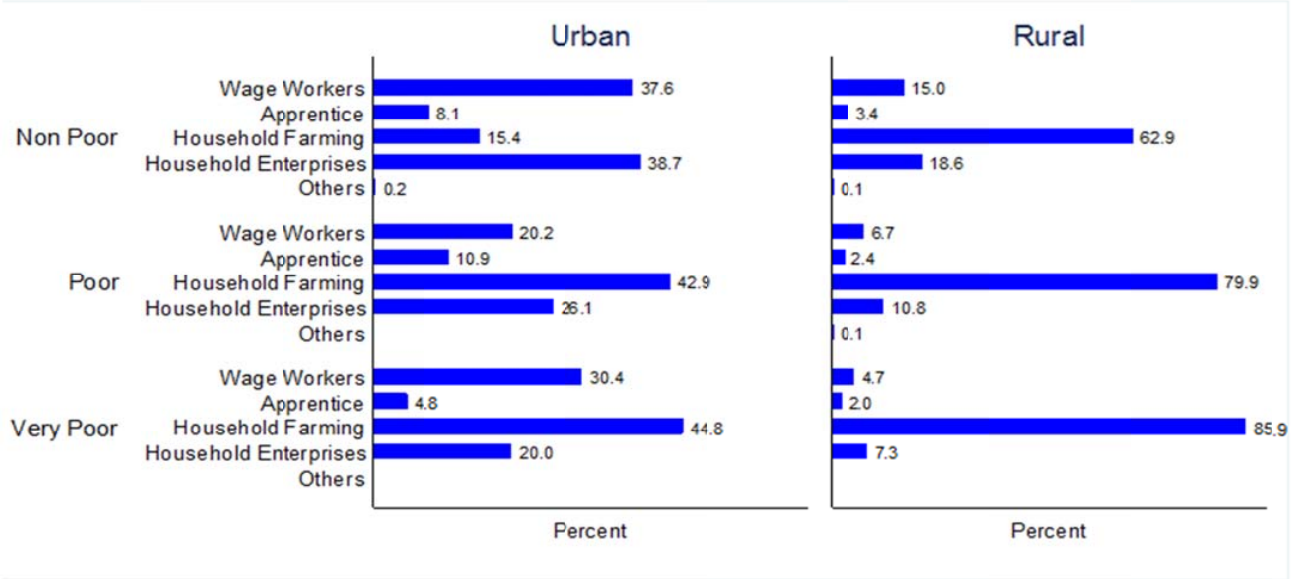
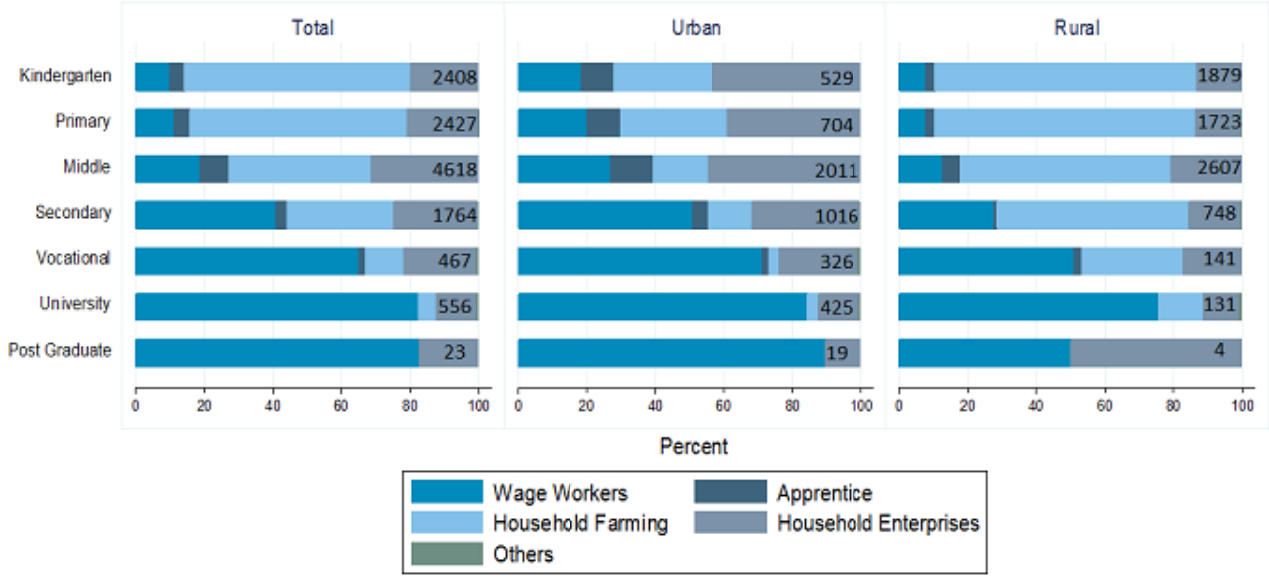


Figure 8 Proportion of Employment Category by Education Level in Urban and Rural Areas



*Total number of respondents in each category shown.

8 demonstrates that an increase in education attained is accompanied by a decrease in the share of household farming employment, particularly in the rural sector. Additionally, an increase in education is accompanied by an increase in salaried and wage paying work. Figure 8 shows the share of youth in each employment category by their education level.

This effect is more drastic among urban dwellers. Approximately 89% of those who have completed postgraduate education are wage workers. Interestingly, postgraduates in the rural area do not share the same propensity for wage work. At the highest education level, wage workers account for only 50% of employed, and household enterprises, which had enjoyed only a limited share of workers at all other education levels, also account for 50% of those employed. However, the total number of rural youth sampled with postgraduate education is very small, with only four respondents.

Youth in urban areas tend to have more apprenticeships, which may simply be due to availability. Urban youth also work more in household enterprises than rural youth, especially at the lower education levels. These household enterprises can comprise both formal and informal sector businesses. In the urban areas, apprenticeship is more common among those with lower education levels, suggesting that apprenticeships may be seen by the youth as either a substitute or a necessary supplement to education from an improved human capital perspective.

D) Employment Sector

Aside from employment category, interesting trends can be found among Ghanaian youth and the various sectors where they find employment. Figure 9 depicts the different sectors in which the youth were employed. In general, it seems that at 15, the majority of youth are likely working on family farms, with 77% employed in the primary (agricultural) sector. The proportion of youth employed in that sector is significantly lower for the older youth, down to 38% for 34-year-olds. This is not surprising as it corresponds with patterns seen earlier in employment category, where the young are primarily working in household farming.

Figure 9 Employment Sector by Age - Total

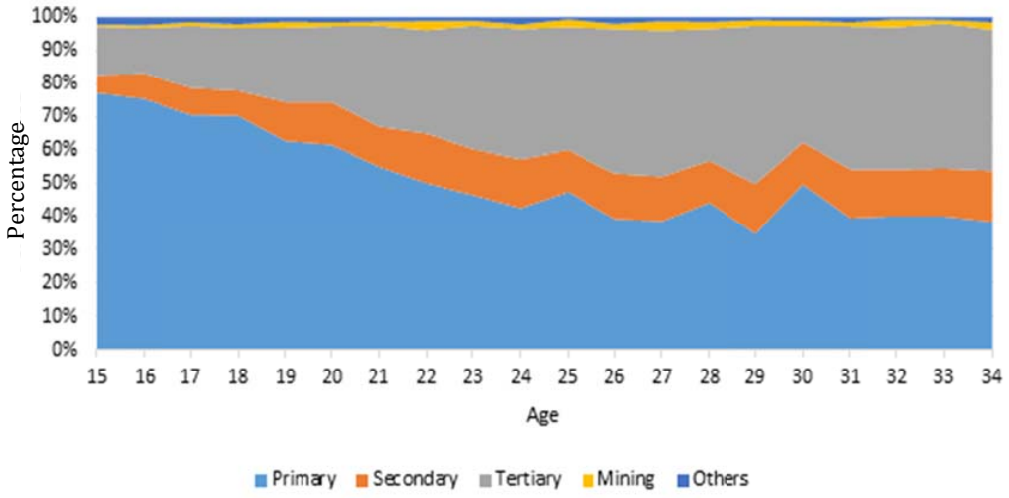


Figure 10 Employment Sector by Age - Male

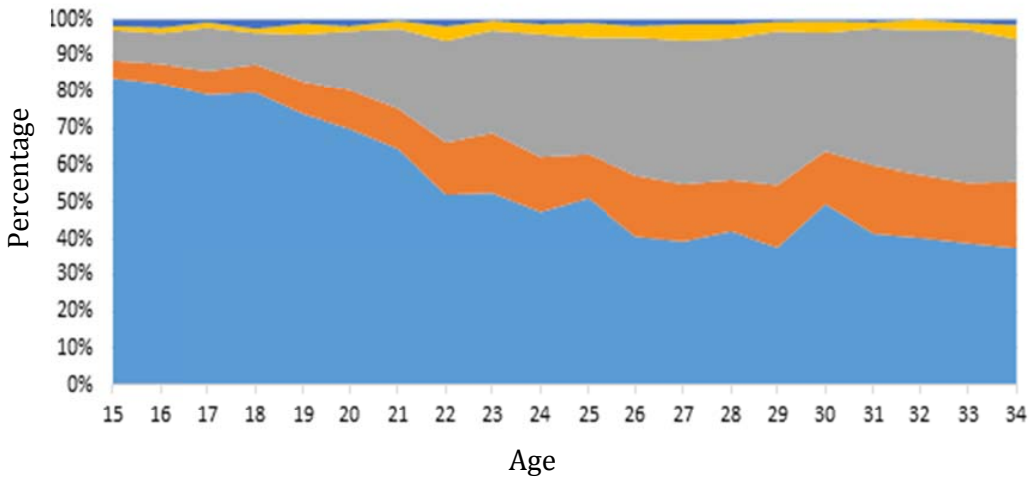
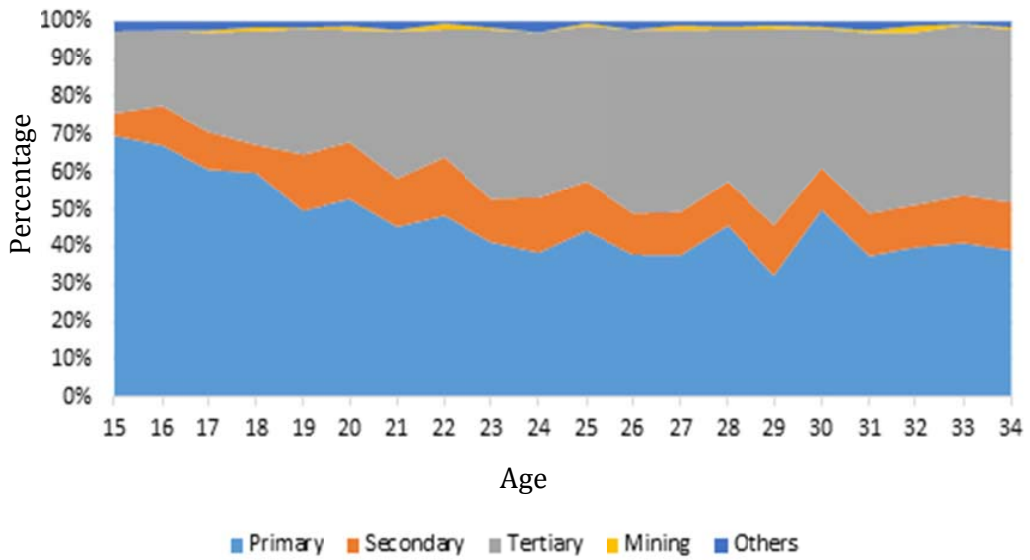


Figure 11 Employment Sector by Age - Female



Employment in the tertiary (services) sector seems to follow an opposite pattern, with the percentage of youth employed in that sector increasing as age increases. While only 15% of employed 15-year-olds work in the tertiary sector, 43% of 34-year-olds are employed in that sector. This is predictable as youth are likely to migrate toward employment in the tertiary sector as more education and experience are obtained. Youth employment in the secondary (manufacturing) sector stays fairly constant, only increasing slightly with age. Consequently, it appears there is a lack of opportunities in the manufacturing sector.

Figures 10 and 11 tell a similar story. However, it appears that female youth tend to move from the primary to the tertiary sector at an earlier age than males. In

addition, there appears to be a significantly higher percentage of female youth in the tertiary sector even from a young age. At age 15, approximately 20% of females were employed in that sector, compared to only about 10% of males. That difference is about the same at age 34 when 40% of males and 50% of females are in the tertiary sector. The proportion of male youth that are employed in the secondary sector increases with age and is only slightly higher than females. Not surprisingly, a greater percentage of men are employed in mining than women, but the total percentage is very small for both genders.

As one would expect, an increase in education attained is accompanied by an

Figure 12 Proportion of Employment Sector by Education Level in Urban and Rural Areas

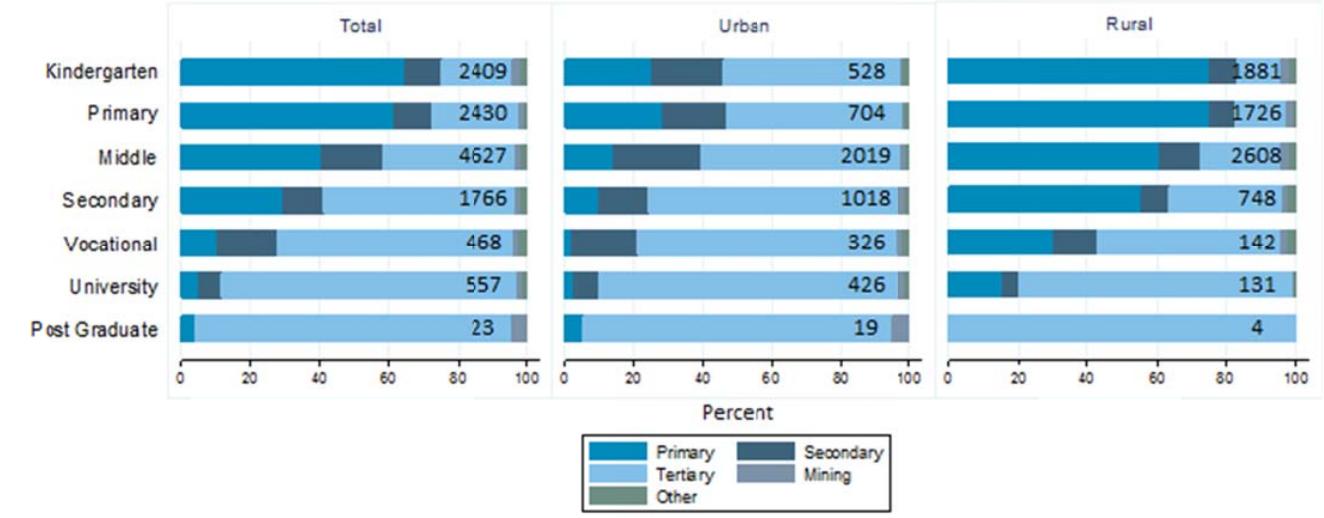
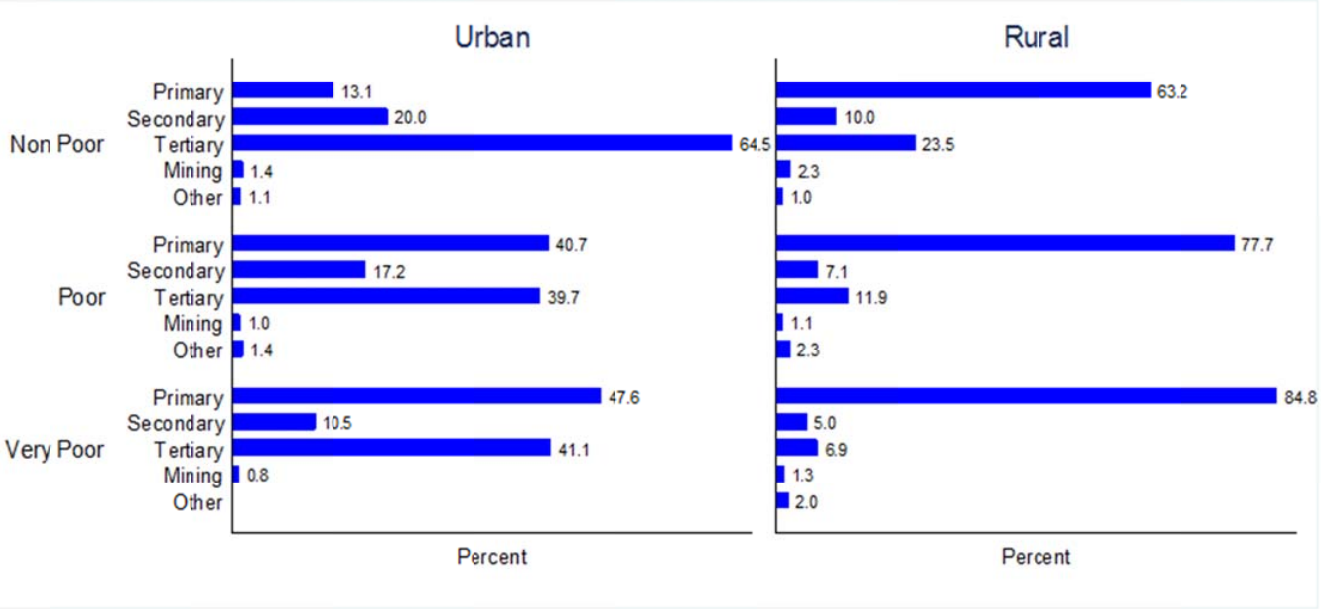


Figure 13 Proportion of Employment by Sector among Poverty Levels in Urban and Rural Areas



increase in the share of employment in the secondary and tertiary sectors (See Figure 12). Whereas 65% of workers with a kindergarten education level are employed in the primary sector, only 4% of those with a post graduate education level claim employment in that sector. In the urban areas, work in the primary sector is nearly eliminated among those who have completed vocational training or higher. However, the primary sector still accounts for a significant share of workers with higher education levels in the rural area. Although there are no workers employed in the primary sector at the post-graduate level in rural areas, again, it may be due to the small sample size.

There also appears to be a greater proportion of youth employed by the secondary sector in urban areas than in rural areas. Figure 13 shows the share of each employment sector by highest education level completed.

As one would expect, the very poor and poor are nearly all employed in the primary sector. However, a majority of the non-poor in rural areas, 63.2%, is also employed in the primary sector. In the urban areas, the very poor and poor have a greater diversity of employment, with 41% of very poor and 40% of poor employed in the tertiary sector. This percentage rises to 65% for the non-poor. Unlike the rural sector, the primary sector only accounts for 13% of employed in the urban areas. However, the primary sector still accounts for a large share of lower income earners.

E) Wages

Again, data from the past seven days was used instead of from the past twelve months due to the limited number of observations of the latter. Still, only about 40% of the surveyed workers reported their income in the past seven days. This is likely due to a lack of measurable wages for many respondents, including those in household farming or household enterprises. The mean reported wages per day for youth in Ghana is GH₵19.72. Table 3 contains wage data as reported by youth in Ghana.

When wage is observed by working status, the highest income was earned by wage workers, who gained on average GH₵21.80 per day. Youth working in household enterprises made marginally less, while those employed in the remaining categories earned wage significantly lower than average.

The highest wage earned by sector was in mining, where workers gained on average GH₵28.03 per day. This is followed by tertiary sector workers earning on average GH₵21.66 per day. Youth in the primary, secondary, and other sectors made less than GH₵17.00 on average.

Among genders, males earned an average daily wage of GH₵23.93, much greater than the female's average daily wage of GH₵15.20. Consequently, males' wages are approximately 21% above the mean, while female's wages fall about 23% below the mean, effectively illustrating the gender employment gap in Ghana.

When observed by education level, the highest wages were earned by post graduates, who gained an average of GH₵76.40 per day. Although significantly lower, youth who had attended vocational training or university earn about GH₵37.00 per day. The next highest paying education level is just barely above the national average at GH₵21.68. What is surprising is that this for youth with only a kindergarten education. Youth who had completed primary, middle, or secondary school made less. Consequently, there seems to be a threshold for education level, before which education values little. For youth to get a

Table 3 Average Daily Wages for Youth in Ghana

Total Average Daily Wage: GH₵19.72

Regions	**₵**
Northern and Upper	17.42
Western and Central	19.68
Greater Accra	20.26
Volta	17.83
Eastern	14.6
Ashanti	25.14
Brong Ahafo	23.78
Sectors	**₵**
Primary	15.79
Secondary	16.88
Tertiary	21.66
Mining	28.03
Other	11.53
Gender	**₵**
Male	23.93
Female	15.2

Working Status	**₵**
Wage Workers	21.8
Apprentice	7.35
Household Farming	16.02
Household Enterprises	19.91
Other	11.31
Education	**₵**
Kindergarten	21.68
Primary	12.97
Middle	17.74
Secondary	19.3
Vocational	38.68
University	36.72
Post Graduate	76.4
Urban/Rural	**₵**
Urban	21.84
Rural	17.13

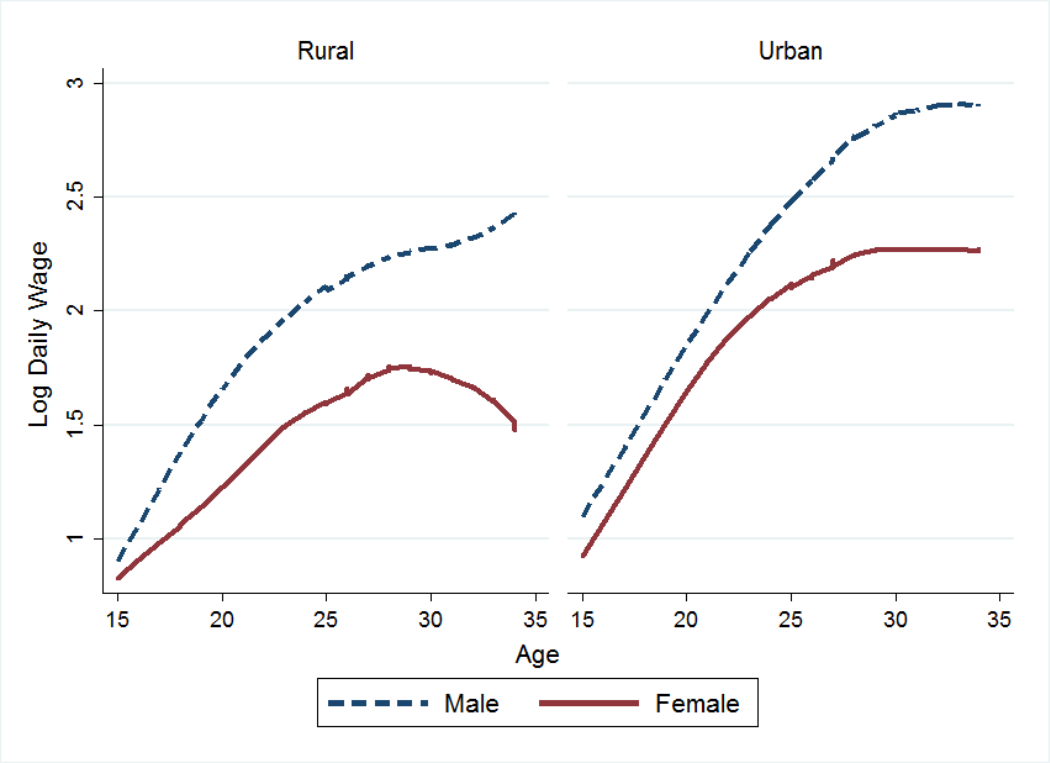
high value return on education, they must study beyond secondary school.

Among regions, the highest average wage observed was in the Ashanti region, where workers gained GH₵25.14 per day, on average. Ashanti is followed by the Brong Ahafo region, with an average GH₵23.78 per day; the Greater Accra region, GH₵20.26 per day. These are not surprising as the three regions with the highest wage are those that are most developed. It is surprising that the Northern and Upper Regions do not have the lowest average wage among regions, as these are the poorest areas of Ghana. However, this maybe be due to the way in which region was coded, wherein multiple northern regions were included in that category, possibly skewing the result.

Average daily wages between urban and rural areas seems to illustrate a gap here as well. Youth in urban communities reported an average daily wage of GH₵21.84, which is substantially greater than rural workers' earned average daily wage of GH₵17.13. Figure 14 shows the difference in log daily wages across age for both females and males in urban and rural communities, based on local weighted regression lines. It demonstrates that wage initially has a linear relationship with age for both genders, but that tends to level off. For a given age, men and women both earn less in rural communities than in urban. Additionally, female youth make significantly lower wages than males across both areas. In urban communities, males and females begin with quite a small discrepancy in wage, but for older youth, that gap grows quite large as females older than about 23 earn significantly less than males. It is also interesting to note, in

rural areas, the temporary leveling off of male wages and the diminishing wage level for females in their late 20s. For older males, the wage goes back up, but older female youth earn less than their younger counterparts. These figures present further evidence of the age, gender, and urban-rural gaps among Ghanaian youth.

Figure 14 Log Daily Wages by Gender in Urban and Rural Areas



V. EMPIRICAL METHODS

A) Estimation Models

The next section of this study uses regression analysis to analyze the effects of various indicators on youth employment. The four employment outcomes tested were: work status, employment sector, employment category, and wage. Due to the differing nature of these outcomes, there were different estimation models used accordingly. Work status, employment sector, and employment category were analyzed using a multinomial logit regression. An ordinary least squares model was used to estimate the outcomes on wage.

Multinomial Logistic Regression

In order to test these three elements of employment, a multinomial logistic regression was run at each level of analysis- individual, household, and community. The multinomial logistic regression was chosen because it is used to predict categorical placement, or the probability of being included in the category as defined by the dependent variable. In our case there are employment outcomes in accordance with the use of multinomial

logit regression, the regression includes both binary and continuous independent variables.

The regressions were primarily run on the dataset including all of the youth, ranging from ages 15 to 34. The dataset was then divided into a younger and older cohort, the younger including those between the ages of 15 and 24 and the older including those between the ages of 25 to 34. The division of age cohorts allowed for distinct employment determinants between the two groups of youth. This report will focus on results of analysis using the total sample will refer to any significant difference between cohorts (Tables included in Appendix). Household and community indicators are both presented in text. The samples with community characteristics are a much smaller sample due to a lack of community data for some of the survey participants.

Ordinary Least Squares Regression

Wage outcome results were determined through an ordinary least squares regression (OLS). An OLS model was used for the wage portion because the possible outcomes were not categorical. The regression tested for any correlation between the explanatory variables and the wages of individuals employed.

The sections that follow summarize the explanatory variables. In general, the analysis shows that individual characteristics play a large role as determinants of youth employment outcomes, particularly category. Furthermore, we found that trends often differ between the younger (15 to 24) and older (25 to 34) cohorts. Each explanatory variable is discussed more in depth in the following sections.

B) Explanatory variables

The explanatory variables are divided into three levels: individual characteristics, household characteristics, and community characteristics. The first regression includes both individual and household characteristics, and the second regression includes individual and household indicators, as well as community data. The following sections describe the explanatory variables more in depth.

Individual and Household Characteristics

The individual characteristics included as explanatory variables are: age, gender, years of schooling, and residence type. The age and years of schooling variables are coded simply as number of years. The gender variable is coded by whether the individual was male or not (male=1). The residence type variable is coded by whether the individual resides in an urban area (urban=1). These individual characteristics were chosen after careful consideration of the existing literature and what information available in the GLSS data.

We also include eight household characteristics to encompass different aspects of household structure and social economic status. The eight variables are: mother's years of schooling, father's years of schooling, expenditures per capita, gender of head of household, age of head of household, number of youth in household, number of adults in household, and number of elders in household. The years of schooling of the mother and father of the household are meant to act as proxies for economic status of the household, as is household expenditure. The regression also included a variable to account for the gender of the head of the household (coded male=1). In addition to the gender of the head of household, there is also a variable to account for the age of the head of the household. These two

variables are included to capture certain characteristics of a household that may be inherent from the type of household leadership in place. The regression also includes variable to account for the demographics of the family, such as number of youth, number of adults, and number of elders. The regression including both individual and household characteristics is used as the base regression.

Community Characteristics

The GLSS data contains rich information on community characteristics, but not every community within the GLSS household survey was included. This analysis does include nine community characteristics, most of which were coded as binary variables to account for whether the service was available within the community or not. The community characteristics were obtained using survey questions that ask if the community has the following: electricity, a mobile network, a bank, a permanent market, primary and junior high schools, an agriculture extension office, and a health clinic. Unfortunately, these explanatory variables only accounted for the existence of the services or locations, not for the level of access to each entity.

VI. REGRESSION RESULTS

A) Working Status

Table 4 shows the mlogit regression results for the effect of individual and household characteristics on employment status. Community factors are controlled for in Table 5.

Age is negatively associated with the probability of being (i) a student who is working, (ii) a student who is not working, and (iii) being idle, although this has very low magnitude. An additional year of age is associated with a 7.2% increase in the likelihood of being employed. The younger cohort may be more likely to leave school and join the workforce full time, reflected in the sizable coefficient of age on working. However, the older cohort experiences a much smaller effect of age since a one-year increase in age is associated with a .9% increase in the probability of working (See Appendix, Tables A5 and A6). The age effect remains when community characteristics are included in the regression.

Gender has a significant effect across all employment status categories. The effect of being male is insignificant for whether youth are unemployed or working. However, male youth are more likely to be students, both working and not working. Specifically, being male leads to a 5.2% increase in the probability of being a working student, and a 2.5% increase in the probability of being a non-working student. This reflects that, conditional on age, male youth are more likely to be in school than female youth. These results remain robust when community level variables are controlled for (See Table 5). However, gender does not have a significant effect on the likelihood of being employed. These effects diminish greatly for the older cohort. In addition, male youth between 25 and 34 are less likely to be unemployed and more likely to be working than females (Appendix Table A5 and A6). For the young cohort, there are some unique differences. The effect of being male on employment is rather negative. Males aged 15 to 24 are 5.4%

Table 4 Marginal Effects of Individual and Household Characteristics on Working Status (Total)

VARIABLES	(1) Unemployed	(2) Working	(3) Student Working	(4) Student Not Working	(5) Idle
Age	0.001***	0.072***	-0.027***	-0.041***	-0.005***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Male	-0.005	0.005	0.052***	0.025***	-0.077***
	(0.003)	(0.010)	(0.005)	(0.005)	(0.007)
Years schooling (Individual)	0.002***	-0.027***	0.005***	0.015***	0.005***
	(0.000)	(0.002)	(0.001)	(0.001)	(0.001)
Urban	0.020***	-0.084***	-0.058***	0.064***	0.057***
	(0.005)	(0.016)	(0.009)	(0.009)	(0.010)
Log Household Expenditure per capita	-0.011***	-0.048***	0.025***	0.045***	-0.011
	(0.003)	(0.011)	(0.006)	(0.006)	(0.007)
Years schooling (Mother)	0.000	-0.001	0.000	-0.000	0.000
	(0.000)	(0.002)	(0.001)	(0.001)	(0.001)
Years schooling (Father)	0.001	0.001	-0.002**	0.000	0.000
	(0.000)	(0.002)	(0.001)	(0.001)	(0.001)
Male as Head	-0.017***	0.045***	-0.012	-0.034***	0.020**
	(0.005)	(0.014)	(0.009)	(0.009)	(0.008)
Age of Head	0.000	-0.004***	0.000	0.001***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Household size	-0.005***	-0.001	0.006***	0.000	-0.000
	(0.001)	(0.004)	(0.002)	(0.002)	(0.002)
Number of Youth	0.006***	-0.005	-0.004	0.004	-0.002
	(0.002)	(0.006)	(0.003)	(0.003)	(0.004)
Number of Adults	0.005*	-0.032***	-0.001	0.025***	0.003
	(0.003)	(0.010)	(0.005)	(0.005)	(0.007)
Number of Elderly	0.001	0.025**	-0.005	0.006	-0.027***
	(0.003)	(0.011)	(0.005)	(0.006)	(0.009)
Observations	18,592	18,592	18,592	18,592	18,592

Standard errors clustered at community level are in parentheses. Region dummies are included in all regressions.
*** p<0.01, ** p<0.05, * p<0.1

less likely to claim working status, consistent with more males being in school conditional on age.

The explanatory variable of years of schooling yields a statistically significant effect on the probability of all the possible outcomes, except for the idle and unemployed when community characteristics are controlled for. Interestingly, an additional year of schooling is associated with a 2.8% decrease in the probability of being employed. This negative effect is significantly greater in the younger cohort with a 2.7% decrease in the probability of working, compared to the older cohort with a .5% decrease in the probability of working. An additional year of schooling increases the probability of being a student and working, or being a student and not working for the older cohort. On the other hand, the younger cohort is less likely to be students and working with each additional year of schooling. While the values of the marginal effect of one additional year of schooling tend to fluctuate, the negative or positive effects remain the same for both the younger and older cohorts.

A dummy variable is created to measure whether individual respondent reside in an

urban or rural area. This variable yields a statistically significant effect on the probability of all possible outcomes except for unemployment when community characteristics are controlled for. Living in an urban area decreases the probability of working by 9.8%. The negative effect of living in an urban area is exacerbated for the younger cohort especially, whereas effects for the older cohort are insignificant. Those who are aged 15 to 24 have a 10.1% less probability of being employed compare to rural youth. At the same time, living in an urban area also yields a statistically significant effect on whether an individual is

Table 5 Marginal Effects of Individual, Household, and Community Characteristics on Working Status (Total)

VARIABLES	(1) Unemployed	(2) Working	(3) Student Working	(4) Student Not Working	(5) Idle
Age	0.001***	0.081***	-0.043***	-0.038***	-0.000
	(0.000)	(0.002)	(0.002)	(0.002)	(0.001)
Male	-0.010***	-0.019	0.069***	0.021***	-0.061***
	(0.003)	(0.014)	(0.009)	(0.007)	(0.008)
Years schooling (Individual)	0.001	-0.028***	0.007***	0.018***	0.002
	(0.000)	(0.003)	(0.002)	(0.002)	(0.001)
Urban	0.012	-0.098**	-0.080***	0.124***	0.041*
	(0.008)	(0.039)	(0.019)	(0.035)	(0.024)
Log Household Expenditure per capita	-0.002	-0.046***	0.023**	0.029***	-0.003
	(0.002)	(0.014)	(0.010)	(0.009)	(0.008)
Years schooling (Mother)	-0.000	-0.003	0.002	-0.001	0.002
	(0.000)	(0.003)	(0.002)	(.)	(0.002)
Years schooling (Father)	0.000	-0.000	0.001	0.000	-0.001
	(0.000)	(0.002)	(0.002)	(0.002)	(0.001)
Male as Head	-0.012**	0.080***	-0.019	-0.041***	-0.008
	(0.006)	(0.022)	(0.015)	(0.014)	(0.011)
Age of Head	-0.000	-0.002***	0.000	0.001***	0.001***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Household size	-0.002**	0.003	0.002	0.003	-0.005**
	(0.001)	(0.004)	(0.003)	(0.002)	(0.003)
Number of Youth	0.003*	-0.008	0.001	-0.002	0.006
	(0.002)	(0.007)	(0.005)	(0.004)	(0.004)
Number of Adults	0.005**	-0.037***	0.011	0.013**	0.009
	(0.002)	(0.012)	(0.007)	(0.007)	(0.007)
Number of Elderly	0.003	0.013	-0.004	0.007	-0.018**
	(0.002)	(0.012)	(0.008)	(0.008)	(0.008)
Road	0.007**	-0.020	0.020	-0.003	-0.005
	(0.004)	(0.034)	(0.017)	(0.020)	(0.018)
Electricity	0.006*	-0.015	-0.013	-0.010	0.033**
	(0.003)	(0.025)	(0.017)	(0.017)	(0.014)
Mobile Phone Network	-0.000	-0.021	-0.041**	0.031**	0.031**
	(0.005)	(0.025)	(0.017)	(0.015)	(0.013)
Bank	-0.002	0.005	0.013	-0.009	-0.008
	(0.005)	(0.033)	(0.030)	(0.022)	(0.019)
Permanent market	0.004	-0.070**	-0.001	0.040*	0.027
	(0.006)	(0.031)	(0.020)	(0.022)	(0.018)
Primary school	0.001	0.035	-0.004	0.008	-0.040*
	(0.006)	(0.033)	(0.018)	(0.019)	(0.022)
Junior High School	0.002	-0.040	0.004	0.023	0.012
	(0.006)	(0.032)	(0.018)	(0.019)	(0.018)
Agriculture Extension Office	0.001	-0.041	0.013	0.027	-0.000
	(0.004)	(0.026)	(0.017)	(0.019)	(0.015)
Health Clinic	-0.004	0.051**	-0.034**	-0.012	-0.000
	(0.003)	(0.023)	(0.015)	(0.015)	(0.013)
Observations	9,582	9,582	9,582	9,582	9,582

Standard errors clustered at community level are in parentheses. Region dummies are included in all regressions.
*** p<0.01, ** p<0.05, * p<0.1

a student and not working or a student and working concurrently --- individuals living in urban areas are 25% more likely than rural youth to be students who are not working.

Additionally, the household welfare of an individual, measured by household expenditures (log per capita), have a negative effect on working status and a positive effect on the likelihood of being a student. Those with higher household welfare are 4.8% less likely to be working, and 2.5% and 4.5% more likely to be a working or non-working student, respectively. These results may suggest that households with higher welfare may be able to afford to lose the income from these productive youth, and as a result the youth are less likely to be engaged in the workforce.

Community infrastructure characteristics also had an effect on employment status. Surprisingly, individuals that live in an area with access to electricity are more likely to be unemployed, but the coefficient is minimal. This was seen in the literature as well, however, and may simply be due to greater job mobility or higher turnover in these communities. Furthermore, those with access to mobile networks are less likely to be working students.

B) Employment Category

Youth employment category also generates interesting results based on the chosen indicators. Age yields a statistically significant effect on all employment category outcomes (wage worker, apprentice, household farming, and household enterprises).

For the younger cohort, an increase of one year of age makes a 1.8% increase in probability of being a wage worker. While the older cohort is negatively affected by an additional year of age, with one additional year of age yielding a 1.1% decrease in probability of being a wage worker (See Appendix Tables A7 and A8). Age also has a negative effect on the older cohort's probability of being an apprentice, while having a positive effect on the younger cohort's probability of being an apprentice. Overall, it can be seen that being older has a negative effect on the probability of being either a wage worker or apprentice (See Appendix Table A7).

Gender yields a statistically significant marginal effect on the probability of all possible employment category outcomes (wage worker, apprentice, household farming, and household enterprises). Being male has a positive marginal effect of 11.7% increase in probability of being a wage worker in the total sample. This effect is exacerbated in the older cohort, with a 26.7% increase in probability of being a wage worker.

For the younger cohort, the marginal effect is 3.5%, while this is a large effect, it is not nearly as impactful as it is for the older cohort. On the other hand, being male decreases the probability of being an apprentice. In the total sample, being male decreases the probability of being an apprentice by 1.7%, and it decreases the probability by 3.1% for the younger cohort. It can be inferred that males are more likely to be wage workers, and less likely to be apprentices.

Being male also increases the probability of working in household farming, and decreases the probability of working in a household enterprise. Gender has a marginal effect of 11.9% increase in probability of working in household farming in the total sample. This effect is exacerbated in the younger cohort, with being male yielding a 14.3% increase in probability of working in household farming. Being male has a negative effect of 21.9% on the probability of working in a household enterprise, and this effect increases to 32.5% for the older cohort.

Table 6 Marginal Effects of Individual and Household Characteristics on Employment Category (Total)

VARIABLES	(1) Wage Worker	(2) Apprentice	(3) Household Farming	(4) Household Enterprises
Age	0.008***	-0.003***	-0.016***	0.012***
	(0.001)	(0.001)	(0.001)	(0.001)
Male	0.117***	-0.017***	0.119***	-0.219***
	(0.011)	(0.005)	(0.014)	(0.012)
Years of Schooling	0.033***	-0.004***	-0.021***	-0.008***
(Individual)	(0.002)	(0.001)	(0.002)	(0.002)
Urban	0.090***	0.063***	-0.342***	0.188***
	(0.014)	(0.008)	(0.021)	(0.017)
Expenditures per Capita	0.032***	0.003	-0.115***	0.080***
(Log)	(0.009)	(0.005)	(0.015)	(0.011)
Years of Schooling	0.002	0.002**	-0.007**	0.003
(Mother)	(0.002)	(0.001)	(0.003)	(0.002)
Years of Schooling	0.004**	0.000	-0.010***	0.006***
(Father)	(0.002)	(0.001)	(0.003)	(0.002)
Male as Head	-0.053***	-0.031***	0.110***	-0.026
	(0.015)	(0.009)	(0.020)	(0.016)
Age of Head	-0.003***	-0.000	0.004***	-0.001**
	(0.001)	(0.000)	(0.001)	(0.001)
Household Size	-0.026***	-0.006***	0.024***	0.007
	(0.004)	(0.002)	(0.005)	(0.004)
Number of Youth	0.031***	0.011***	-0.032***	-0.010
	(0.007)	(0.003)	(0.009)	(0.007)
Number of Adults	0.009	0.013***	-0.000	-0.022*
	(0.010)	(0.005)	(0.014)	(0.012)
Number of Elderly	0.032***	0.010**	-0.020	-0.022
	(0.010)	(0.005)	(0.017)	(0.016)
Observations	12,100	12,100	12,100	12,100

Standard errors clustered at community level are in parentheses. Region dummies are included in all regressions.
*** p<0.01, ** p<0.05, * p<0.1

Additional years of schooling yield a positive effect on the probability of being a wage worker. Overall, one additional year of schooling yields a marginal effect of 3.3% increase in the probability of being a wage worker. This effect is greater in the older cohort, leading to a 4.9% increase in the probability of being a wage worker. Additional years of schooling also decrease the probability of being an apprentice, but not by much (0.4%).

Additional years of schooling decrease the probability of working in a household farm. In the total sample, an additional year of school decreases the probability of working in household farming by 2.1%. Additional years of schooling do not have a

Table 7 Marginal Effects of Individual, Household, and Community Characteristics on Employment Category (Total)

VARIABLES	(1) Wage Worker	(2) Apprentice	(3) Household Farming	(4) Household Enterprises
Age	0.005***	-0.001*	-0.010***	0.007***
	(0.001)	(0.000)	(0.001)	(0.001)
Male	0.052***	-0.016***	0.109***	-0.145***
	(0.009)	(0.005)	(0.015)	(0.013)
Years of Schooling (Individual)	0.015***	-0.000	-0.014***	-0.000
	(0.001)	(0.001)	(0.002)	(0.002)
Urban	0.092***	0.086***	-0.271***	0.092**
	(0.028)	(0.027)	(0.056)	(0.037)
Expenditures per Capita (Log)	0.027***	0.005	-0.078***	0.047***
	(0.007)	(0.004)	(0.016)	(0.010)
Years of Schooling (Mother)	0.003*	0.001	-0.005	0.001
	(0.002)	(0.001)	(0.003)	(0.002)
Years of Schooling (Father)	0.000	-0.000	-0.003	0.003
	(0.001)	(0.001)	(0.003)	(0.002)
Male as Head	-0.042***	-0.009	0.079***	-0.028*
	(0.015)	(0.008)	(0.024)	(0.015)
Age of Head	-0.002***	-0.000	0.003***	-0.001***
	(0.000)	(0.000)	(0.001)	(0.000)
Household Size	-0.014***	-0.002	0.014***	0.001
	(0.003)	(0.002)	(0.005)	(0.003)
Number of Youth	0.020***	0.003	-0.028***	0.004
	(0.005)	(0.003)	(0.009)	(0.006)
Number of Adults	0.010	0.008**	0.008	-0.026***
	(0.007)	(0.004)	(0.013)	(0.009)
Number of Elderly	0.019***	0.006*	-0.022	-0.004
	(0.006)	(0.004)	(0.014)	(0.011)
Road	0.020	0.009	-0.002	-0.027
	(0.019)	(0.007)	(0.039)	(0.029)
Electricity	0.039***	0.003	-0.071**	0.029
	(0.015)	(0.007)	(0.030)	(0.020)
Mobile Network	0.018	0.017***	-0.079***	0.043**
	(0.012)	(0.006)	(0.026)	(0.018)
Bank	-0.008	-0.012	0.022	-0.002
	(0.019)	(0.008)	(0.047)	(0.031)
Permanent Market	0.023	0.018*	-0.073**	0.032
	(0.019)	(0.011)	(0.037)	(0.024)
Primary School	0.034**	0.006	-0.001	-0.039
	(0.016)	(0.008)	(0.038)	(0.031)
Junior High School	-0.023	0.005	-0.071*	0.090***
	(0.018)	(0.008)	(0.038)	(0.024)
Agriculture Extension Office	-0.019*	-0.008	0.049*	-0.022
	(0.011)	(0.006)	(0.025)	(0.017)
Health Clinic	0.019	0.002	-0.046*	0.025
	(0.012)	(0.006)	(0.027)	(0.018)
Observations	6,798	6,798	6,798	6,798

Standard errors clustered at community level are in parentheses. Region dummies are included in all regressions.
*** p<0.01, ** p<0.05, * p<0.1

significant effect on the probability of working in household enterprises once community effects are added to the regression.

Living in an urban area yields a statistically significant effect on the probability of all possible employment category outcomes when household and community characteristics are included in the regression. Living in an urban area yields a 9% increase in the probability of being a wage worker. The effect is smaller for the younger cohort, yielding an increase of 5.7% in probability of being a wage worker. Living in an urban area also increases the probability of being an apprentice, for both the older and younger cohorts. The effect of living in an urban area on the probability of being an apprentice is much greater for the younger cohort, with a marginal effect of a 10.6% increase in probability, compared to a 2.2% increase of probability of being an apprentice for the older cohort. The result seems to suggest that apprentice is mainly a urban practice.

As expected, living in an urban area reduces the probability of working household farming. Living in an urban area yields a marginal effect of 34.2% decrease in probability of working in household farming. On the other hand, living in an urban area increases the probability of working in a household enterprise. The variable of living in an urban area yields an 18.8% increase in the probability of working in a household enterprise.

Household welfare continues to have an effect when employment category is considered. Those individuals with higher household welfare, holding all other factors constant, are more likely to be employed as wage workers or household enterprise workers, and less likely to be engaged in household farming. Because the residence type and years of schooling are held fixed, it may be that household welfare has an effect outside of these control variables. For example, household wealth may have an effect on social networks, which may lead to a job in a higher opportunity employment category.

Additionally, community infrastructure characteristics, specifically electricity and mobile networks, have an effect on employment category. Individuals that live in an area with access to electricity are more likely to be engaged in wage work and less likely to be engaged in household farming, holding all other factors constant. Similarly, those individuals that live in areas covered by mobile networks are more likely to work in household enterprises or as apprentices, and less likely to be engaged in household farming.

C) Employment Sector

For household and individual characteristics of the total sample, one additional year of age is associated with a 1.5% decrease in the probability of being employed in the primary sector. However, the effects on the probability of working in the secondary and tertiary sectors may be too small to be considered substantive (see Table 8). When regressed with community characteristics, age has a negative impact on the likelihood of being employed in the primary sector but a positive impact on the probability of finding work in the secondary sector. Among the younger cohort, a one year increase in age is associated with a 2.9% decrease in the probability of working in the primary sector, a 1.2% increase in the probability of working in the secondary sector, and a 1.7% increase in the probability of working in the tertiary sector (See Appendix, Table A10).

Gender has a significant effect across all employment sector categories for both individual and household characteristics of the total sample. Being male is associated

with a 22.8% decrease in the probability of being employed in the tertiary sector, an 18% increase in the likelihood of being employed in the primary sector, and a 2.2% increase in the probability of being employed in the secondary sector as compared to females. Also, males are 1.9% more likely to be employed in the mining sector when compared to females. These relationships hold when community characteristics are included in the regression, except that the effect of being male on working in the secondary sector is negative (See Table 9). For individuals in the younger cohort, being male is associated with a decrease in the probability of working in the secondary sector, whereas for the older cohort, being male has a positive effect on secondary sector employment.

Years of schooling has a significant effect across the primary, secondary and

Table 8 Marginal Effects of Individual and Household Characteristics on Employment Sector (Total)

VARIABLES	(1) Primary	(2) Secondary	(3) Tertiary	(4) Mining	(5) Other
Age	-0.015***	0.004***	0.012***	0.000	-0.001**
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)
Gender	0.188***	0.022**	-0.228***	0.019***	-0.001
	(0.013)	(0.010)	(0.012)	(0.004)	(0.002)
Years of Schooling	-0.022***	-0.006***	0.029***	-0.001**	0.000
(Individual)	(0.002)	(0.001)	(0.002)	(0.000)	(0.000)
Urban	-0.367***	0.101***	0.278***	-0.008**	-0.004
	(0.021)	(0.012)	(0.018)	(0.004)	(0.004)
Expenditures per Capita	-0.122***	0.010	0.113***	0.003	-0.003*
(Log)	(0.015)	(0.008)	(0.012)	(0.002)	(0.002)
Years of Schooling	-0.008**	0.003**	0.004	0.001	0.000
(Mother)	(0.003)	(0.001)	(0.002)	(0.000)	(0.000)
Years of Schooling	-0.012***	0.004***	0.007***	0.000	0.001***
(Father)	(0.003)	(0.001)	(0.002)	(0.000)	(0.000)
Gender of Head	0.107***	-0.043***	-0.059***	-0.002	-0.002
	(0.020)	(0.014)	(0.019)	(0.003)	(0.004)
Age of Head	0.004***	-0.001	-0.003***	-0.000	0.000
	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)
Household Size	0.019***	-0.008**	-0.010*	-0.000	-0.001
	(0.005)	(0.003)	(0.005)	(0.001)	(0.001)
Number of Youth	-0.026***	0.008	0.019**	0.000	-0.001
	(0.009)	(0.006)	(0.008)	(0.002)	(0.001)
Number of Adults	-0.006	0.010	-0.003	-0.002	0.001
	(0.014)	(0.009)	(0.013)	(0.002)	(0.002)
Number of Elderly	-0.010	0.004	0.006	-0.001	0.001
	(0.016)	(0.011)	(0.016)	(0.003)	(0.001)
Observations	12,129	12,129	12,129	12,129	12,129

Standard errors clustered at community level are in parentheses. Region dummies are included in all regressions.
*** p<0.01, ** p<0.05, * p<0.1

tertiary sectors. An additional year of schooling makes an individual 2.2% less likely to be employed in the primary sector and 2.9%

Table 9 Marginal Effects of Individual, Household, and Community Characteristics on Employment Sector (Total)

VARIABLES	(1) Primary	(2) Secondary	(3) Tertiary	(4) Mining	(5) Other
Age	-0.012***	0.003***	0.009***	0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)
Gender	0.159***	-0.027***	-0.144***	0.012***	-0.000
	(0.015)	(0.010)	(0.013)	(0.003)	(0.000)
Years of Schooling	-0.018***	-0.000	0.020***	-0.001***	0.000
(Individual)	(0.002)	(0.001)	(0.002)	(0.000)	(0.000)
Urban	-0.306***	0.069**	0.242***	-0.004	0.000
	(0.065)	(0.029)	(0.048)	(0.005)	(0.000)
Expenditures per Capita	-0.088***	0.015**	0.069***	0.004**	-0.000**
(Log)	(0.017)	(0.008)	(0.012)	(0.002)	(0.000)
Years of Schooling	-0.005	0.002	0.002	0.000	0.000
(Mother)	(0.003)	(0.001)	(0.002)	(0.000)	(0.000)
Years of Schooling	-0.003	0.002	0.001	0.000	0.000
(Father)	(0.003)	(0.001)	(0.002)	(0.001)	(0.000)
Gender of Head	0.087***	-0.037***	-0.046**	-0.004	-0.000
	(0.025)	(0.014)	(0.018)	(0.005)	(0.000)
Age of Head	0.003***	-0.001***	-0.002***	-0.000	0.000
	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)
Household Size	0.010*	-0.004	-0.005	-0.001	-0.000*
	(0.005)	(0.003)	(0.004)	(0.001)	(0.000)
Number of Youth	-0.022**	0.007	0.013*	0.001	0.000
	(0.010)	(0.005)	(0.007)	(0.002)	(0.000)
Number of Adults	0.008	-0.002	-0.007	0.001	0.000
	(0.013)	(0.008)	(0.010)	(0.002)	(0.000)
Number of Elderly	-0.018	0.006	0.011	0.001	-0.000
	(0.014)	(0.008)	(0.010)	(0.002)	(0.000)
Road	0.004	0.006	-0.017	0.006	-0.000
	(0.042)	(0.019)	(0.035)	(0.004)	(0.000)
Electricity	-0.077***	0.023	0.047**	0.007	0.000
	(0.030)	(0.015)	(0.021)	(0.005)	(0.000)
Mobile	-0.101***	0.039***	0.068***	-0.005	0.000***
	(0.026)	(0.013)	(0.017)	(0.008)	(0.000)
Bank	-0.010	-0.012	0.027	-0.005	0.000
	(0.054)	(0.021)	(0.038)	(0.005)	(0.000)
Permanent Market	-0.099**	0.075***	0.023	0.001	-0.000
	(0.042)	(0.025)	(0.024)	(0.007)	(0.000)
Primary School	-0.041	0.011	0.022	0.007*	0.001***
	(0.037)	(0.019)	(0.026)	(0.004)	(0.000)
Junior High School	-0.059	0.017	0.057**	-0.015	-0.000
	(0.039)	(0.019)	(0.025)	(0.010)	(0.000)
Agriculture Extension	0.060**	-0.028**	-0.027	-0.005	-0.000
Office	(0.026)	(0.011)	(0.019)	(0.004)	(0.000)
Health Clinic	-0.049*	0.013	0.027	0.009	0.000
	(0.028)	(0.013)	(0.018)	(0.009)	(0.000)
Observations	6,811	6,811	6,811	6,811	6,811

Standard errors clustered at community level are in parentheses. Region dummies are included in all regressions.
*** p<0.01, ** p<0.05, * p<0.1

more likely to gain employment in the tertiary sector. When separated by young and old cohorts, both groups experience similar schooling effects.

The largest effect on employment sector comes from whether an individual lives in an urban or rural area. Youth who live in urban areas are 36.7% less likely to be employed in the primary sector, and 10.1% and 27.8% more likely to be employed in the secondary and tertiary sectors, respectively. Rural or urban locations have a small effect on gaining employment in the mining sector (a 0.08% decrease). When community characteristics are considered, the effect of being employed is further reduced for each sector—30.6% for the primary sector, 6.9% for the secondary sector and 24.2% for the tertiary sector. Also, the effects of similar size are observed when the data is separated by younger and older cohorts (see Appendix, Tables A8 and A9).

Household welfare has a significant effect across all sectors. Increased household welfare is associated with an increased likelihood of finding employment in the secondary, tertiary, or mining sectors, and a decreased likelihood of being employed in the primary sector. Again, this observation may be due to the fact that household wealth may have an effect outside of observable characteristics, such as influence among the business community.

Holding all other factors constant, community infrastructure also has a significant effect on employment sector. Those that live in an area with access to electricity are 7.7% less likely to work in the primary sector, and 4.7% more likely to work in the tertiary sector. Similarly, those who live in an area with access to a mobile network are 10.1% less likely to work in the primary sector, 3.9% more likely to work in the secondary sector, and 6.8% more likely to work in the tertiary sector. Interestingly, although community infrastructure such as electricity and mobile networks do not seem to affect whether or not youth are employed, they appear to influence the opportunities the youth have for employment.

D) Wages

The final regression conducted looks at the effect of individual, household, and community characteristics on wage. Age, gender, and years of schooling all have positive and statistically significant effects on the level of daily wage an individual earns (See Table 10). For the regression with household characteristics only, 32% of the variation in wage can be explained by the model. With a smaller sample conditional on additional community characteristics, 25.1% of the variation in wage can be explained.

When focusing on the model with household characteristics in the total sample, the regression shows that for every additional increase in age, daily wage increases by 7.2 percentage points holding all other variables constant. Conditional on additional community characteristics, for every additional increase in age, daily wage increases by 5.2 percentage points ceteris paribus. This suggests that daily wages tend to increase the older a person gets, reflecting economic returns to experience.

The largest effect on daily wages comes from gender. For males, there is a positive 20.6 percentage point increase in daily wage compared to female, conditional on the other variables. With community level controls, there is an 18.7 percentage point increase in daily wage for male, compared to female.

The regression with household characteristics shows that for every additional year of schooling, there is a 1.4% increase in daily wage, ceteris paribus.

Considering the model with community characteristics, the regression shows that for every additional year of schooling, daily wages increase by 1.6%. In this specification, the schooling effect is

Table 10 Daily Wage (Log)

VARIABLES	(1) Household	(2) Community
Age	0.072***	0.052***
	(0.002)	(0.002)
Gender	0.206***	0.187***
	(0.014)	(0.018)
Year of Schooling (Individual)	0.014***	0.016***
	(0.003)	(0.004)
Urban	0.072***	0.038
	(0.017)	(0.042)
Expenditures per Capita (Log)	0.150***	0.121***
	(0.013)	(0.016)
Years of Schooling (Mother)	0.001	0.007*
	(0.002)	(0.004)
Years of Schooling (Father)	0.004**	0.001
	(0.002)	(0.003)
Gender of Head	0.089***	0.052*
	(0.021)	(0.029)
Age of Head	-0.009***	-0.008***
	(0.001)	(0.001)
Household Size	-0.001	0.001
	(0.005)	(0.006)
Number of Youth	-0.005	0.003
	(0.007)	(0.008)
Number of Adults	-0.112***	-0.097***
	(0.012)	(0.014)
Number of Elderly	0.019	0.022*
	(0.012)	(0.013)
Road		-0.022
		(0.027)
Electricity		0.028
		(0.021)
Mobile Network		0.028
		(0.024)
Bank		-0.004
		(0.040)
Permanent Market		0.021
		(0.030)
Primary School		0.012
		(0.027)
Junior High School		0.019
		(0.025)
Agriculture Extension Office		-0.060**
		(0.024)
Health Clinic		0.027
		(0.022)
Constant	-2.111***	-1.512***
	(0.111)	(0.145)
Observations	18,592	9,582
R-squared	0.322	0.251

Standard errors clustered at community level are in parentheses.
Region dummies are included in all regressions.
*** p<0.01, ** p<0.05, * p<0.1

assumed to be linear, which may not be proper if the return to schooling is higher for those whose education has reached secondary level or above.

The explanatory variable of urban yields a positive and statistically significant effect on the level of daily wage in the model with household characteristics only. Residing in an urban area leads to a 7.2 percentage point increase in daily wages compared to living in a rural area. For the model with additional community characteristics, the coefficient of urban is positive but not statistically significant.

Household wealth is associated with a higher wage when all other factors are held constant. Again, this suggests that household welfare has an effect that is outside of the observed characteristics.

Community infrastructure was found to not have a significant effect on wages.

VII. Conclusions

Throughout the world, especially among developing nations, concern is growing over the impact that stagnant youth can have on economics, internal security, and stability. By addressing this issue, the hope is to highlight faults or areas of concern in the human capital development of Ghana's youth. Acquiring this information should help positively affect policy changes that can mitigate any current shortcomings in Ghana's youth labor development.

Observations of the data indicate that gender, education, and age are significant factors in employment trends. In terms of age, the youth—especially those in the younger cohort, age 15-24—overwhelmingly tend to work in household farming, and the youth in the older cohort generally work in wage-earning occupations in the secondary and tertiary sectors. Additional years of education also increase the likelihood that the youth will work in the secondary and tertiary sectors, and wage returns on investment for schooling are also favorable—albeit there seems to be minor returns until after the first few levels of schooling are completed. In terms of gender, females tend to have lower wages than males (both in rural and urban areas) and are also more commonly found working in household enterprises than males.

Additional results provide noteworthy information on idleness, unemployment, underemployment, and vulnerable employment. A striking result was the very low level of unemployed youth. However, this can be understood on the basis that it is far too costly to remain idle in developing nations such as Ghana (Filmer & Fox 2014). Greater issues include idleness, underemployment and vulnerable employment. A very large proportion of youth, with either insufficient income for their needs, few job prospects, or without stable employment, fall into these categories Additionally, there is a large proportion of youth who are not even in school, which paints a bleak image of Ghana's future of human capital development.

Using regression analysis, we have also observed interesting relationships between individual, household and community characteristics, and various employment outcomes. The most notable of the observed individual effects is gender. It is evident that a considerable gender gap exists in Ghana's youth labor force. This can be seen particularly in the difference in working status and wage. There also seems to be a defined division of labor among the sexes, with evidence that

women are likely expected to stay at home, and therefore tend to work in household farming and enterprises, whereas men are more likely to be wage workers.

A few household factors also play a role in determining employment outcomes among youth in Ghana. One of the greatest effects is that of family welfare. Although wealth does not seem to affect the general work status of the youth, it does have a significant effect on where they are employed. Hence, the youth from wealthier families are more likely to have a better labor outcome. This pattern perpetuates inequality in Ghana and should be addressed in policy considerations.

When considering both gender and household composition, the head of household's gender is found to have significant influence on employment outcomes and seems to reflect an inherent difference in the bargaining power of the male head compared to a female one.

In general, these household characteristics tend to have a greater effect on the younger cohort of youth. The older youth seem to be less influenced by the characteristics of the household in which they live. Even those factors that were found to be statistically significant had a far lesser magnitude when compared to the younger youth.

Surprisingly, few community characteristics were found to have a significant effect on labor outcomes of youth. Those that did, however, provided interesting results. Significant factors had the greatest effect on the types of jobs available to the youth rather than on whether youth were working or not. In general, improved infrastructure seems to increase employment opportunities because it helps avoid limiting the youth to unproductive or low-skilled labor.

VIII. POLICY RECOMMENDATIONS

Based on the findings obtained from this analysis, this report provides three major policy recommendations in the areas of gender equality, education, and infrastructure. The first policy advice is for Ghana to make a concerted effort to transform the country's historical gender norms by improving the status of females in the society. Second, the importance of an individual's level of education and employment type suggests that Ghana's government should provide its country's youth with specific job training that matches their needs. Lastly, Ghana must continue to invest in community infrastructure.

A) Gender: Improving Social Standing of Females

Policymakers in Ghana must make a concerted effort to change gender norms and improve the status of females. Ghana's social policies should encourage families to keep their females in school until they have obtained a marketable education that will provide the economy with a valuable resource. Many nations have implemented such policies, including some that provide monetary or other incentives to those who send their daughters to school. The income women make from their working may be low, but it plays a crucial role in meeting family income, particularly during seasons of poor harvest. There are little investments that foster growth among these small income generating activities. Therefore, policymakers should target women that have growth potential and equip them with microcredit to start up their own small businesses. Precaution needs to be taken to ensure that income-generating activities are profitable for the women, and the loans are appropriate. Additionally, male youth should also receive encouragement to stay

in school longer so their education level passes the apparent threshold that determines whether they move forward into wage-earning positions or turn back toward household farming.

B) Education: Providing Specific Job Training to Ghana's Youth

Ghana's social policies should also focus on providing the youth with job training specific to their needs. Such programs would consider gender and family welfare differences in order to provide an equal footing on which the youth may enter the labor force. Most often, these aspects of the youth are not taken into proper consideration when running active labor market programs to promote employment. It is essential to streamline the education curricula to enhance the skills of the youth. The institutions of learning should resolve to integrate the teaching of courses in entrepreneurship and commerce to already existing courses. By making it a core requirement, students of all fields of study—whether in primary, secondary, or tertiary institutions, or in vocational training and apprenticeship—can benefit and apply their skill sets in industry. It is imperative for policymakers to conduct a job market survey to address the disconnect between training from educational institutions and businesses. This will allow industries to specify the crucial skills they require from job seekers so that the educational institutions can know and restructure their programs to meet the demand. It will also assist young students to learn these employable skills to increases their chances of finding employment after training.

C) Infrastructure: Building Opportunities within the Community

Community infrastructure needs to be improved as well. Ghana should seek to provide its communities with the fundamental needs for a basic economy. Although items such as electricity and mobile networks do not seem to influence whether the youth are employed or not, they do have a significant effect on the sector and category in which the youth are employed. Youth in communities with established electricity and mobile networks are more likely to find employment in sectors other than agriculture, and are also likelier to be wage workers or apprentices. Thus, with a basic infrastructure in place, Ghanaian youth will have greater opportunities to develop and choose their own career path.

Ghana's business policies should also aim to simplify the process by which household farms and household enterprises become legally formal business. Ghana's economy is largely concentrated in the agricultural sector and the informal sector. In lieu of this, Ghana should aim to further integrate these household farms and enterprises in the formal sector by simplifying the process by which Ghanaians register their business with the government.

REFERENCES

Adams, Avril V., Sara Johansson de Silva, and Setareh Razmara. 2013. *Improving Skills Development in the Informal Sector: Strategies for Sub-Saharan Africa*. Directions in Development. Washington D.C.: World Bank. Doi: 10.1596/978-0-8213-9968-2. License: Creative Commons Attribution CC BY 3.0.

Aiyagari, R., L. Christiano and M. Eichenbaum. 1990. "Output, Employment and Interest Rate Effects of Government Consumption." *Journal of Monetary Economics*, 30: 73–86.

Anyanwu, J. C. 2013, "Characteristics and Macroeconomic Determinants of Youth Employment in Africa." *African Development Review*, 25(2): 107–29.

Asiedu, E. 2004, "The Determinants of Employment Affiliates of US Multinational Enterprises in Africa." *Development Policy Review*, 22(4): 371-79.

Awumbila, M., & E. Ardayfio-Schandorf. 2008. "Gendered poverty, migration and livelihood strategies of female porters in Accra, Ghana." *Norsk Geografisk Tidsskrift-Norwegian Journal of Geography*, 62(3): 171-79.

Baah-Boateng, W. 2012. "Review of Employment Creation Challenges, Relevant Policies and Employment Promotion Initiatives in Ghana." In *Ghana's Employment Challenges*, ed. Date-Bah. Ghana Academy of Arts and Sciences Publication, 123-51.

Baah-Boateng, W. 2013. "Determinants of unemployment in Ghana." *African Development Review*, 25(4): 385-99.

Baah-Nuako, A. 1991. "Environment, informal sector and factor markets: Studies on the Ghanaian Economy," Vol. 1. Accra: Woeli Publishing Services.

Bloom, D., D. Canning, G. Fink and J. Finley. 2009. "Fertility, Female Labor Force Participation and the Demographic Dividend." *Journal of Economic Growth*, 14: 79–101.

Boateng, K., and W. Bekoe. 2002. "Wage expectations among final year bachelor students in Ghanaian Universities." *Journal of Management Studies,* 17: 32–49.

Boateng, K., and E. Ofori-Sarpong. 2002. "An analytical study of the labor market for tertiary graduates in Ghana." A World Bank and National Council for Tertiary Education and National Accreditation Board Project, Accra, Ghana.

Cardoso, E. 1992. "Inflation and Poverty." National Bureau of Economic Research Working Paper No. 4006, Cambridge, MA.

Chaudhuri, S. 2009. "Economic Development and Women's Empowerment." University of Wisconsin Working Paper, Eau Claire.

Chen, D.H.C. 2004. "Gender Equality and Economic Development: The Role for Information and Communication Technologies." World Bank Policy Research Working Paper 3285, Washington, DC.

Choudhry, M. T., E. Marelli and M. Signorelli. 2012. "Youth Unemployment Rate and Impact of Financial Crises." *International Journal of Manpower,* 33(1): 76–95.

Dickens, W. T., & K. Lang. 1995. "An analysis of the nature of unemployment in Sri Lanka." *Journal of Development Studies*, *31*(4): 620.

Fatás, A. and I. Mihov. 2000. "The Effects of Fiscal Policy on Consumption and Employment: Theory and Evidence." CEPR Discussion Paper No. 2760.

Filmer, Deon and Louise Fox. 2014. *Youth Employment in Sub-Saharan Africa*. Africa Development Series. Washington D.C.: World Bank. Doi:10.1596/978-1-4648-0107-5. License: Creative Commons Attribution CC BY 3.0.

Freeman, R.B., and D.A. Wise. 1982. "The Youth Labor Market Problem: Its Natural Causes and Consequences." *The youth labor market problem: Its nature, causes, and consequences*. University of Chicago Press, 1-16.

Gandelman, N. and A. Rasteletti. 2012. "The Impact of Bank Credit on Employment Formality in Uruguay." IDB Working Paper Series, No. IDB-WP-302, April.

GLSS6. 2014a. Ghana Living Standards Survey Round 6 (with Labor Force Module), Interviewer's Manual.

GLSS6. 2014b. Ghana Living Standards Survey Round 6, Labor Force Report. Ghana Statistical Service.

GLSS6. 2014c. Ghana Living Standards Survey Round 6, Poverty Profile in Ghana: 2005-2013. Ghana Statistical Service.

Ghana Statistical Service. 2012. "Summary Report of Final Results: 2010 Population and Housing Census. "

Gockel, A., and D. Vormawor. 2004. "Trade union country reports: The case of Ghana." A Background Paper Prepared for Friedrich Ebert Stiftung.

Goldin, C. 1995. "The U-Shaped Female Labor Force Function in Economic Development and Economic History." In *Investment in Women's Human Capital*, ed. T.P. Schultz. Chicago: University of Chicago Press.

Hegre, H., T. Ellingsen, S. Gates and N. P. Gleditsch. 2001. "Towards a Democratic Civil Peace? Democracy, Political Change, and Civil War, 1816-1992." *American Political Science Review,* 95(1): 33-48.

Hesselberg, J., and J.A. Yaro. 2006. "An assessment of the extent and causes of food

insecurity in northern Ghana using a livelihood vulnerability framework." *GeoJournal*, *67*(1): 41-55.

IFC (International Finance Corporation). 2012. "Assessing Private Sector Contributions to Job Creation: IFC Open Source Study (Meta-evaluation on job creation effects of private sector interventions: Summary of preliminary findings)." IFC, Washington, DC.

ILO (International Labor Office). 2001. "Meeting the Youth Employment Challenge: A Guide for Employers." ILO, Geneva.

ILO (International Labor Office). 2012. "Global Employment Trends for Youth 2012." ILO, Geneva.

ILO (International Labor Organization). 2012. "World of Work Report 2012: Better Jobs for a Better Economy." ILO and IILS, Geneva.

Javorcik, B. 2013. "Does FDI Bring Good Jobs to Host Countries?" World Development Report 2013 Background Paper, World Bank, Washington, DC.

Mammen, K. and C. Paxson. 2000. "Women's Work and Economic Development." *Journal of Economic Perspectives*, 14(4): 141–64.

Niemi, B. T. and C. B. Lloyd. 1981. "Female Labor Supply in the Context of Inflation." *The American Economic Review*, 71(2): 70–75.

Nyarko, C. O., Baah-Boateng, W., and E. Nketiah-Amponsah. 2014. "Determinants of Job Search Intensity in Ghana." *Margin: The Journal of Applied Economic Research*, *8*(2): 193-211.

Oostendorp, R.H. 2009. "Globalization and the Gender Wage Gap." *World Bank Economic Review,* 23(1): 141-61.

Papart, J. L., M. P. Connelly and V. E. Barrideau (eds.). 2000. "Theoretical Perspectives on Gender and Development." Commonwealth of Learning, Ottawa, Canada.

Ramey, V. A. 2011a. "Identifying Government Spending Shocks: It's All in the Timing." *Quarterly Journal of Economics*, 126(1): 1–50.

Ramey, V. A. 2011b. "Can Government Purchases Stimulate the Economy?" *Journal of Economic Literature*, (49)3: 673–85.

Randers, J. 2012. "2052: A global forecast for the next forty years." *Chelsea Green Publishing.*

Richards, D. L. and R. Gelleny. 2007. "Women's Status and Economic Globalization." *International Studies Quarterly*, 51(4): 855-76.

Sackey, H., and B. Osei. 2006. "Human Resource Underutilization in an Era of Poverty Reduction: An Analysis of Unemployment and Underemployment in Ghana." *African Development Review*, 18(2): 221–47.

Wilson, D. J. 2012. “Government Spending: An Economic Boost?” *FRBSF Economic Letter*, 4(February).

World Economic Forum. 2013. “The Global Gender Gap Report.”

APPENDIX 1: DATA

A) Definitions

The maximization of this report's applicability requires that several keywords be defined in a clear and consistent manner. These keywords include the following: youth employment rate, youth employment status, vulnerable employment, young people in underemployment and youth working in poverty.

B) Measures of the Employed Youth

The youth employment rate should encompass the utilized labor supply and the ease of finding work. Employment rate is measured as the number of youth employed as a percentage of the youth labor force. Youth distribution by employment status measures the composition of the types of work among the young people who have jobs. Employment status measures the amount of time spent working as well as the economic risks they represent. We categorize the youth who are employed as:

- Working, Not Student
- Working Student

The "working, not student" category includes youth who are working, are apprentices, or are temporarily absent from work. The "working student" category includes youth who are concurrently students and employed.

We also categorize the employed youth by category and sector. Employment categories include: household farming, household enterprises, wage workers, apprentices, and other. This categorization can be potentially used to construct the measure vulnerable youth employment rate. For the purposes of this report, vulnerable employment includes the youth employed in the areas of household farming, and household enterprises. Vulnerable youth

employment rate measures the share of young own-account workers and contributing family workers in total youth employment. The term vulnerable employment pertains to jobs under uncertain circumstances, most vulnerable to economic hardship. Youth workers whose jobs contribute to their families and own-account workers are less likely to have formal work arrangements to access benefits of the work they do. Due to the uncertainty of their employment, these workers have no social security or protection against the risk of economic cycles. For example, consider the employment status of a street vendor whose daily wage is dependent on the number of sales made per day, which is directly dependent on the economic well-being of the surrounding community; hence, there is an uncertainty in this vendor's daily earning.

The rate of youth in underemployment encompasses the difficulty in finding full-time, consistent employment. We have measured the rate of underemployed youth as the percentage of employed youth who works less than the Ghanaian national weekly hour allotment of 40 hours. Much of the youth in this category may prefer to be employed full-time, but choose to be underemployed in lieu of being unemployed.

A wage worker is defined as a paid employee, a domestic employee (such as a house help), or a casual worker. It is important to make a distinction between wage workers and non-traditional wage workers, because wage workers are often employed by enterprises that are not of a family connection and often come with heightened job security and benefits. Non-wage workers are more likely to be employed in household enterprises or agricultural settings. Household enterprises are non-agricultural firms commonly operated from within the founder's home. The founders of these small enterprises are self-employed, and may either employ others or have other contributing family workers.

C) Measures of Unemployed Youth

Youth unemployment rate encompasses the youth who are not actively contributing to the economy and depict the difficulty in finding a job. To fall into the category unemployed, the individual had to meet all of the following criteria:

- Without work
- Currently available for work
- Actively seeking employment

The unemployment rate is defined as the number of unemployed as a share of the youth labor force. It is important to note that in order to be classified as unemployed, the individual must also be actively seeking employment. That is, idle youth who are neither seeking nor soliciting employment are not considered unemployed. The idle population refers to people who, during a given period, were simultaneously:

- Without work
- Not an apprentice
- Not temporarily absent from work
- Not a student
- Not actively seeking employment

However, the idle youth population can include a wide variety of justifications for their lack of employment and lack of desire for work, from those who want to be home with children to those who have been discouraged and have ceased making an effort find a job. Consequently, they will find some form of employment, even if it is insufficient for their needs.

D) Measures of wealth and poverty

The GLSS6 provides various aggregate wealth and poverty indicators that were used in

this report. These are at the household level and were applied to individual youth as household characteristics. Household expenditures and gross income were primarily used as wealth indicators in the reported analysis. There may be an issue of reverse causality with the variable of household expenditures. This report assumes an increase in household expenditures is correlated with an increase or decrease in various employment outcomes. However, it is possible that it is the employment outcomes that are affecting the amount of household expenditures since youth income is reflected in household expenditure measures.

The GLSS6 poverty level indicator is defined using three categories: Very Poor, Poor, and Non-Poor. The ranges for these categories were determined using a household welfare average compared with the national poverty line in 2013. Household welfare is calculated as the average total consumption expenditures per adult within the home. *Non-Poor* was defined as those with household welfare above 1,314 Ghanaian Cedi (GH₵) annually. Households in this category are considered to have sufficient income to meet all food requirements and their basic non-food needs. *Poor* households were those with welfare below GH₵1,314 and above GH₵792.05 year. These households have sufficient means to meet basic nutritional needs, but may struggle to meet other, non-food, needs. All households below GH₵792.05, the extreme poverty line, were labeled as *Very Poor*. These are households in which minimum nutrition requirements cannot be met even if their entire budget is allocated toward food (GLSS6 2014c).

APPENDIX 2: SUMMARY STATISTICS

Table A1 Individual and Household Summary Statistics

	Mean	SD	Min	Max
Individual Characteristics				
Gender				
Male	47.63%			
Female	52.37%			
Marital Status				
Married	27.65%	0.45	0	1
Age				
Age of Respondent in Years	23.13	5.73	15	34
Education				
Years of Schooling Completed Father	5.09	5.49	0	18
Years of Schooling Completed Mother	2.38	3.99	0	17
Years of Schooling Completed Individual	9.71	3.53	0	18
Work Hours				
Hours worked per week on main job over last 12 months	38.93	20.38	0	140
Hours worked per week on 2nd job over last 12 months	26.05	19.45	0	133
Hours worked on main job over last 7 days	38.08	21.11	0	120
Hours worked on 2nd job over last 7 days	15.46	12.12	0	40
Household Characteristics				
Household Size	5.75	3.36	1	29
Age of Head of Household	44.82	15.45	15	99
Age <6 in HH	0.78	0.99	0	7
Age 6-14 in HH	1.21	1.42	0	15
Age 15-34 in HH	2.07	1.59	0	14
Age 35-60 in HH	0.99	0.90	0	6
Age >60 in HH	0.32	0.65	0	12
Income				
Total household income (gross)	10171.47	28707.09	0.00	1233200.75
Poor Status				
Poor	30%	0.46	0	1
Very Poor	13%	0.33	0	1
Urban/ Rural Area				
Is this an Urban Area?	42%	0.49	0	1

Table A2 Community Level Summary Statistics

	N	Mean	SD
Infrastructure			
Is there a motorable road to community?	13053	84.27%	0.36
Does this community have electricity?	13053	55.29%	0.50
Does this community have a post office?	13053	5.27%	0.22
Is there a mobile phone network in the community?	13053	80.35%	0.40
Is there a bank in the community?	13053	7.77%	0.27
Is there a permanent daily community market?	13039	13.38%	0.34
Is there a periodic market in this community	11301	15.64%	0.36
Does public transport pass community?	13044	57.53%	0.49
Schools			
Does this community have a preschool	13035	71.67%	0.45
Does this community have a primary school	13035	78.53%	0.41
Does this community have a junior high school	13002	56.21%	0.50
Does this community have a senior high school or technical/vocational/commercial	12993	11.15%	0.31
Agriculture			
Does this community have an agriculture extension office	12981	18.60%	0.39
Is there an agriculture extension officer stationed in this community	12981	19.44%	0.40
Does the agricultural extension officer visit the farmers of this community	12848	50.74%	0.50
Is there an agriculture or fishing association in community	12826	23.94%	0.43
Do any of the farmers in community participate in an agricultural cooperative	12824	21.19%	0.41
Do some people in this community buy or sell land	12981	22.35%	0.42
Are there any sharecroppers in the community	12945	39.30%	0.49
Is there a system of mutual aid among farmers for fieldwork	12855	78.01%	0.41
Health			
Is there a doctor in the community?	13067	3.90%	0.19
Is there a medical assistant in the community?	13067	11.44%	0.32
Is there a nurse in the community?	13067	34.93%	0.48
Is there a pharmacist in the community?	13067	7.12%	0.26
Is there a midwife in the community?	13067	21.84%	0.41
Is there a family planning worker?	13067	32.61%	0.47
Is there a community health worker in the community?	13067	43.90%	0.50
Is there a trained traditional birth attendant in the community?	13067	59.15%	0.49
Is there an untrained traditional birth attendant in the community	13067	74.08%	0.44
Is there a traditional healer in the community?	13067	70.02%	0.46
Is there a hospital in the community?	13002	4.82%	0.21
Is there a drug/chemical store in the community?	13002	39.61%	0.49
Is there a pharmacy in the community?	13002	5.15%	0.22
Is there a maternity home in the community?	13002	15.13%	0.36
Is there a clinic/health post/CHPS in the community?	13002	37.56%	0.48
Is there a family planning clinic in the community?	13002	29.00%	0.45
Is there a traditional herbal clinic in the community?	13001	16.91%	0.37

APPENDIX 3: WORKING STATUS

Table A3 Working/School Status in the Past 12 Months

	Total Sample	Male	Female	Age 15-24	Age 25-34
Employment Status					
Working, Not Student	57.85%	55.27%	60.20%	37.72%	87.28%
Working Student	16.12%	20.37%	12.25%	24.91%	3.28%
Unemployed	2.77%	2.21%	3.28%	2.93%	2.53%
Employment Rate	96.39%	97.16%	95.67%	95.53%	97.28%
Unemployment Rate	3.61%	2.84%	4.33%	4.47%	2.72%
Out of Labor Force					
Non-working Student	16.21%	17.32%	15.19%	25.93%	1.99%
Idle	7.05%	4.82%	9.08%	8.51%	4.92%
Num. Obs	22848	10882	11966	13566	9282

Table A4 Vulnerable and Under-Employment in the Past 12 Months

	Total Sample	Male	Female	Age 15-24	Age 25-34
Vulnerable Employment	85.55%	83.44%	87.43%	88.15%	80.89%
Num Obs.	1696	797	899	1089	607
Underemployment	62.31%	56.22%	67.53%	69.05%	58.04%
Num Obs.	12847	5929	6918	4982	7865

APPENDIX 4: EMPLOYMENT STATUS

Figure A1 Employment Status by Age – Total (12 Month)

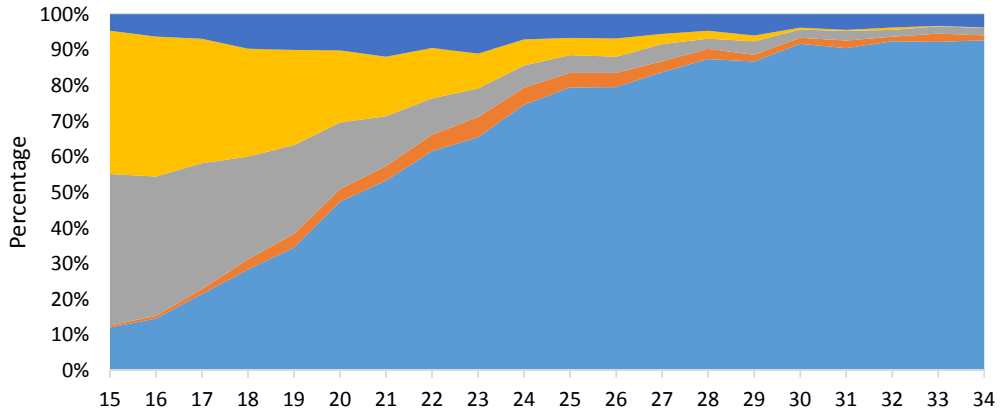


Figure A2 Employment Status by Age – Male (12 Month)

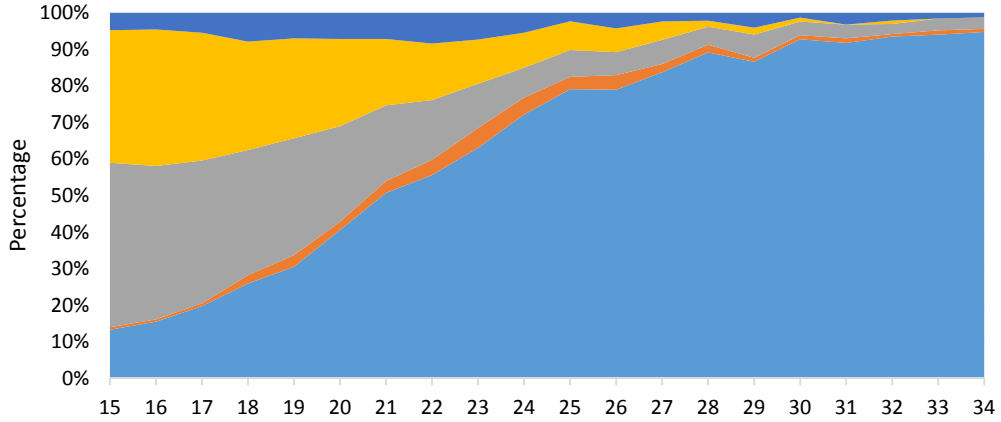
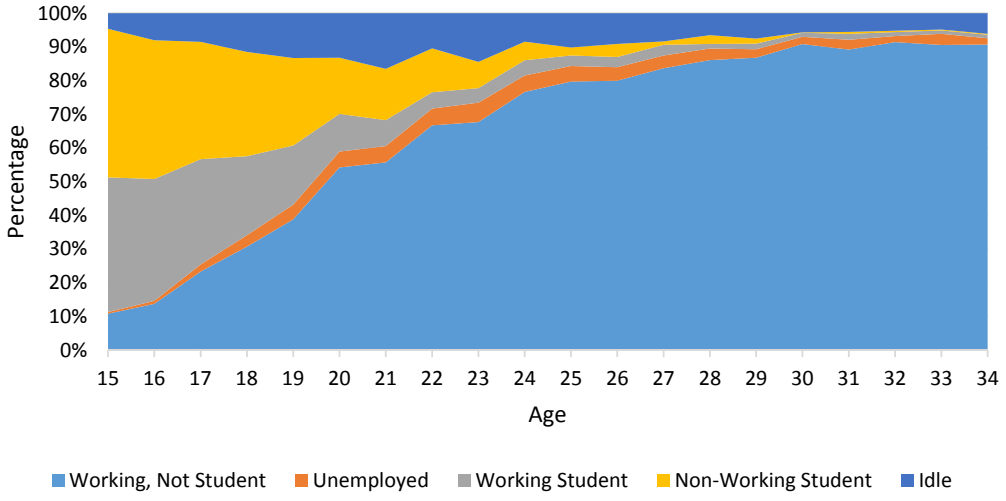


Figure A3 Employment Status by Age – Female (12 Month)



APPENDIX 5: EMPLOYMENT CATEGORY

Figure A4 Employment Category by Age – Total (12 Month)

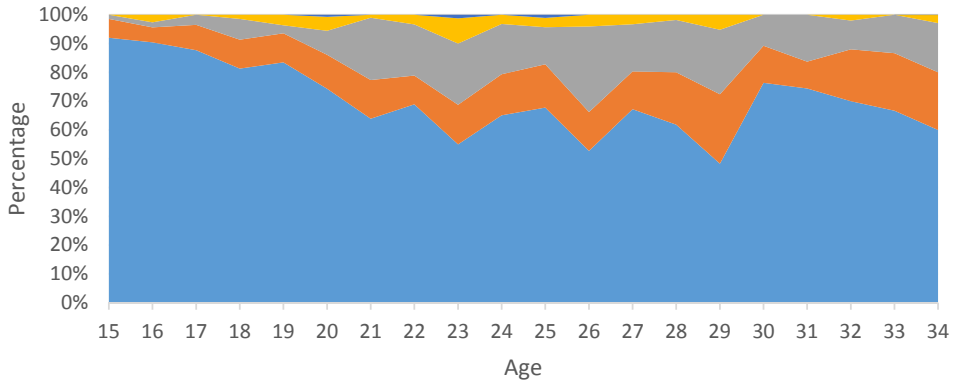


Figure A5 Employment Category by Age – Male (12 Month)

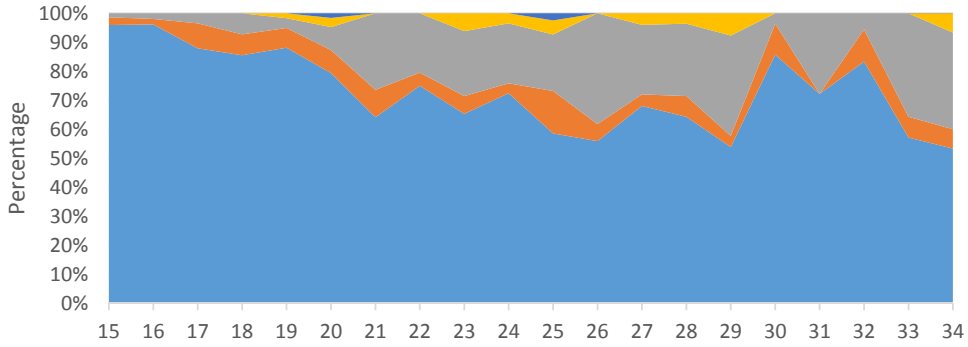
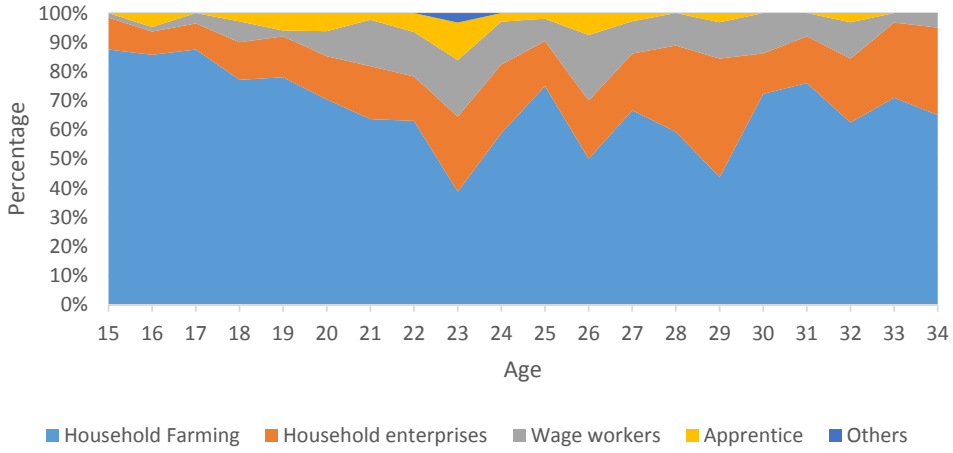


Figure A6 Employment Category by Age – Female (12 Month)



APPENDIX 6: EMPLOYMENT SECTOR

Figure A7 Employment Sector by Age – Total (12 Month)

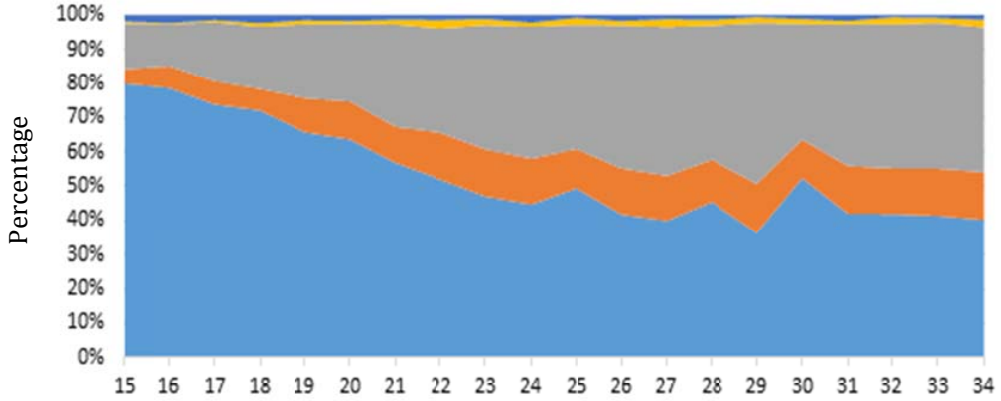


Figure A8 Employment Sector by Age – Male (12 Month)

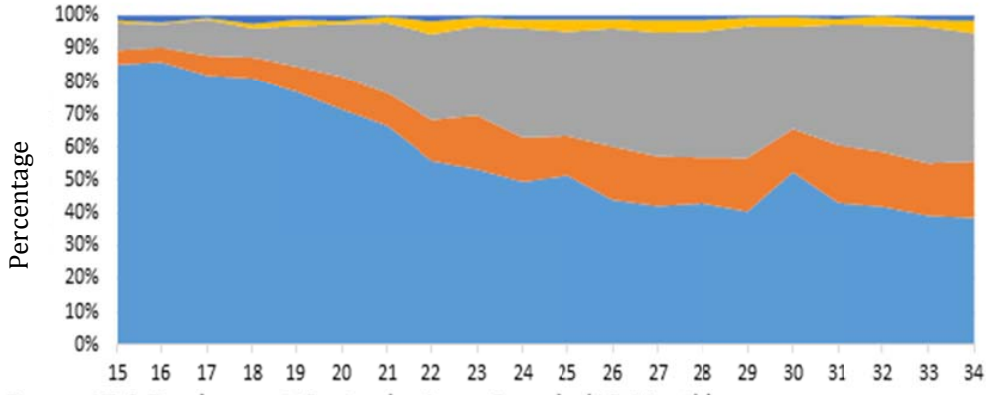
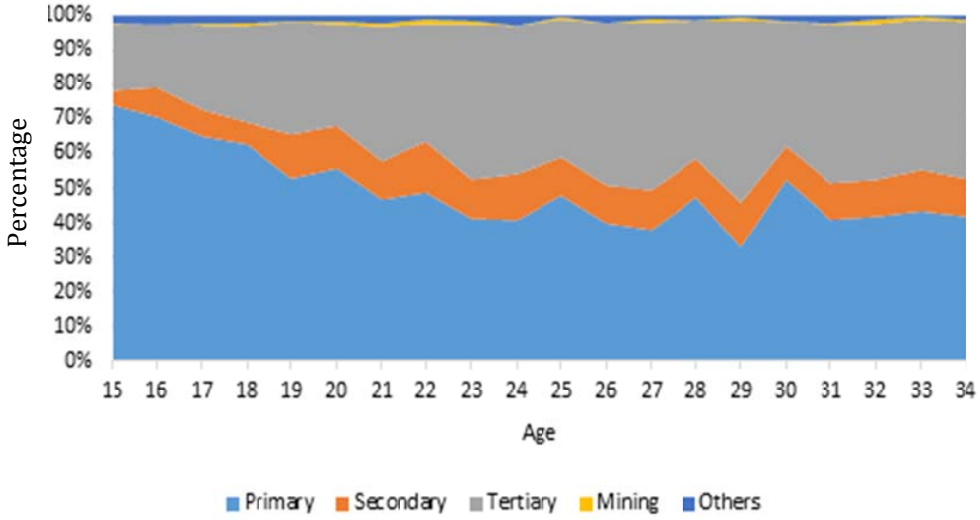


Figure A9 Employment Sector by Age – Female (12 Month)



APPENDIX 7: REGRESSION RESULTS

Table A5 Marginal Effects of Individual, Household, and Community Characteristics on Working Status (Age 15-24)

VARIABLES	(1) Unemployed	(2) Working	(3) Student Working	(4) Student Not Working	(5) Idle
Age	0.002***	0.098***	-0.063***	-0.053***	0.015***
	(0.000)	(0.004)	(0.004)	(0.004)	(0.002)
Male	-0.005**	-0.054***	0.104***	0.011	-0.056***
	(0.002)	(0.014)	(0.013)	(0.014)	(0.008)
Years schooling (Individual)	0.000	-0.027***	-0.003	0.029***	0.000
	(0.000)	(0.003)	(0.003)	(0.003)	(0.002)
Urban	0.011*	-0.101***	-0.197***	0.250***	0.036
	(0.007)	(0.034)	(0.036)	(0.053)	(0.025)
Log Household Expenditure per capita	-0.002	-0.037***	0.007	0.038**	-0.006
	(0.002)	(0.014)	(0.018)	(0.017)	(0.007)
Years schooling (Mother)	-0.000	-0.002	0.003	-0.003	0.002
	(0.000)	(0.003)	(0.004)	(0.004)	(0.002)
Years schooling (Father)	0.000	-0.001	0.002	-0.000	-0.001
	(0.000)	(0.003)	(0.003)	(0.003)	(0.001)
Male as Head	-0.001	0.076***	-0.028	-0.061**	0.012
	(0.003)	(0.021)	(0.026)	(0.027)	(0.011)
Age of Head	0.000	-0.002***	-0.000	0.001**	0.001
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
Household size	-0.001**	-0.001	0.001	0.005	-0.004
	(0.001)	(0.004)	(0.004)	(0.004)	(0.002)
Number of Youth	0.002	-0.009	0.007	-0.002	0.003
	(0.001)	(0.007)	(0.008)	(0.007)	(0.004)
Number of Adults	0.003*	-0.030**	0.011	0.018	-0.002
	(0.002)	(0.013)	(0.012)	(0.013)	(0.007)
Number of Elderly	0.002	0.001	-0.008	0.017	-0.011
	(0.001)	(0.012)	(0.014)	(0.015)	(0.008)
Road	0.004	-0.027	0.036	-0.003	-0.009
	(0.003)	(0.035)	(0.033)	(0.038)	(0.017)
Electricity	0.004	0.011	-0.020	-0.018	0.023*
	(0.003)	(0.025)	(0.033)	(0.033)	(0.013)
Mobile Phone Network	0.002	-0.024	-0.080**	0.076**	0.026**
	(0.003)	(0.026)	(0.032)	(0.031)	(0.012)
Bank	-0.002	0.009	0.016	-0.025	0.003
	(0.003)	(0.034)	(0.056)	(0.048)	(0.020)
Permanent market	-0.001	-0.049*	-0.024	0.058	0.016
	(0.003)	(0.029)	(0.037)	(0.041)	(0.015)
Primary school	-0.000	0.016	-0.007	0.019	-0.028
	(0.004)	(0.029)	(0.035)	(0.037)	(0.020)
Junior High School	0.002	-0.045	-0.009	0.040	0.012
	(0.004)	(0.031)	(0.033)	(0.037)	(0.016)
Agriculture Extension Office	0.001	-0.034	0.003	0.039	-0.008
	(0.003)	(0.025)	(0.033)	(0.037)	(0.013)
Health Clinic	-0.003	0.051**	-0.051*	-0.005	0.007
	(0.002)	(0.024)	(0.029)	(0.030)	(0.012)
Observations	6,533	6,533	6,533	6,533	6,533

Standard errors clustered at community level are in parentheses. Region dummies are included in all regressions.
*** p<0.01, ** p<0.05, * p<0.1

Table A6 Marginal Effects of Individual, Household, and Community Characteristics on Working Status (Age 25-34)

VARIABLES	(1) Unemployed	(2) Working	(3) Student Working	(4) Student Not Working	(5) Idle
Age	-0.001	0.009***	-0.003***	-0.001***	-0.004***
	(0.001)	(0.002)	(0.001)	(0.000)	(0.001)
Male	-0.012**	0.038***	0.009**	0.003*	-0.038***
	(0.005)	(0.010)	(0.004)	(0.002)	(0.008)
Years schooling (Individual)	0.000	-0.005***	0.004***	0.001***	0.000
	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)
Urban	0.001	-0.006	-0.004	0.000	0.009
	(0.007)	(0.018)	(0.004)	(0.002)	(0.014)
Log Household Expenditure per capita	-0.000	-0.005	0.007***	0.002**	-0.003
	(0.002)	(0.007)	(0.002)	(0.001)	(0.006)
Years schooling (Mother)	-0.000	-0.001	0.001	0.000	0.001
	(0.000)	(0.002)	(0.001)	(0.000)	(0.001)
Years schooling (Father)	0.000	0.000	-0.001	0.000*	-0.000
	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)
Male as Head	-0.017**	0.025*	0.005	-0.002	-0.011
	(0.009)	(0.015)	(0.004)	(0.002)	(0.010)
Age of Head	-0.000	-0.001***	0.000**	0.000**	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Household size	-0.001	0.007**	-0.002	-0.000	-0.004*
	(0.001)	(0.003)	(0.001)	(0.000)	(0.002)
Number of Youth	0.002	-0.007	0.002	-0.000	0.004
	(0.001)	(0.005)	(0.002)	(0.001)	(0.004)
Number of Adults	0.003	-0.019**	0.006**	0.002	0.008
	(0.002)	(0.007)	(0.003)	(0.001)	(0.006)
Number of Elderly	0.001	0.022**	0.001	0.001	-0.024***
	(0.003)	(0.010)	(0.003)	(0.001)	(0.009)
Road	0.006	0.002	0.003	-0.013**	0.002
	(0.004)	(0.015)	(0.005)	(0.005)	(0.011)
Electricity	0.002	-0.025**	-0.002	0.001	0.024***
	(0.003)	(0.011)	(0.004)	(0.002)	(0.009)
Mobile Phone Network	-0.005	0.003	-0.009	-0.001	0.011
	(0.006)	(0.013)	(0.006)	(0.002)	(0.010)
Bank	-0.000	0.005	0.008	0.001	-0.013
	(0.006)	(0.015)	(0.008)	(0.002)	(0.010)
Permanent market	0.011	-0.036*	-0.005	0.006*	0.024
	(0.009)	(0.021)	(0.004)	(0.003)	(0.017)
Primary school	0.000	0.027	0.000	0.000	-0.028
	(0.006)	(0.021)	(0.006)	(0.002)	(0.019)
Junior High School	0.001	0.001	-0.000	0.001	-0.003
	(0.004)	(0.017)	(0.005)	(0.002)	(0.014)
Agriculture Extension Office	-0.000	-0.009	0.002	0.003	0.005
	(0.004)	(0.013)	(0.004)	(0.002)	(0.011)
Health Clinic	-0.002	0.011	-0.002	-0.001	-0.006
	(0.004)	(0.011)	(0.004)	(0.001)	(0.009)
Observations	3,049	3,049	3,049	3,049	3,049

Standard errors clustered at community level are in parentheses. Region dummies are included in all regressions.
*** p<0.01, ** p<0.05, * p<0.1

Table A7 Marginal Effects of Individual, Household, and Community Characteristics on Employment Category (Age 15-24)

VARIABLES	(1) Wage Worker	(2) Apprentice	(3) Household Farming	(4) Household Enterprises
Age	0.010***	0.007***	-0.019***	0.003
	(0.001)	(0.001)	(0.003)	(0.002)
Male	0.023***	-0.023***	0.107***	-0.107***
	(0.007)	(0.006)	(0.016)	(0.014)
Years of Schooling	0.004***	-0.002*	-0.001	-0.002
(Individual)	(0.001)	(0.001)	(0.003)	(0.002)
Urban	0.093**	0.113**	-0.296***	0.091**
	(0.040)	(0.049)	(0.082)	(0.042)
Expenditures per Capita	0.012**	0.006	-0.051***	0.033***
(Log)	(0.006)	(0.005)	(0.015)	(0.010)
Years of Schooling	0.003*	0.001	-0.004	0.001
(Mother)	(0.001)	(0.001)	(0.003)	(0.002)
Years of Schooling	0.001	0.001	-0.004	0.002
(Father)	(0.001)	(0.001)	(0.003)	(0.002)
Male as Head	-0.013	-0.002	0.053**	-0.037**
	(0.011)	(0.009)	(0.024)	(0.018)
Age of Head	-0.001*	-0.000	0.002***	-0.001**
	(0.000)	(0.000)	(0.001)	(0.000)
Household Size	-0.003	0.000	0.004	-0.002
	(0.003)	(0.002)	(0.005)	(0.003)
Number of Youth	0.006	-0.002	-0.007	0.003
	(0.004)	(0.003)	(0.008)	(0.006)
Number of Adults	0.002	0.004	0.012	-0.018*
	(0.006)	(0.005)	(0.013)	(0.009)
Number of Elderly	0.005	0.002	-0.004	-0.003
	(0.005)	(0.004)	(0.012)	(0.009)
Road	0.016	0.011	-0.002	-0.025
	(0.015)	(0.008)	(0.040)	(0.032)
Electricity	0.028*	-0.000	-0.039	0.012
	(0.014)	(0.008)	(0.028)	(0.019)
Mobile Network	0.013	0.014*	-0.065***	0.038**
	(0.009)	(0.007)	(0.024)	(0.018)
Bank	-0.003	-0.007	0.013	-0.003
	(0.015)	(0.012)	(0.045)	(0.031)
Permanent Market	0.016	0.025*	-0.078**	0.037
	(0.016)	(0.014)	(0.036)	(0.024)
Primary School	0.031***	0.006	-0.003	-0.034
	(0.012)	(0.009)	(0.037)	(0.030)
Junior High School	-0.027	0.008	-0.057	0.076***
	(0.017)	(0.009)	(0.036)	(0.024)
Agriculture Extension	-0.018**	-0.014**	0.069***	-0.036**
Office	(0.008)	(0.007)	(0.022)	(0.015)
Health Clinic	0.007	0.001	-0.021	0.013
	(0.010)	(0.008)	(0.025)	(0.018)
Observations	4,064	4,064	4,064	4,064

Standard errors clustered at community level are in parentheses. Region dummies are included in all regressions.
*** p<0.01, ** p<0.05, * p<0.1

Table A8 Marginal Effects of Individual, Household, and Community Characteristics on Employment Category (Age 25-34)

VARIABLES	(1) Wage Worker	(2) Apprentice	(3) Household Farming	(4) Household Enterprises
Age	-0.008***	-0.004***	-0.001	0.013***
	(0.003)	(0.001)	(0.004)	(0.003)
Male	0.137***	0.005	0.092***	-0.234***
	(0.019)	(0.005)	(0.026)	(0.021)
Years of Schooling	0.028***	-0.001	-0.026***	-0.001
(Individual)	(0.003)	(0.001)	(0.004)	(0.003)
Urban	0.106**	0.029**	-0.222***	0.087*
	(0.043)	(0.015)	(0.063)	(0.052)
Expenditures per Capita	0.045***	0.003	-0.119***	0.071***
(Log)	(0.015)	(0.004)	(0.023)	(0.017)
Years of Schooling	0.004	0.001	-0.006	0.001
(Mother)	(0.003)	(0.001)	(0.005)	(0.003)
Years of Schooling	-0.001	-0.001	-0.002	0.003
(Father)	(0.003)	(0.001)	(0.004)	(0.003)
Male as Head	-0.094***	-0.012	0.106***	0.000
	(0.032)	(0.010)	(0.038)	(0.026)
Age of Head	-0.003***	0.000	0.005***	-0.002*
	(0.001)	(0.000)	(0.001)	(0.001)
Household Size	-0.030***	-0.000	0.022***	0.008
	(0.007)	(0.001)	(0.008)	(0.006)
Number of Youth	0.027**	0.001	-0.039**	0.011
	(0.011)	(0.002)	(0.015)	(0.012)
Number of Adults	0.038**	0.006*	0.003	-0.047***
	(0.017)	(0.003)	(0.021)	(0.018)
Number of Elderly	0.042**	0.006	-0.041	-0.006
	(0.016)	(0.004)	(0.027)	(0.025)
Road	0.023	-0.001	0.009	-0.031
	(0.033)	(0.008)	(0.054)	(0.048)
Electricity	0.057**	0.008*	-0.126***	0.061**
	(0.025)	(0.005)	(0.040)	(0.030)
Mobile	0.027	0.014***	-0.094**	0.053*
	(0.023)	(0.005)	(0.038)	(0.028)
Bank	-0.023	-0.010**	0.036	-0.003
	(0.031)	(0.005)	(0.061)	(0.045)
Permanent Market	0.036	0.006	-0.063	0.021
	(0.035)	(0.008)	(0.051)	(0.035)
Primary School	0.023	0.008	-0.002	-0.028
	(0.032)	(0.006)	(0.054)	(0.049)
Junior High School	-0.018	-0.003	-0.079*	0.100***
	(0.030)	(0.007)	(0.046)	(0.035)
Agriculture Extension	-0.013	0.002	0.002	0.010
Office	(0.025)	(0.005)	(0.041)	(0.030)
Health Clinic	0.046**	0.001	-0.092***	0.044*
	(0.023)	(0.005)	(0.035)	(0.026)
Observations	2,734	2,734	2,734	2,734

Standard errors clustered at community level are in parentheses. Region dummies are included in all regressions.
*** p<0.01, ** p<0.05, * p<0.1

Table A9 Marginal Effects of Individual, Household, and Community Characteristics on Employment Sector (Age 15-24)

VARIABLES	(1) Primary	(2) Secondary	(3) Tertiary	(4) Mining	(5) Other
Age	-0.019***	0.008***	0.011***	0.000	-0.000
	(0.003)	(0.002)	(0.002)	(0.000)	(0.000)
Gender	0.139***	-0.034***	-0.107***	0.002**	-0.000*
	(0.016)	(0.011)	(0.013)	(0.001)	(0.000)
Years of Schooling	-0.005*	-0.002	0.007***	-0.000*	-0.000
(Individual)	(0.002)	(0.001)	(0.002)	(0.000)	(0.000)
Urban	-0.347***	0.053	0.293***	-0.000	0.000
	(0.093)	(0.036)	(0.078)	(0.002)	(0.000)
Expenditures per Capita	-0.054***	0.007	0.046***	0.001*	-0.000
(Log)	(0.016)	(0.008)	(0.011)	(0.001)	(0.000)
Years of Schooling	-0.004	0.002	0.002	0.000	0.000
(Mother)	(0.003)	(0.002)	(0.002)	(0.000)	(0.000)
Years of Schooling	-0.004	0.004***	-0.000	-0.000	0.000
(Father)	(0.003)	(0.001)	(0.002)	(0.000)	(0.000)
Gender of Head	0.072***	-0.038**	-0.033*	-0.001	-0.000
	(0.026)	(0.016)	(0.018)	(0.001)	(0.000)
Age of Head	0.002***	-0.001***	-0.001*	-0.000	0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Household Size	0.004	-0.002	-0.002	0.000	-0.000
	(0.005)	(0.003)	(0.004)	(0.000)	(0.000)
Number of Youth	-0.007	0.003	0.003	-0.000	0.000
	(0.009)	(0.005)	(0.007)	(0.000)	(0.000)
Number of Adults	0.010	0.002	-0.011	-0.000	0.000
	(0.013)	(0.008)	(0.009)	(0.000)	(0.000)
Number of Elderly	-0.001	0.004	-0.003	-0.000	-0.000
	(0.012)	(0.007)	(0.010)	(0.000)	(0.000)
Road	-0.012	0.006	0.005	0.001	-0.000
	(0.034)	(0.018)	(0.025)	(0.001)	(0.000)
Electricity	-0.037	0.006	0.030	0.001	0.000
	(0.028)	(0.015)	(0.019)	(0.001)	(0.000)
Mobile	-0.084***	0.039***	0.046***	-0.001	0.000***
	(0.021)	(0.012)	(0.015)	(0.002)	(0.000)
Permanent Market	-0.094**	0.067**	0.027	-0.000	-0.000
	(0.039)	(0.026)	(0.021)	(0.001)	(0.000)
Junior High School	-0.071**	0.016	0.057***	-0.002	0.000
	(0.030)	(0.016)	(0.020)	(0.002)	(0.000)
Agriculture Extension	0.067***	-0.017	-0.048***	-0.002	-0.000
Office	(0.022)	(0.012)	(0.015)	(0.001)	(0.000)
Health Clinic	-0.016	0.004	0.010	0.002	0.000
	(0.025)	(0.013)	(0.017)	(0.002)	(0.000)
Observations	4,069	4,069	4,069	4,069	4,069

Standard errors clustered at community level are in parentheses. Region dummies are included in all regressions.
*** p<0.01, ** p<0.05, * p<0.1

Table A10 Marginal Effects of Individual, Household, and Community Characteristics on Employment Sector (Age 25-34)

VARIABLES	(1) Primary	(2) Secondary	(3) Tertiary	(4) Mining	(5) Other
Age	-0.006	0.001	0.005	0.000	0.000
	(0.004)	(0.002)	(0.004)	(0.001)	(0.000)
Gender	0.183***	-0.003	-0.193***	0.012**	0.000
	(0.027)	(0.019)	(0.024)	(0.005)	(0.000)
Years of Schooling	-0.031***	-0.003	0.035***	-0.002***	0.000
(Individual)	(0.004)	(0.002)	(0.003)	(0.001)	(0.000)
Urban	-0.253***	0.064*	0.196***	-0.008	-0.000
	(0.065)	(0.034)	(0.054)	(0.005)	(0.000)
Expenditures per Capita	-0.133***	0.024*	0.107***	0.002	-0.000***
(Log)	(0.024)	(0.012)	(0.020)	(0.003)	(0.000)
Years of Schooling	-0.006	0.004*	0.002	0.000	0.000
(Mother)	(0.004)	(0.002)	(0.004)	(0.001)	(0.000)
Years of Schooling	-0.003	-0.001	0.003	0.001	0.000
(Father)	(0.004)	(0.002)	(0.003)	(0.001)	(0.000)
Gender of Head	0.095***	-0.034	-0.063*	0.002	-0.000
	(0.037)	(0.026)	(0.032)	(0.005)	(0.000)
Age of Head	0.004***	-0.001	-0.003**	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)
Household Size	0.011	-0.002	-0.006	-0.003*	-0.000
	(0.009)	(0.005)	(0.008)	(0.001)	(0.000)
Number of Youth	-0.031*	0.004	0.023*	0.004*	-0.000
	(0.016)	(0.011)	(0.013)	(0.002)	(0.000)
Number of Adults	-0.000	-0.013	0.011	0.003	-0.000
	(0.023)	(0.014)	(0.021)	(0.003)	(0.000)
Number of Elderly	-0.031	-0.003	0.037	-0.003	0.000
	(0.029)	(0.025)	(0.026)	(0.004)	(0.000)
Road	0.044	0.011	-0.067	0.012**	0.000
	(0.061)	(0.032)	(0.061)	(0.005)	(0.000)
Electricity	-0.141***	0.048**	0.087***	0.006	0.000
	(0.039)	(0.022)	(0.032)	(0.005)	(0.000)
Mobile Network	-0.128***	0.025	0.109***	-0.006	0.000***
	(0.038)	(0.021)	(0.030)	(0.009)	(0.000)
Bank	-0.012	0.000	0.023	-0.012***	0.000
	(0.067)	(0.030)	(0.052)	(0.004)	(0.000)
Permanent Market	-0.100*	0.066**	0.029	0.005	-0.000
	(0.054)	(0.029)	(0.042)	(0.009)	(0.000)
Primary School	-0.032	-0.006	0.035	0.003	0.000***
	(0.055)	(0.033)	(0.049)	(0.007)	(0.000)
Junior High School	-0.054	0.030	0.039	-0.015	-0.000
	(0.048)	(0.024)	(0.038)	(0.012)	(0.000)
Agriculture Extension	0.022	-0.046***	0.024	0.000	-0.000
Office	(0.041)	(0.017)	(0.035)	(0.006)	(0.000)
Health Clinic	-0.098***	0.029	0.063**	0.007	0.000
	(0.036)	(0.018)	(0.028)	(0.009)	(0.000)
Observations	2,742	2,742	2,742	2,742	2,742

Standard errors clustered at community level are in parentheses. Region dummies are included in all regressions.
*** p<0.01, ** p<0.05, * p<0.1