Characteristics and Determinants of Youth Unemployment in Ethiopia

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Abstract

Youth unemployment is a serious concern to policy makers in many developing countries because of its multidimensional impact. In this connection, the paper attempts to characterize youth unemployment in Ethiopia and reveal its major determinants. Univariate results indicate that the youth in general, including teenager youth and, young adults, those living in urban centres like Addis Ababa and Dire Dawa, those with primary and secondary education, as well as female youth face large unemployment spells. From the regression results, we found the prime age male unemployment rate to be a positive significant predictor of youth unemployment rates whereas demographic trends were found to be insignificant.

Keywords: youth, unemployment, demographic characteristics, Ethiopia

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Introduction

At least two issues deserve particular attention in relation to the problem of unemployment at the macro level – its level and distribution. High level of unemployment generally signifies the failure of an economy to put to use its scarce resources. Such has been the feature of most developing countries. Poor to modest macroeconomic performance, low level of employment creation and a rapid increase in the workforce are some of the most important reasons behind the high level of unemployment the developing world is associated with. Distribution wise, unemployment is generally found to be rampant among certain sections of society. The consensus in this regard is that the youth and women bear the brunt of the problem (Getnet, 2003).

The youth labour market is generally characterized by high level of unemployment. Such high level of youth unemployment is a problem to both developed & developing countries, although it is more threatening to developing countries. As a result, the issue of enabling the youth to find a decent employment has been a major policy concern for most countries (Getnet, 2003).

In the developing world, the problem of youth unemployment is a serious cause for concern on a number of grounds (Getnet, 2003). First, the youth makes up a significant proportion of the population in these countries. Second, these countries already spend huge amount of resources on the youth. Such expenditure may turn out to be a lost investment if, ultimately, the youth is not going to be in a position to support itself and the larger society.

Third, the youth being one of the scarce resources that these countries are endowed with, failure to channel this resource properly may mean a further trap in the vicious circle of poverty and a bleak future in terms of economic

development and growth. Salvador and Killinger (2008) opine that youth unemployment means there is less labour input from those who, despite having less work experience than older workers, are supposed to improve production processes with their more up-to date and innovative expertise.

Fourth, high level of youth unemployment and the sense of desperation it creates have been linked to social problems that threaten the stability and peace of a society. Salvador and Killinger (2008) also are of the view that people who become unemployed during their early working years may become demoralized, and people who fail to find a job after leaving full-time education may see deterioration in their human capital and employment prospects, which in turn could lead to social exclusion.

These problems necessitate an informed and careful intervention by the various actors aimed at improving conditions for the youth. It is such concerns that make the study of youth unemployment an important one.

Ethiopia is a typical case of the developing world that has failed to make effective use of its youth. In Ethiopia, the youth population accounts for a fifth of the total population that currently stands nearly 80 million.

The lack of employment opportunities for Ethiopian young people is among the critical development challenges facing the country, and a key barrier to national efforts toward the Millennium Development Goals (World Bank 2004).

This article is a contribution to the literature on youth unemployment in Ethiopia by analyzing the determinants of youth unemployment on a regional basis. To my knowledge, no study has been carried out on the reasons behind regional variation of youth unemployment in Ethiopia. There are some international studies such as Salvador and Killinger (2008) which used panel data models to assess the determinants of youth unemployment with the Euro area countries as a unit of analysis. Most studies conducted in the Ethiopian context such as Getnet (2003) Serneels (2004) focused on microeconomic determinants of youth unemployment

with individual unemployed youth data and hence ignored regional variations in youth unemployment. Hence, this research, building on the model of Salvador & Killinger (2008) is expected to fill a gap in the existing literature on youth unemployment in a developing country case, Ethiopia.

Univariate results indicate that the youth in general, teenager youth and, young adults, the youth living in urban centres like Addis Ababa and Dire Dawa, those youth who attended primary and secondary education, and female youth face large unemployment spells. From the regression results, we found the prime age male unemployment rate to be a positive significant predictor of youth unemployment rates whereas demographic trends were found to be insignificant.

The rest of the paper is organized as follows. The second section discusses the review of literature. In this section, we discuss some definitions of youth and unemployment and the meso and macro level determinants of youth unemployment. In the third section we discuss the data and methodology of the study. The results are discussed in the fourth section and the last section concludes the paper.

Review of Related Literature

Definitions

In this section, we try to define the two concepts of youth and unemployment from some official sources as failure to provide a clear definition can lead to a serious inconsistency in the whole research project. We shall start by defining first the term youth and next unemployment.

The UN standard definition of youth refers to the age group 15 to 24 inclusive, with 15 being the statutory minimum school leaving age in most industrial countries. This group is further broken down into teenagers aged 15 to 19 and young adults aged 20 to 24(Salvador and Killinger, 2008).

There is a wide variation in the definition of youth across countries depending on cultural, institutional, political and other factors. In the developed countries, the lower age limit tends to coincide with the legal school leaving age but there is no particular justification for the upper age limit. The youth and employment report of the Economic Commission for Africa (ECA) highlights the wide variation in the definition of the youth among member countries in Africa that includes Mozambique (14–35), Uganda (13–35) and Nigeria (6–30) (Getnet, 2003).Ethiopia has youth policy documents with clear definition[1]. According to Ministry of Youth and Sport (2005) National Youth Policy Manual, the nationally agreed definition of youth refers to those in the age category of 15-29 although different regional states argue that the age category should be adjusted for their local conditions. For the purpose of this research, we have used the approved national policy which is the consensus reached by the different regions of the country.

According to the ILO definition, which is the most widely used, the unemployed are described as those people who have not worked for more than one hour during the short reference period (generally the previous week or day) but who are available for and actively seeking work(Mlatsheni and Rospabé, 2002).

The position of young people in the labour market is mostly assessed by comparing it to labour market outcomes for prime age workers (aged 25 to 54) (Salvador and Killinger, 2008). This definition of prime age workers rests on the UN definition of youth (15-24) discussed above. So, when we contextualize this in the Ethiopian MYS (2005) definition of youth (15-29), the prime age workers will fall in the age category of 30+ years.

Determinants of Youth Unemployment

In this section, we will discuss the main tenet of the study. We will particularly discuss the literature on the meso and macro level determinants of youth unemployment.Economists' interest in the causes of youth unemployment dates back a long time with systematic research on the youth labour market, for example by the NBER, starting at the beginning of the

1980s. The analysis of youth unemployment generally differs according to the explanatory factors considered, the country panel and the time horizon analyzed, as well as the regression techniques chosen.

Both supply and demand factors impact on youth unemployment and underemployment in developing countries. Supply-side issues such as demographic factors that affect the size of labour force and education and training policies affect the labour market outcomes in an economy. Demand-side issues such as the performance of the economy and its absorptive capacity for labour, including enterprise development and job creation are key factors. Institutional and labour market policies can play an intermediary role between supply and demand in the labour market (Berhanu *et al.*, 2005)

Demographic trends

Several studies on youth unemployment have collected evidence on the impact that changes in the population age structure have on the labour market success of young people. The hypothesis tested is that decreases (increases) in relative cohort sizes, i.e. the ratio of young to prime age persons in the population, should improve (worsen) the labour market prospects of young relative to prime age persons, as long as young and prime age workers are not perfect substitutes.

Summarizing the literature on the impact of changes in the population age structure on the youth labour market, it appears that an increase in the cohort size of young person's relative to prime age persons has an adverse effect on unemployment, employment and wages among young persons in a number of countries (Korenman and Neumark, 2000). In their own cross-country approach for OECD countries over the period 1970-1994, Korenman and Neumark (2000) found that large youth cohorts lead to increases in the unemployment rates among young people. Salvador and Killinger (2008) in their Euro area study found that there is a positive relationship between the share of young people in the total population and the youth unemployment rate.For this research, demographic trends are

captured by the share of the youth population (15 to 29) in the total working age population (15 to 65+), not on the prime age workers (30-65+). We do this because the unemployment rate (the dependent variable of the research) is measured only for the youth and not for the differential of the unemployment rate between youth and prime age workers.

Economic Environment

The overall performance of the economy has an impact on demand for labour, and thereby, on the degree and structure of unemployment. The ILO (1986) has been arguing that the fundamental causes of urban and rural unemployment and low incomes in Ethiopia are structural and related to the resource base and limited industrial development opportunities available. These economic factors lead to a lack of employment opportunities. Supporting the ILO (1986) claim on an international setting, O'Higgins, (1997) and Blanchflower and Freeman (2000) argue that aggregate economic activity is a major determinant of the level of youth unemployment.

Changes in youth unemployment are usually closely related to changes in prime age unemployment, which can be taken as a proxy for variations in the state of the economy. Youth unemployment tends to be more cyclically than prime age unemployment, with youth unemployment tending to increase more than prime age unemployment during periods of recession and to decline more quickly during economic upswings.

Salvador and Killinger (2008) in their Euro area study measured the economic environment by the prime age male unemployment rate, with a lower figure indicating good economic progress. This measure of economic environment seems very plausible. The prime age male workers are those that have gone through education and training and thus are expected to get job if the economy is performing well. Failure to get job by these age groups shows distress in the economic environment. Here, we used the male data because the prime age female workers may not get a paid job even if they are educated, as social and cultural factors and their performance vis-à-vis male workers may impose a deterrent effect on their employability.

These authors have also has used the lagged value of real GDP growth to measure the economic environment.

The prime age male unemployment rate is expected to be a good proxy of the cycle in the labour market and, at the same time, less affected by trend developments in the unemployment rate compared with other groups. On the effect of economic environment on youth unemployment rates, Salvador and Killinger, (2008) found that the prime age male unemployment rate is positively related with the youth unemployment rate, i.e. if the economic situation deteriorates (i.e. high prime age male unemployment rate), the youth unemployment rate increases.

For our research, we measured the economic environment by the prime age male unemployment rate. However, t we did not use real GDP variable as efforts to get regional real GDP data becomes very demanding, although not impossible.

Importance of the service sector

In order to capture the impact of increasing importance of services in the economy on reducing youth unemployment by employing more young workers, the share of services employment in total employment has been included as an explanatory variable by some researchers. Salvador and Killinger (2008) in the Euro zone study found that an increasing share of services employment in total employment is helping to reduce unemployment among young persons. This may be due to the fact that the kind of education attained by recent youth cohorts increasingly matches labour demand in the services sector. In our research, we did not capture this variable for lack of proper data.

Labour market institutions and policies

The labour market institutions that are often said to explain the level of and changes in youth unemployment include, inter alia, employment protection regulation, minimum wages, Active Labor Market Programs (ALMPs) and unions' involvement in wage setting.

The studies by Salvador and Killinger (2008) and OECD (1999) found that employment protection regulation has negative employment effects, particularly for young workers. Generally, a high level of employment protection legislation may be detrimental to young people for several reasons. First, high firing costs tend to discourage firms from taking more people on during upswings, as it would then be too expensive to dismiss them again when the economic situation is not so favorable. A strict level of employment protection regulation thus tends to lead employers to fill vacancies only with well-suited employees as dismissals are costly. This might often prove to be disadvantageous for young and inexperienced workers as firms have little knowledge about their ability and skills. Second, there tends to be fewer firings during economic downturns, thus reducing inflows into unemployment. However, if firings are regarded as unavoidable, firms tend to dismiss a larger number of young workers than prime age workers as redundancy payments increase with job tenure.

As regards minimum wages, some econometric studies have tested whether or not the induced wage floor impedes the employment of young workers (Neumark and Wascher, 2004). In a study of 17 OECD countries over the period 1975-2000, these authors find that increases in minimum wages tend to lead to employment losses among young persons. This is because as minimum wages increase firms do not want to employ young people as the firms' salary cost will be high. It has to be noted that changes in minimum wages affect the youth as opposed to prime age workers because the youth are not skilled and command most of the time the minimum wage. This same result is confirmed by the study of Salvador and Killinger (2008) in the Euro zone study. Regarding ALMPs, the literature is rather inconclusive on their impact on young persons' employment prospects (Heckman et al., 1999; and Kluve, 2006). ALMPs entail (1) training programmes; (2)

measures aimed at increasing working incentives or labour demand, for example, wage subsidies; (3) public employment programmes; and (4) job-search assistance as well as benefit sanctions. Kluve (2006) interprets the available empirical evidence, i.e. the absence of clear positive employment effects of ALMPs for young persons, by indicating that "young people appear to be particularly hard to assist". However, Salvador and Killinger (2008) found that the presence of ALMPs reduces youth unemployment rate.

Regarding the effect of unions' involvement in wage setting, Bertola *et al's* (2002) study involving 17 OECD countries over the period 1960-1996 revealed that the involvement of unions in wage-setting significantly decreases the employment rate of young workers relative to prime-age men. However, Salvador and Killinger, (2008) found no significant impact of unions' involvement in wage setting on youth unemployment.

For our research, we did not capture labour market institutions and policies variables because they are the same for the different regional states; and they do not change across the study period (2005, 2006 and 2009). Technically speaking, they are not variables as such and can not be used in this research. Had the research been a cross country study or country specific study spanning for many years over which change in labour market policies are expected, it would have been reasonable to include these variables.

Education

Studies on the role of education in unemployment also help to explain developments in youth unemployment although in a more indirect way. In this respect, some of the literature has focused on the observation that the unemployment rate of less educated workers tends to be higher than the unemployment rate of more educated workers. One explanation for these unemployment differentials is the existence of a degree of mismatch between the demand for and supply of education, with an excess demand for more highly educated workers as compared to less educated workers (Padoa-Schioppa, 1991; Layard *et al.*, 1991),

Linked to the education variable is youth inactivity rate. Youth inactivity rate is measured by the fact that young people are either in education or have given up looking for a job completely and are not in education. It is hypothesized that a higher inactivity rate leads to less youth unemployment as those youth in education do not seek job. In this connection, Salvador & Killinger (2008) found that the overall increase in youth inactivity is significantly correlated with the overall decline in youth unemployment. In other words, education has been an alternative to unemployment in a number of countries. This suggests that those engaged in education have low level of unemployment rates not because they are educated but because they are currently engaged in education and not actively seeking work. For our research, due to absence of regional data, we can not uncover the impact of education (for those who already completed their education and seeking job) and youth inactivity rate (that in education and not actively seeking work) on youth unemployment rates.

Policy related causes of youth unemployment

Mismatch of education and training skills with the requirements of the labour market is another important reason for the high level of youth unemployment. This is particularly important in view of the fact that the unemployed youth in the urban areas of most developing countries seems to have gone through the best education and training that these countries can afford to provide (Genene *et al.,* 2001).

In this regard, the policy of rapid expansion in education and training opportunities that is mostly supply driven and not in line with the skill needs of these economies has to be checked. Expansion in education and training opportunities, barring quality problems, is an achievement in its own right as it increases general human capital and meets the basic rights of children and the young. Nonetheless, uncoordinated and supply driven expansion in education and training may amount to the creation of an army of dissatisfied youth in the end (Getnet, 2003).

The Ministry of Youth and Sport (2005) policy manual discussed other policy related causes of youth unemployment for those youth who are

interested to work. These include lack of capital, lack of working premises, problem to get licenses, shortage of equipment etc. The same document discussed other causes such as the intention of the youth to get paid job rather than go for self-employment (technically called lack of entrepreneurship skills), wrong attitude towards doing very small jobs, lack of growth of the informal sector, and weak private sector capacity in employment creation.

Due to the unavailability of finer data on the match between education and training skills with the requirements of the labour market, we can not cover the impact of this variable. The variables discussed in the Ministry of Youth and Sport (2005) policy document focus on micro level data (the characteristics of the youth itself) and as such are not relevant for regional analysis (meso level analysis).

Rural-urban Migration

In the context of the urban labour market of developing countries, one factor that has long been identified as an important reason explaining urban unemployment is rural urban migration (Getnet, 2003). However, due to absence of data on regional rural-urban migration, we did not cover this variable.

Characteristics of the Youth

Other reasons, probably less important in the context of developing countries, which explain the high level of youth unemployment, have to do with the labour market characteristics of the youth itself. The youth is generally associated with high level of job turnover. The labour market literature accords plenty of evidence relating to high level of turnover in the youth labour market. Human capital (Becker, 1962) and search (Burdett and Mortensen, 1980) theories, for example, predict that the youth is more likely to separate from jobs due to layoffs, discharges and quits than its adult counterpart. There is a higher probability of layoffs among the youth than adults mainly because of the low level of human capital. Employers faced with a slump in demand would find it easy to layoff the inexperienced

youth first. This is because the youth is the least expensive to replace when demand conditions recover. Discharges are also relatively more common among the youth as the youth lacks 'desirable' work ethics that can be regarded as a form of general human capital. Thus, involuntary job separation is a feature that is more common among the youth than the adult labour (Getnet, 2003). Voluntary job separations (quits), on the other hand, are associated with the youth on the ground that the youth tends to spend time looking for the 'ideal' employment as part of a rational search behaviour. Young school leavers can afford, and may even find it profitable, to do 'job shopping' before settling in with a particular job. This explanation of young people entering unemployment voluntarily is, however, based on the presumption that individuals searching for the 'ideal' job receive some sort of compensation for forgone earnings and transaction costs. As such, this later explanation of turnover has very little relevance to first time job seeker youth in particular and the unemployed in general in the context of developing countries. The fundamental problem to the youth in developing countries is securing first job that hardly exists (Getnet, 2003). The characteristics of the youth explained by both involuntary and voluntary turnover, as above, are youth specific variables and as such are not useful in explaining variation in regional youth unemployment rates. Hence, they are not modelled in our research.

In sum, the determinants of youth unemployment rates discussed by various literature sources are demographic trends, economic environment, the share of service sector employment, labour market institutions and policies, education, policy related causes, rural-urban migration, and the characteristics of the youth itself. However, due to a multitude of reasons such as absence of data, uniformity in the values of the variables across regions (for labour market institutions and policies), and the micro nature of the data for regional analysis, we can not uncover the impact of the many variables discussed. As a result, we will only discuss the impact of demographic trends and economic environment on youth unemployment rates. It is left for future researchers to do such type of study by including the many variables left out from our analysis.

Data and Methodology

The data is taken from the Urban Employment Unemployment Survey and National Labour Force Survey of the Central Statistical Agency (CSA) of Ethiopia. CSA has such type of data for the year 2003-2006 and 2009. We took data from the 2005, 2006 and 2009 surveys as the 2003 and 2004 survey reports have no comparable data.

The 2005 National Labour Force Survey has data on rural and urban centres whereas the 2006 and 2009 surveys are urban focused surveys. To make these data series comparable, we took the urban unemployment data from the 2005 survey.

The unit of analysis is Ethiopian regional states and city administrations, their youth unemployment and related data being collected for the years 2005, 2006 and 2009. The data hence relates to the nine regional states, namely, Tigray, Afar, Amhara, Oromia, Somali, Benishangul Gumuz, SNNP, Gambella and Harari regions and two city administrations, Addis Ababa and Dire Dawa.

As indicated in the introductory section, we focused on regional data sets because we have seen clear gaps in the Ethiopian literature in such area. Actually, there are still gaps in literature at macro level determinants of youth unemployment. Few of the studies conducted in the Ethiopian context focused on micro level analysis.

The Econometric Model

In the review of related literature, we tried to show the potential determinants of youth unemployment. These include demographic trends, economic environment, the share of service sector employment, labour market institutions and policies, education, policy related causes, rural-urban migration, and the characteristics of the youth itself. However, due to the multitude of reasons mentioned in the review of literature, we could not

assess the impact of all these variables. We have data only on the demographic trends measured by the share of young population from the economically active population and the economic environment measured by the prime age male unemployment rate. The impact of other variables on youth unemployment rates cannot be assessed.

From the data collection we got regional data set with some time series dimension. Thus, to assess the impact of our selected explanatory variables on youth unemployment rates, we used panel data models like that used in Salvador and Killinger's (2008) Euro Zone study.

With respect to functional form selection, Salvador and Killinger (2008) used all variables in a linear form. We conducted Ramsey RESET test for the functional form of the conditional mean with the linear variables specification and found that log models are better fit to the data. So we used all variables in the log form. The variables used in the descriptive analysis and econometric model are explained in Table 1 below.

Table 1. Variable computations

Variable	Computation
Youth unemployment	The unemployed youth (15-29) population divided by the economically active youth population. Source CSA.
Prime age unemployment	The unemployed prime age (30+) population divided by the economically active population from the same age category. Source CSA.
Total unemployment	The unemployed population (15+) divided by the economically active population from the same age category. Source CSA.
Share of youth population	The economically active youth population (15-29) divided by the total economically active population (10+). Source CSA
Prime male unemployment rate	The unemployed prime age (30+) male population divided by the economically active age population from the same age category. Source CSA
Primary education youth unemployment rate	Primary education is defined as education from grade 1-8. The respective unemployment rate is the unemployed youth with primary education divided by the economically active youth population. Source CSA
Secondary education youth unemployment rate	Secondary education is defined as education from grade 9-11 old and grade 9 new curriculums plus grade 12 old and grade 10 new curriculums. The respective unemployment rate is the unemployed youth with secondary education divided by the economically active youth population. Source CSA
Tertiary education youth unemployment rate	Tertiary education is defined as education in TEVT 10+1, 10+2, Preparatory, Certificate, and Diploma and above. The respective unemployment rate is the unemployed youth with tertiary education divided by the economically active youth population. Source CSA

Source: CSA various urban employment unemployment survey reports

The basic two-way panel data model looks like the following:

$$\ln YUR_{it} = \alpha + \beta_i \ln SYP_{it} + \beta_j \ln PMUR_{it} + \mu_i + \gamma_t + \varepsilon_{it} \text{------------------} \text{--------}(1)$$

Where

$\ln YUR_{it}$ = youth unemployment rate for region/city administration i in period t.

$\ln SYP_{it}$ = share of youth population from the economically active population for region/city administration i in period t

$\ln PMUR_{it}$ = Prime age male unemployment rate for region/city administration i in period t

μ_i = time-invariant unobserved heterogeneity for region/city administration i

γ_t = time dummies to check the dynamics in youth unemployment

ε_{it} = time varying error term for region/city administration i in period t

Results

Descriptive statistics and univariate tests

The descriptive statistics and univariate tests were conducted to compare youth unemployment rates across age groups, disaggregated youth age groups, educational levels and sex for the three years under study (2005, 2006 and 2009). This analysis was conducted for the country as a whole. Besides, we compared youth unemployment rates across regional states for the three years under consideration. To achieve these goals, we used the following statistical tools: graphical analysis, mean comparison, independent sample t test and one way ANOVA with Scheffe post hoc procedure.

The independent sample t test was used for comparison of youth unemployment rates across sex. The sex data is not normally distributed but there is equality of variance between male and female youth unemployment rates. Even if it merits a non-parametric test approach because of violation of the normality assumption, we used the parametric test results as the results are the same under both methods. We used the one way ANOVA

test for comparison of youth unemployment rates across age groups, disaggregated age groups, and educational levels. All these three variables satisfy the parametric test assumptions of normality of the data and equality of variance across groups.

For comparison of youth unemployment rates across regions we used only graphical analysis and mean comparison. As the numbers of categories are very large, we can't conduct any statistical test of hypothesis (see Figure 1 and tables 2 and 3 in the Appendix).

Comparison across age groups

Over the years, all the unemployment figures (youth, prime age and total) show decline in 2006 and then upswing in 2009. The rise of unemployment figures in recent years might be due to the global financial crises which impacted the Ethiopian external trade balance, imported and local inflationary situations, power cuts, increased population pressure and the like. The mean unemployment figures for youth, prime age and total unemployment is 0.25, 0.14 and 0.19 respectively. We tested on whether this difference is statistically meaningful over the three years considered (2005, 2006 and 2009) using one way ANOVA test with Scheffe post hoc comparison. The result indicates the presence a significant difference in the unemployment rates for the different age categories. Besides, we found that youth unemployment is higher than both prime age and total unemployment. This is not as such a surprising finding as it is confirmed by many empirical studies such as Salvador & Killinger (2008). Hence, policy makers should give due attention to youth unemployment problems as it is relatively higher than the other age categories.

Disaggregated analysis of youth unemployment across ages

The mean unemployment figures for teenage (15-19), young adults (20-24) and young olds (25-29) is 0.26, 0.29 and 0.22, respectively. The ANOVA test shows that young olds (25-29) has significantly lower unemployment rates as compared to both teenage (15-19) and young adults (20-24) unemployment rates. This could be attributed to higher employment prospect after completing college education for the young old (25-29)

category whereas the teenage and young adults have low employment prospect because of low educational status.

Comparison across regions

When we see the trend of youth unemployment for each regional state over the years we found that youth unemployment has increased in Tigray, Amhara, Oromia and Benishangual Gumuz. It was constant in Afar, SNNP, Addis Ababa and Dire Dawa and declining in Somali, Gambella and Harari. Over the three years, high mean youth unemployment figures were reported in Somali (0.34), Addis Ababa (0.35) and Dire Dawa administration (0.34). This confirms that youth unemployment is higher with a higher degree of urbanization, especially in Addis Ababa and Dire Dawa. This might be due to high rural urban migration in these cities. The higher unemployment of Somali region is worth considering by the government of Ethiopia. It suggests that the region has done little economic work which could generate jobs. This might be due to instability with the border in Somalia. On the other hand, the lowest youth unemployment rate was registered by Benishangul Gumuz Regional State (0.15).

Comparison across Educational levels

Over the years, for the three educational levels, primary education, secondary education and tertiary education, employment prospect has improved for those youth who completed primary education whereas the employment prospect of those who completed secondary and tertiary education remained constant-it neither improved nor worsened.

The mean unemployment figures for those who completed primary education, secondary education and tertiary education was 0.12, 0.1 and 0.03 respectively. The result of the ANOVA test shows that those who attended tertiary education have a significantly high employment prospect than those who attended primary and secondary education. Hence education helps in curbing unemployment. This is something an obvious finding as pointed out in Padoa-Schioppa, (1991) and Layard et al., (1991). Thus government should pursue an active stance on expanding education opportunities for the youth.

Comparison across sex

Over the years, the employment prospect of males remained constant whereas that of females has worsened. The mean unemployment figures for males and female youth were 0.18 and 0.32 respectively. The independent sample t test shows that female youth unemployment rate is higher than male youth unemployment rate. This finding calls for attention to be given to female youths who suffered the most from the unemployment problem. This finding is not as such surprising given the historically lower attention given to females in the Ethiopian socio-economic environment.

Panel data results

Procedural briefs: Maximum effort was made to follow pre and post estimation diagnostic tests. Most of the relevant assumptions of the Classical Normal Linear Regression Model (CNLRM) were checked. This included making sure that the error term is normally distributed with a mean of zero and constant variance (homosedasiticity), no autocorrelation between the error terms, no correlation between explanatory variables and error terms, there is no model specification error, and no perfect multi-collinearity among the regressors (Gujarati and Sangeetha, 2007). Besides, for the panel data model, we used the Hausman tests for selecting between the fixed and random effect model.

In the Hausman test, all explanatory variables including time dummies are included. The result of the test confirms that the random effect is the appropriate model. This means, the unobserved heterogeneity across regions (omitted variables due to the data problems such as Real GDP growth rate, youth inactivity rate, share of service employment and many others) are not correlated with the explanatory variables included in the model. However, further tests of the random effect model show that the model has no significant improvement over the Pooled OLS results. This indicates that the unobserved heterogeneity across regional states as such does not exist or matter. So, we report Pooled OLS results.

The result of OLS assumption checking reveals the following results. We fitted log-linear model to the observed data by rejecting linear specification. The Ramsey RESET test for the functional form of the conditional mean rejected the null hypothesis of linear specification indicating that other models probably log models are more appropriate. Allied with the Ramsey RESET test, we used the MacKinnon White and Davidson (MWD) test for the choice between linear and log-linear model. We rejected the null hypothesis of the linear model at a 7% level of significance. So, we used all variables in log modes. Then we checked for normality of residual using the Jarque-Bera skewness-kurtosis test and found that the residuals were normally distributed (p-values > 0.05). The residuals also had a mean of − 0.0000000001 which is technically 0. With the log-linear specification we found that the error term has constant variance (homosedasiticity), so there is no need to resort to robust standard errors. We did not find any autocorrelation of residual from the scatter gram of residuals against the pooled cross sections & time series data (see Figure 2 below).

Figure 2   Plot of residuals against cross section to check the assumption of autocorrelations
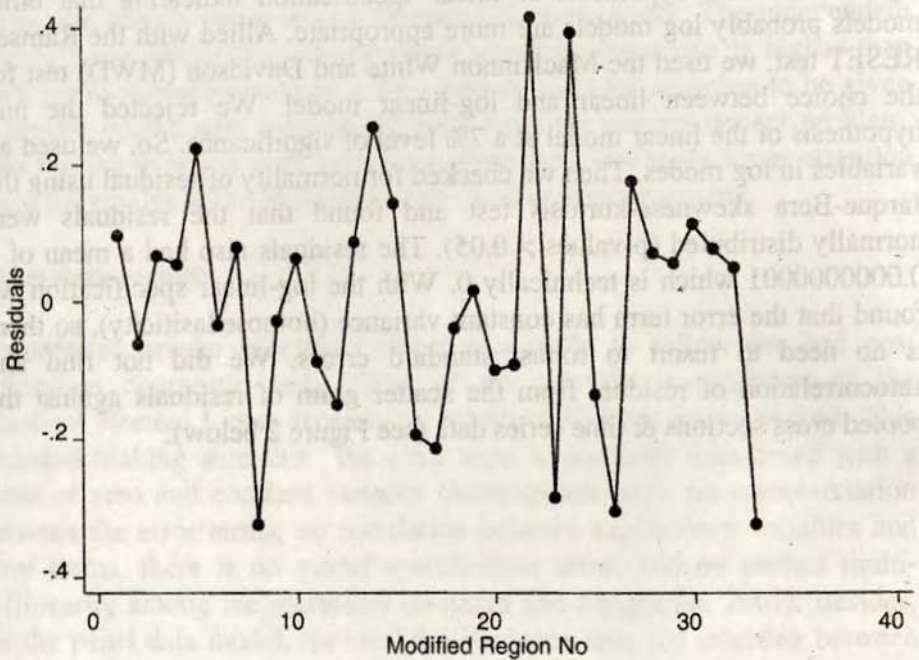
Source: Author's own computations (2010) based on CSA various urban employment
unemployment survey reports

We found the residuals are random and do not follow any systematic pattern. Besides, the Breusch-Godfrey LM test for autocorrelation shows there was no pattern of autocorrelation. Endogenity (correlation between the regressors and error terms) was tested by regressing the error term on the explanatory variables and testing the significance of the slope coefficient. We fond no endogeneity problem.To test for multicollinearity, we used the Variance Inflation Factor (VIF) criterion and the correlations matrix. From

this analysis, we did not find any multicollinearity problems as the VIF values were less than 10.

The mean youth unemployment rate, share of young population from the economically active population and prime age male unemployment rates were 0.25, 0.47 and 0.09, respectively. From this, we can see that the share of young population from the economically active population was almost half in the Ethiopian scenario. This huge figure deserves due attention from policy makers of the country (Table 4).

Table 4 Descriptive Statistics of variables used in Panel data model

Variable	Mean	Std. Dev	Min	Max
Youth unemployment rate (YUR)	0.25	0.08	0.12	0.39
Share of youth population (SYP)	0.47	0.04	0.38	0.56
Prime age male unemployment rate (PMUR)	0.09	0.08	0.02	0.49

Source: Author's own computations (2010) based on CSA various urban employment unemployment survey reports

The Pooled OLS result shows that only the prime age male unemployment rate is a significant positive predictor of youth unemployment. Both the share of young population and time dummies were insignificant. The R^2 of the model was 67% and the model as a whole was significant.

Table 5   Pooled OLS results of the determinants of youth unemployment: the share of youth population (SYP), prime age male unemployment rate (PMUR) and time dummy

Variables	Coefficient	Std.Err.	t	p
Constant	-21.95	31.40	-0.70	0.490
Ln SYP	0.42	0.37	1.13	0.266
Ln PMUR	0.4	0.07	6.07	0.000
Year	0.01	0.02	0.70	0.493
R^2	0.67			0.000

Source: Author's own computations (2010) based on CSA various urban employment unemployment survey reports

Prime male unemployment rate is an indicator of economic activity, with a higher value of this figure indicating weaker economic activity. Our result showed this variable to be a significant determinant of youth unemployment rate in Ethiopian regional states and city administrations. This finding is consistent with that of Salvador and Killinger (2008). So, measures have to be taken by the government to increase economic activity to curb youth unemployment problems. For this to happen, promotion of private domestic and foreign direct investment and micro and small enterprises is a strategic option to follow by the government of Ethiopia.

Demographic trends were not found to be significant. This may be due to the little variability in the data as the share of young population has a low standard deviation (0.04). This low variability may be attributed to either small time series dimension data or the same fertility rates and population policy across regions. We are not aware of any population policy by each regional state and city administration. This finding is in contradiction with that of Salvador and Killinger's (2008) study in Euro zone which might show a huge variability in demographic trends across the Euro zone

countries. Time dummies were also insignificant because of the brief nature of the period considered. Three years' data will not give much variability to the research.

Concluding Remarks

This study attempted to uncover youth unemployment situations in Ethiopia and identify its possible drivers. Our study addressed two broad issues: characteristics of the youth unemployment situation and determinants of youth unemployment.

The characteristics of youth unemployment was analyzed it in terms of age in general, disaggregated youth age, regions, educational levels and sex. The major findings revealed the following patterns. Currently, there is a rise in youth unemployment figures, partly due the global financial crises, imported and local inflationary situations, power cuts, increased population pressure and other possible factors. We found that youth unemployment rates are significantly higher than prime age unemployment and total unemployment figures which calls for increased scrutiny of this issue by policy makers. Regarding the youth unemployment, we have found that teenagers (15-19) and young adults (20-24) suffer the most from unemployment spells as compared to those in the 25-29 age category. This might be partly due to the lower educational status attained by those in these age categories and the resultant low employment prospects.

Regional analysis of youth unemployment shows that urban centres like Addis Ababa and Dire Dawa have high youth unemployment rates as compared to other regions. This might be due to the large influx of rural migrants in search of job in these cities. Somewhat unexpectedly, the Somali regional state has high youth unemployment rates like Addis Ababa and Dire Dawa. We can infer that no much economic work has been done by the government in this regional state due to possible instability with border Somalia or some factor. Hence, the Somali region requires due attention from those concerned with economic management.

Looking at the possible variation in employability of the youth by educational level, we uncovered that those who completed tertiary level of education had higher employment prospect as compared to those who completed primary and secondary education. So, education seems to have clear impact on employment prospects.

Analysis of youth unemployment across sex shows that female youth suffer the most from the unemployment problem. This result is not as such surprising as women in Ethiopia have lower access to educational and other opportunities due to cultural and other factors.

Finally, looking at the determinants of youth unemployment, we could not analyze the impact of many variables discussed in the literature due to lack of data & other reasons. We have included only two factors, namely, the share of youth population capturing the demographic trends and the prime age male unemployment rates which capture the economic environment. Our pooled OLS regression showed us only the prime male unemployment rate to be a significant positive predictor of youth unemployment rates. This calls for improvement in economic management to improve the employment prospect of the youth population. Particular attention should be given to economic activities which could generate enough jobs. These include labour intensive industries, promotion of entrepreneurship, micro and small enterprises, attracting foreign direct investment, and promotion of domestic private investment.
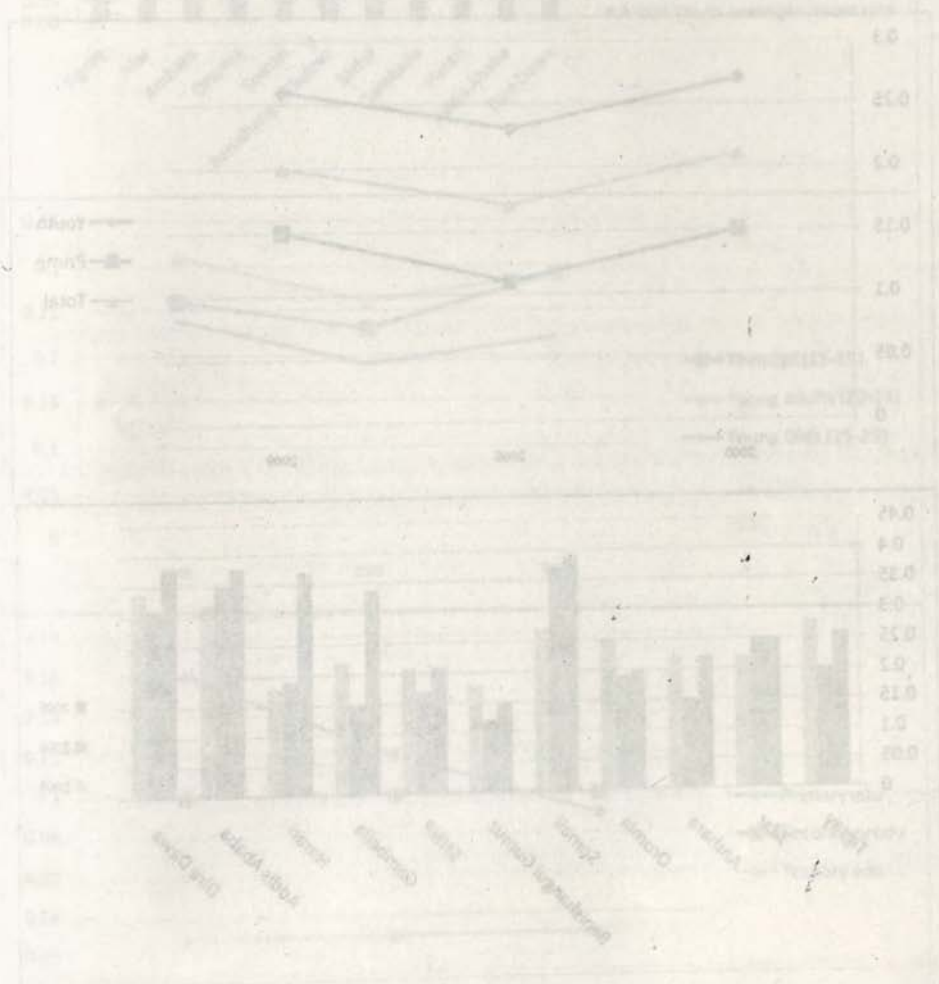
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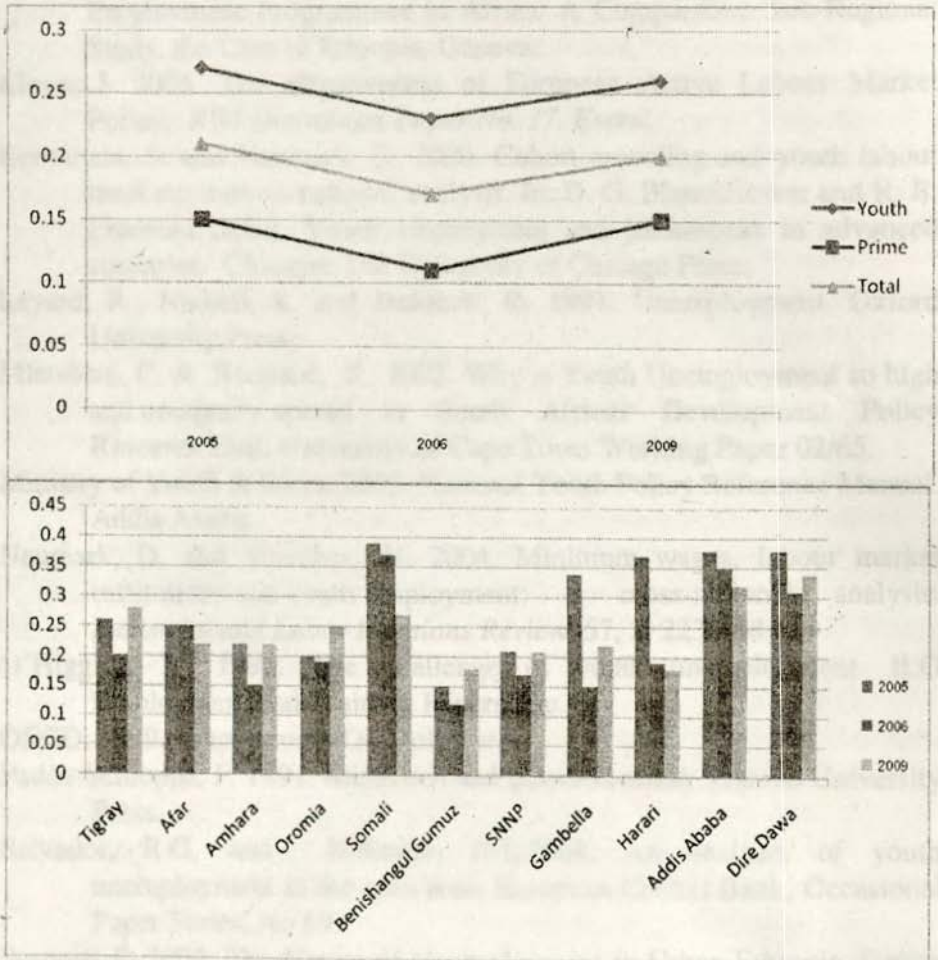World Bank. 2002. The Federal Democratic Republic of Ethiopia: Developing Exports to Promote Growth. Sector Report No.23294-ET, Washington, D.C.

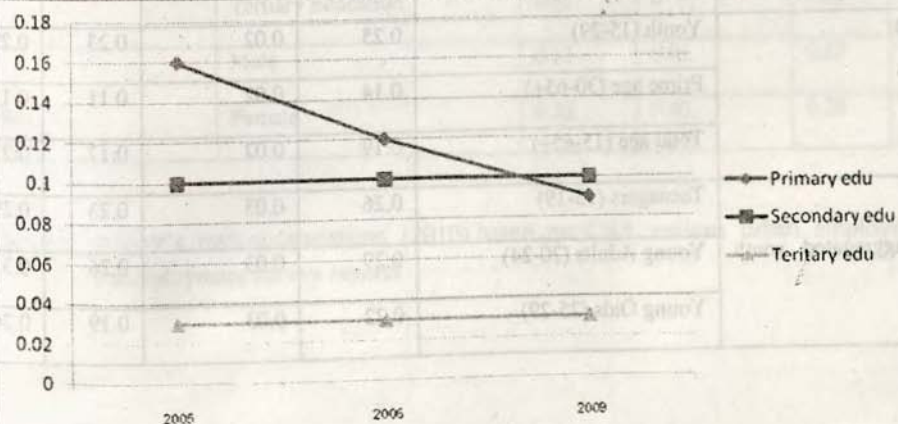# Appendix

Figure 1. Graphical analysis

Mean Youth unemployment rate
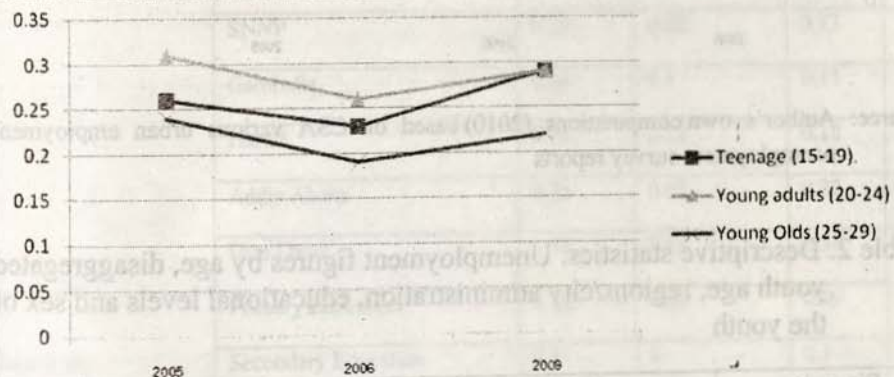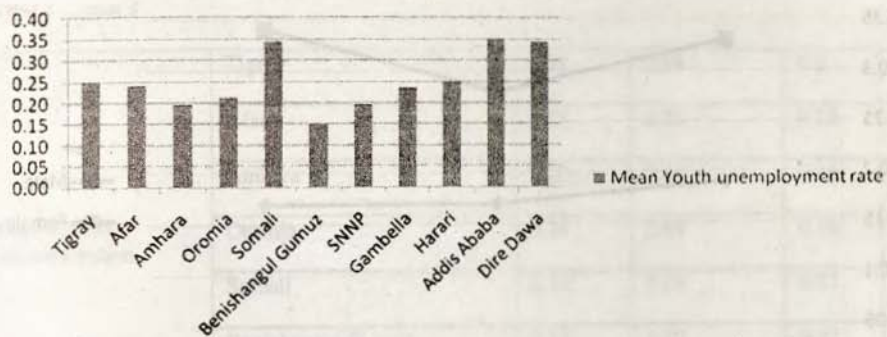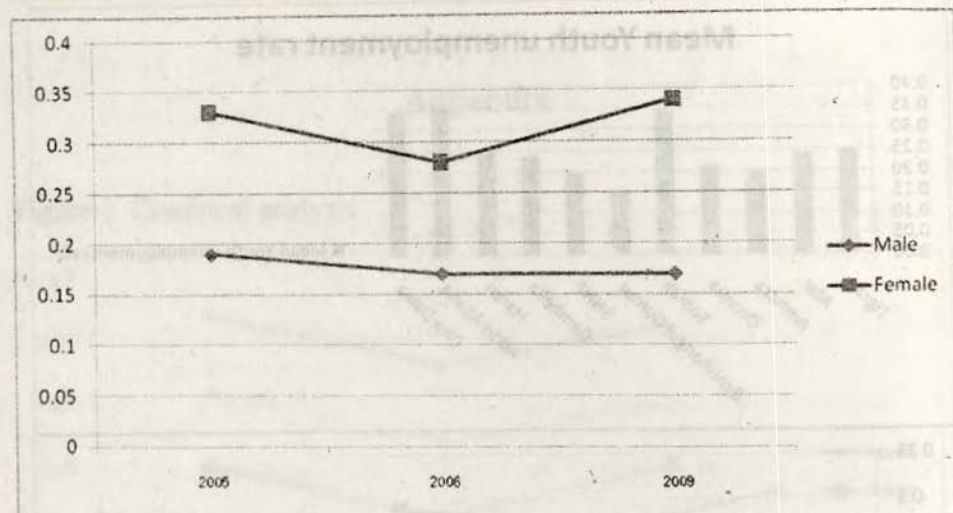
Legend: Mean Youth unemployment rate

Regions: Tigray, Afar, Amhara, Oromia, Somali, Benishangul Gumuz, SNNP, Gambella, Harari, Addis Ababa, Dire Dawa

Legend: Teenage (15-19), Young adults (20-24), Young Olds (25-29)

Years: 2005, 2006, 2009

Legend: Primary edu, Secondary edu, Teritary edu

Years: 2005, 2006, 2009

Source: Author's own computations (2010) based on CSA various urban employment unemployment survey reports

Table 2. Descriptive statistics: Unemployment figures by age, disaggregated youth age, regions/city administration, educational levels and sex of the youth

Dimension	Variable	Mean	Std Dev.	Min	Max
Age	Youth (15-29)	0.25	0.02	0.23	0.27
	Prime age (30-65+)	0.14	0.02	0.11	0.15
	Total age (15-65+)	0.19	0.02	0.17	0.21
	Teenagers (15-19)	0.26	0.03	0.23	0.29
Disaggregated youth age	Young Adults (20-24)	0.29	0.03	0.26	0.31
	Young Olds (25-29)	0.22	0.03	0.19	0.24

Table 2 ... cont'd

	Tigray	0.25	0.04	0.2	0.28
	Afar	0.24	0.02	0.22	0.25
	Amhara	0.20	0.04	0.15	0.22
Regions/City Administration	Oromia	0.21	0.03	0.19	0.25
	Somali	0.34	0.06	0.27	0.39
	Benishangul Gumuz	0.15	0.03	0.12	0.18
	SNNP	0.20	0.02	0.17	0.21
	Gambella	0.24	0.1	0.15	0.34
	Harari	0.25	0.11	0.18	0.37
	Addis Ababa	0.35	0.03	0.32	0.38
	Dire Dawa	0.34	0.04	0.31	0.38
	Primary Education	0.12	0.04	0.09	0.16
Education	Secondary Education	0.1	0	0.1	0.1
	Tertiary Education	0.03	0	0.03	0.03
	Male	0.17	0.01	0.17	0.19
Sex	Female	0.32	0.03	0.28	0.34

Source: Author's own computations (2010) based on CSA various urban employment unemployment survey reports

Table 3. One way ANOVA with Scheffe Post Hoc comparison test of youth unemployment by age, disaggregated youth age, and educational level

Variable	Attribute	Mean	F value	P value
Age	Youth	0.25	21.88	0.002
	Prime age	0.14		
	Total	0.19		
Scheffe Post Hoc Comparison				
	Youth	Prime age	* The value in parenthesis are p-values	
Prime age	-0.12			
	(0.002)*			
Total	-0.06	-0.057		
	(0.04)*	(0.05)*		
Variable	Attribute	Mean	F value	P value
Disaggregated Youth age	Teenagers	0.26	5.18	0.05
	Young Adults	0.29		
	Young Olds	0.22		
Scheffe Post Hoc Comparison				
	Teenagers	Young Adults	* The value in parenthesis are p-values	
Young Adults	0.027			
	(0.52)*			
Young Olds	-0.043	-0.07		
	(0.22)*	(0.05)*		

Table 3 .... Cont'd

Variable	Attribute	Mean	F value	P value
Education	Primary	0.12	17.22	0.003
	Secondary	0.1		
	Tertiary	0.03		
Scheffe Post Hoc Comparison				
	Primary	Secondary	* The value in parenthesis are p- values	
Secondary	-0.02 (0.4)*			
Tertiary	-0.09 (0.004)*	-0.07 (0.016)*		
Variable	Attribute	Mean	t value	P value
Sex	Male	0.17	-7.1	0.001
	Female	0.32		

Source: Author's own computations (2010) based on CSA various urban employment unemployment survey reports