

Rural Youth Labor Market Analysis: Evidence from Ada'a District, Ethiopia

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Abstract

Ethiopia has a high proportion of young people relative to the total population. The increase in the share of young people has prompted a drastic increase in labor force participation, unemployment, and underemployment. Most of the youth are found in rural areas where the complex labor market and underemployment are the characteristics. This study was conducted to analyze the rural youth labor market in Ada'a district. The specific objectives of the study were to investigate the rural youth labor market characteristics, and analyze the determinant factors of rural youth underemployment. Data were collected through a structured questionnaire from two hundred sampled rural youth aged 18-34.

It was found that youth labor force participation was high and higher for young males (73%) than for a young female (27%). Agriculture was the dominant employer of rural youth followed by service, manufacturing, construction, and mining, which accounts for 57%, 28% 10%, 4%, and 1% respectively. Rural youth were predominantly self-employed (71%) and contributing family workers (20%), only a few were holds paid employment (9%). Most of the youth (59%) were in a medium skilled occupation while 48% of youths were in a low-skilled or elementary occupation. The analysis generally indicated that most of the rural youth are in a precarious employment condition, 41% of youth earn below the poverty line (\$1.90/day) and 57% of youth are underemployed. According to the logistic regression for youth underemployment, the main determinants were family land size (negatively, $p < 0.01$), access to irrigation (negatively, $p < 0.01$) and working in agriculture (positively, $p < 0.01$). The increase in youth labor force participation, decrease in land resources and poor rural infrastructure considerably influence the youth employment in the rural sector. As a result, vulnerable employment and underemployment in rural areas are likely to increase in the future.

Therefore, there is urgent need to reduce the dependence of young people on land resources. This can be achieved by minimizing the concentration of labor force in lower streams of the agricultural value chain and by creating off-farm employment in intermediate and upper streams of the agricultural value chain. It is also recommended to improve the supply and management of irrigation to help reduce the seasonality effect in agriculture. Increasing the education attainment of young people and reducing school dropouts can also serve as a solution.

Keywords: Rural youth, Underemployment, Ethiopia

1. INTRODUCTION

One of the main indicators used to assess the state of the labor market is unemployment (Pietschmann, et.al., 2016). However, unemployment does not provide a full and adequate description of the difficulty youth face in the labor market. Especially in lower-income countries, where young people predominantly work in agriculture or self-employment or household enterprises, measuring unemployment is insufficient to understand the shortcomings of the labor market (ILO, 2003). In countries with widespread poverty, looking at the unemployment rate may be misleading because most youth cannot afford to be unemployed. The difficulties in the labor market may be better reflected by measures of underemployment (World bank, 2008). Underemployment reflects underutilization of the productive capacity of the employed population, including those which arise from a deficient national or local economic system (ILO, 2008).

Youth unemployment and underemployment are increasingly recognized as the hardcore of development challenges in sub-Saharan African regions. While in some countries demographic change is the main factor, much of the challenges of youth employment can also be attributed to labor market opportunities (World Bank, 2008). Multiple studies have shown that in Ethiopia, both demographic change and limited economic opportunities are the main factors for high unemployment and underemployment among young people.

Ethiopia is experiencing rapid population growth, with an increasing youth population. Of a total of 94.3 million people, more than 60% are under the age of 24, and young people aged 15 to 34 are estimated at 37% (Central Statistical Agency, 2013). This is referred to as youth bulge as young people make up a high proportion of many populations (ILO, 2015). The increasing share of young workers in the working-age population has been cited as potentially contributing to high labor force participation and unemployment (David and Murray cited in Urdal 2006, Assaad and Levison 2013).

In Ethiopia, unemployment is mainly an urban phenomenon and is lower in rural areas. Underemployment is more prevalent in rural areas than in urban areas (MoA, 2017), and is more prevalent among young people than among adults. Young people do not have access to social protection schemes such as unemployment benefits and therefore cannot afford not to work even if the return to work is very low (World Bank, 2017).

In response to the severe youth employment problems, in 2019, the Ethiopian government unveiled a new job creation program that envisaged to create 3 million new jobs each year. But the problem is that various job creation programs seem to focus on increasing the number of jobs and no effort has been made to create quality jobs. The increase in the number of jobs or the fall in unemployment is not necessarily a sign of better employment outcomes, as they mask high rates of vulnerable employment and underemployment (Pieters, 2013). In addition, the existing institutions mainly concern the formal urban employment. Employment in the informal rural sector, despite being huge employers of youth, receive minimal attention. A study on underemployment has received little research attention. We found only one local study that reports the extent

of underemployment at the time of writing which was carried out by Denu and et.al, 2005, using simple statistical techniques. Therefore, this study aims to analyze the youth labor market in Ada'a district. The specific objectives of the study were to investigate the rural youth labor market characteristics and analyze the determinants of rural youth underemployment.

2. METHODOLOGY

1) The concept of rural youth

Rural youth are a socially and spatially diverse group, and several factors influence their employment outcomes (OECD, 2018). Age is the easiest way to define youth, particularly in relation to education and employment (UN, 2008). The Ethiopian national youth policy (2004) defines youth as parts of the society whose age is between 15-29 years; who requires political, economic, social and cultural support in realizing their full potential. However, different organizations have somewhat different definitions of youth based on their target activities. For the purpose of this study, rural young people who fall within the age group of 18-34 years are used.

2) Underemployment

The time-related underemployment concept used in this study, which adopted from the definition of the 18th International Conference of Labour Statisticians (2008) and Ethiopian national employment policy and strategy document (2009). Therefore, underemployment in this study is referred to as a person who during the reference period (seven days prior to the date of the interview):

- i . Worked less hour below a specified threshold (Less than 40 hours a week)
- ii . Reported involuntary reason (usually economic reason) for working below the threshold, and
- iii. Available and like to work additional hours.

Hereafter the time- underemployed will present as underemployed. Headcount measure used to calculate youth underemployment rate, which obtained as the ratio between the population in time-related underemployment and in the labor force (ILO, 2008).

3) Hours of work

The number of hours a person worked during the reference week (one week prior to the survey date) by an individual was computed as the sum of the number of hours spent per day on the main job (ILO, 2008). The job at which the workers have worked the longest hour of which has provided the highest income from employment during the period. The threshold with respect to the number of hours a person must work before they considered underemployed is 40 hours a week as specified in the national labor act.

4) Background of the study area

The research was conducted in Ada'a district that has a total projected population of 121,587. Ada'a was chosen for this study among other districts in the region because of its proximity to the capital Addis Ababa. In addition, data from the district office indi-

cates that an estimated 6,000 registered youth job seekers aged 15-34 are reported to live in the district. Moreover, the 2018 national urban unemployment and employment survey revealed that among the major towns in the Oromia region the second-highest unemployment rate was reported in Bishoftu town (28.6 percent), an autonomous city found in Ada'a district.

5) Sampling, Data Collection and Analysis

A multi-stage sampling technique was used to select sample respondents, and this includes both probability and non-probability sampling. Four villages (namely Godino, Koftu, Denkaka, and Dire) were selected purposefully among 22 villages in the district, based on the criteria including the number of youth job seekers and economic activity of the villages. One thousand eighty nine young job seekers were identified in four selected villages. Given the 1089 sample frames, 217 samples were determined using a 90% confidence interval and a 5% error of margin. The random sampling techniques were used to select the respondents from each village. To determine the samples for each village a probability proportional allocation formula adopted (Kothari, 2004).

$$n1 = n \left(\frac{N1}{Nk} \right) \quad (1)$$

Where;

$n1$ = Determined sample of each village, n = the size of the sample, $N1$ = Total number of youths in each village, Nk = Target population (sample frame)

However, 17 Samples were discarded due to various shortcomings found during the interview. Therefore, the total effective sample size in the final research is 200 respondents from four villages. The data was collected by direct interviews with the respondents mainly by using a structured questionnaire. Descriptive analysis was used to investigate youth labor market characteristics and logistic regression model used to analyze the determinants of youth underemployment (using STATA version 14 software). In logistic (logit) model, underemployment was the dependent variable that designed in a binary form that can take one of the two values: 1 if the youth is underemployed and 0, otherwise. The logit regression model is one of the most preferred regression methods that can be implemented in modeling binary dependent variables (Daniels and Lisa, 2018). The logit model is based on the concept of odds, mathematically expressed as:

$$\frac{P(y=1)}{1-p(y=1)} = \text{odds} = \beta_0 + \beta_i X_i; \text{ odds range from } 0 \text{ to } \infty \quad (2)$$

The odds ratio (also called relative risk) measure the probability that youth is underemployed ($y=1$) relative to the probability that $y=0$ (otherwise) is given as:

$$\text{Odds ratio} = \frac{p_i}{1-p_i} = \frac{1+e^\alpha}{1+e^{(-\alpha)}} \quad (3)$$

Where: $\alpha = \beta_0 + \beta_i X_i$, which is known as the cumulative logistic distribution function. P_i = is the probability of the i^{th} rural youth and $y=1$ means underemployed and $y=0$ means otherwise, X_i = explanatory variables, β_0 = constant, β_i = the corresponding coefficient.

We used a marginal effect to interpret the result of the logit model, marginal effects measure how $P(y=1)$ changes as the categorical variable changes from 0 to 1, holding all other variables constant at their means (Daniels and Lisa, 2018).

3. RESULT AND DISCUSSION

3.1 Rural youth labor market characteristics

a) Youth labor force participation

Based on the international labor framework standard¹, the statistics of the rural youth labor framework in Ada'a district are produced during the short reference period (one week). The result indicated that from the 200-sample youth, 193 were employed and only 7 were unemployed who are actively seeking employment, while no economically inactive people were found in the study area. This suggests the active participation of rural youth in the labor force. The result further shows that the labor force participation was higher for men (73%) than for women (27%). This is likely due to various reasons including family responsibility and factors along with security reasons most women unavailable to work outside of their household. The higher men youth labor force participation may have resulted from low school enrollments and high youth school dropout. Thirteen percent of men did not attend school while 78.2% of them have quitted from secondary school. Although the youth employment rate was high, the rate of adequately employed youth who worked above or equal to the national threshold hours (40 hours/week) was only 34.5%. The majority (57%) were underemployed, who worked less than 40 hours per week, but were available and wanted to work more hours. The underemployed youth who did not want to and were not available to work more hours were 5%. The unemployment rate is low (3.5%), suggesting that young people cannot afford not to work even if their income and working hours are very low. The youth data that do not want and not available to work more hours and unemployed were excluded from further analysis. Therefore, the discussion in the following sections focuses only on 183 youths who are adequately employed and underemployed.

b) Demographic characteristics of youth

The overview of some of the key demographic characteristics of respondents was provided in Table 2. As it can be seen from the table, men account for 73% while 27% of the respondents were women. The average age of respondents was 24 years while the majority (68%) was between 18 and 25 years old. Married youth represent 36% and 64% are single. The respondents' average education level was 7, and 15% of youth were uneducated. Although there is a promising condition in terms of education coverage, how-

¹ The current activity framework used for producing the statistics in a short reference period, using an activity principle, priority rule and one-hour criterion to classify the population into three mutually exclusive and exhaustive groups: employed persons, unemployed persons and persons not in the labour force. The employed and unemployed together are referred to as the labour force or the currently active population. Persons not in the labour force are also referred to as the population not economically active (ILO, 2013)

ever, many argue that the education provided is of poor quality and is not in the best interests of young people and does not give them the skills necessary to establish their livelihood. The average youth land holdings size was small, only 0.12 hectares and 68% of youth had no land. It was found that male and married youth relatively have better landholdings, 0.14 and 0.18 hectares, respectively. The land size of unmarried women is even much smaller, only 0.01 hectares. Married young people have larger farmland than unmarried youth because traditionally, marriage is the occasion on which most young people receive land from parents (Bezu and Holden, 2014). The average family land is 1.58 hectares with an average family member of 8 people. Although the proportion of land is small compared to family size, families remain the main source of land for 75% of rural youth. Of these, 55% of youth responded that they had received land from their families for permanent use while 20% had received it for temporary use. The descriptive result indicates that underemployment was relatively higher among unmarried youth, married women and youth with lower individual and family landholdings.

c) Youth employment by sector of activity

Based on the International Standard Industry Classification (ISIC)², industries found in the Ada'a district are aggregated into five major categories as shown in Figure 1. The result indicated that agriculture is the main provider of a job for rural youth followed by service, manufacturing, construction, and mining, respectively. Although agriculture and service sectors are the leading sector in providing employment to rural youth, high underemployment has also been observed in these sectors (See Table 3). Underemployment in manufacturing is relatively low. It was found that among the youth engaged in agriculture and manufacturing jobs, 81% and 70% are unsatisfied with their current employment, respectively. Most of them do not like to continue working in these sectors. The service sector seems very attractive to most young people. Most young people, especially those who work in agriculture and manufacturing are looking for opportunities to enter the service sector. This may be due to both discouraging condition in agriculture and manufacturing, and the attractive condition in the service sector which led young people to want to work in the service sector. Therefore, the high level of job dissatisfaction among youth in agriculture fosters rural youth out-migration to urban areas where service is the dominant employer.

d) Youth employment status

As shown in Figure 2, rural youths were predominantly self-employed and contributing family workers, and only a few youths hold paid employment jobs. This hints that the wage market is very thin in rural areas. Perhaps the few available formal sector jobs were occupied by those who acquired a high level of education. Low-educated rural youth are driven out of the formal labor market and find themselves in activities such as own-account work and contributing family workers. Therefore, it is inevitable that self-employment and family enterprises will likely continue to be the dominant employment

² Agriculture, forest and fishery (ISIC 01-03); Mining & quarrying (ISIC 05-09); Manufacturing (ISIC 10-33); Construction (ISIC 41-43); Wholesale and retail trade, and transportation (ISIC 45-53)

segments for many rural young people in the future, because the manufacturing sector, which expected to accommodate a large workforce, becomes less labor-intensive and less productive. As shown in Table 3, the underemployment rate is high for the self-employed and contributing family workers and the lowest for the paid employed group.

e) Youth occupation

Based on the International Standard Classification of Occupation, youth occupations are aggregated into two broad categories (see Figure 3). The result shows that the majority of the rural youth are in medium-skilled occupations (52%), which ranges from skilled agriculture and fishery worker, service and sales worker, plant machinery operators, and craft and related trade workers. Nearly equal amounts of young people are also in low-skilled occupations (48%), and none has been found in a high-skilled occupations. As can be seen from Table 3, the underemployment is higher for low-skilled elementary workers than medium-skilled workers.

f) Youth infrastructure access

The youth infrastructure access is shown in Figure 4, the result indicated that the infrastructure provision is relatively better for Ada'a district compared to other rural areas of the country where infrastructure coverage is still very low. However, road and transport services and the provision of credit facilities are still insufficient. Only a few youths had access to suitable road and transport and credit facilities. As can be seen from Table 3, the adequately employed youth have better infrastructure access than underemployed youth. This hints that the infrastructure access has a significant association with youth employment performance.

3.2. Determinants of rural youth underemployment

The second main objective of this study is to identify the determinant factors of rural youth underemployment. As indicated in section 2, the logistic (Logit) model is used to estimate the coefficient of the explanatory variables. The explanatory variables are chosen based on previous studies and descriptive statistic results. They include youth demographic characteristics, employment characteristics and infrastructural factors. The list of variables and their expected outcomes are presented in Table 4. The variables such as education, individuals land, and family land are continuous variables, while the rest are coded as dummy variables.

Before running the logit regression, the explanatory variables were subjected to independent samples t-test and chi-square test to determine if there were significant differences between the mean variables of adequately employed and the underemployed youth group. The analysis shows that there are significant differences between the mean for adequately employed and underemployed rural youth in terms of land (family land and individual land size), sector of activity (manufacturing and agriculture), employment status (contributing family work and paid employee status), infrastructure (access to credit and irrigation), and residence in Dere village. There are, however, no significant differences between the two-groups for the rest of the other variables. Therefore, only those variables with significant results were used for further analysis to compute a

logit regression.

The result of logistic regression is presented in Table 5. In the upper right corner, the number of observations, Wald Chi-square, Pseudo-R-square is presented. The number of observations is 183, which means there is no missing value. The Chi-square and the probability are a test of the null hypothesis and the results are showing zero (0.000) value. This is strong evidence to reject the hypothesis that youth underemployment is not determined by demographic characteristics, employment conditions, and infrastructural factors. A Pseudo R-square measure of goodness of fit is 0.28, indicates that all the explanatory variables included in the model were able to explain about 28% of the variation independent variable. The logistic regression result indicated that family land size, working in agriculture and access to irrigation were found to have a significant association with youth underemployment. Individual land, marriage, living in Dere village, working in manufacturing, being paid employee and contributing family work and access to credit were all found not to have a significant association with rural youth underemployment.

a. Family land Size

The logit result shows that family land size is an important determinant factor of rural youth underemployment; it is significant at 1% with a marginal effect of -0.10. The coefficient is negative, and it indicates that family land is negatively associated with youth underemployment. The marginal effect of -0.10 suggests that the increase of family land size by one hectare will decrease the probability of youth underemployment by 10%. Ethiopia has long faced land scarcity, particularly in areas like Oromia and in the highland parts of the country, farmland is shrinking rapidly due to population growth. As a result, young people rarely have access to agricultural land, and they are highly dependent on their family land. It is a daunting challenge for both the government and the families to address youth land problems. The high proportion of family members and small landholdings has further complicated the distribution of land among family members. Still, families are the main source of land for young rural people. In our samples, of the total youth who have land, 75% was received from the family for permanent and temporary use. However, it is becoming clear that families can no longer be the source of land for the growing number of young people. Therefore, the immediate solution is necessary for youth land problems. Many researchers have suggested promoting youth access to land and secure tenure as a necessary policy option. However, this policy option cannot serve as a lasting solution to existing problems. Therefore, reducing the dependence of young people on land resources by promoting employment in off-farm activities and in the upper agricultural value chain must be a policy option to provide a permanent solution to the youth land problem. This, in turn, requires the provision of training, financial and local infrastructure services, such as transportation, storage, and credit facilities, which are essential for increasing youth participation in the different agricultural value chain.

b. Working in agriculture

Agriculture is significant at 1%, and the coefficient is positively related to the youth

underemployment. A marginal effect of 0.22 means that working in the agricultural sector increases the likelihood of youth underemployment by 22%. This means that the agricultural sector encourages underemployment. The high youth underemployment in agriculture can be attributed to various factors including small farmland size, low agricultural and financial input, poor infrastructure, and low skills. In addition, young people tend to participate in certain limited activities in down streams of agricultural value chains, such as in the production of cereal crops, vegetables, and fruits, resulting in a high concentration of labor force in lower agricultural value chains and in a narrow range of occupation. This is one of the factors that has contributed to the high underemployment of young people in agriculture and causes a shortage of land. Therefore, helping young people to engage in diversified agricultural activities and transforming the workforce by creating more opportunities in the intermediate and upper streams of agricultural value chains is an ideal solution.

c. Irrigation access

The logit result revealed that irrigation access is significant at 1% and the coefficient is negatively associated with youth underemployment. The marginal effect of -0.344 indicates that access to irrigation facilities decreases the likelihood of youth underemployment by 34.4%. This is consistent with our prior expectations of a negative relationship. The use of irrigation can help reduce the effects of seasonality in agriculture and this, in turn, helps to avoid underemployment and increase annual productivity. In villages where there is a regular irrigation supply, such as in Godino, youth tend to engage in diversified farming activities including mixed crop, and vegetable and fruit production. As a result, youth employment is relatively better in terms of both working hours and income. According to the World Bank (2017), irrigation investment can increase the number of crops grown a year. In environments with favorable temperature, water availability, and product demand, shifting to multiple crops a year with different temporal labor demand can reduce underemployment throughout the year. However, one of the daunting problems we have observed in the study area was the regular clogging of the irrigation canal due to sediment deposits. As a result, young people can only cultivate under rainfed conditions. Therefore, the focus should be on both the delivery of irrigation facilities and the sustainable management of irrigation canals.

4. Conclusion and Recommendation

Labor market statistics are an essential basis for evaluating the state of the labor market and the overall employment performance of the economy. It is a vital source of information for the government to design and implement employment intervention programs and policies. The aim of this study was to analyze the rural youth labor market in Ada'a district, Ethiopia. The analysis indicates that most of the rural youth are working in agriculture as self-employed and contributing-family workers. A significant number of youths earned below the poverty line and a large number of youths are underemployed which generally described as precarious employment conditions. These precari-

ous working conditions are reflected in the disproportionately high underemployment and poverty among young rural people. The increased participation of young people in the labor force, the decrease in land resources and the poor rural infrastructure continue to exert a significant long-term influence on youth employment in rural areas.

As a result, venerable employment and underemployment in rural areas are more likely to increase in the future. Actions in many areas will, therefore, be necessary to help young people to gainfully employ. There is a need to reduce the dependence of young people on land resources. This can be achieved by minimizing the concentration of the labor force in lower streams of the agricultural value chain and by creating off-farm employment in intermediate and upper streams of the agricultural value chain. It is also recommended to improve the supply and management of irrigation to help reduce the seasonality effect in agriculture. Raising the education level of young people and reducing the dropout rate can also serve as a solution.

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Appendix

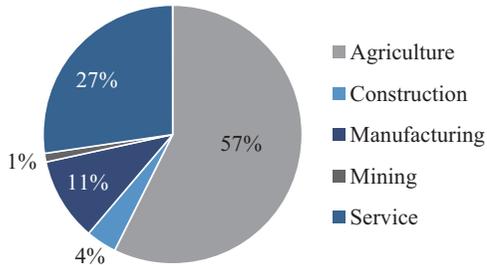


Figure 1: Proportion of labor sector

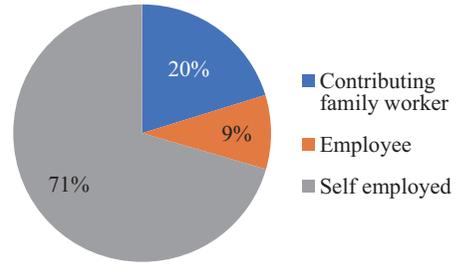


Figure 2: Employment Status

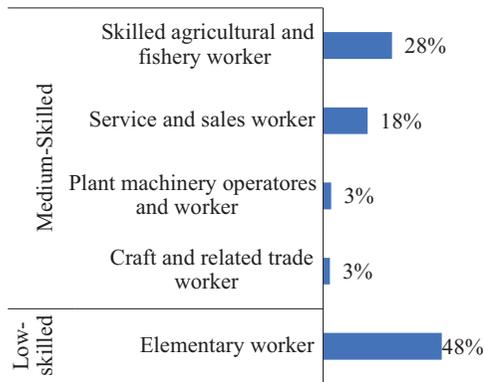


Figure 3: Proportion of youth occupation

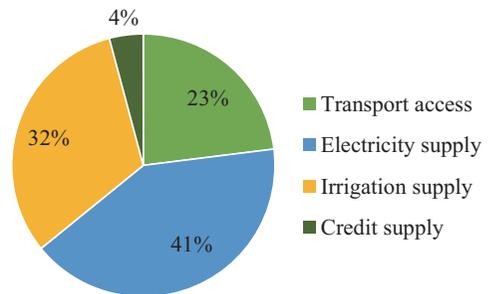


Figure 4: Access to infrastructure

Table 1: Participation of youth labor force (N=200)

Status	Person	Percentage (%)
1. Employed		
○ Adequately employed	69	34.5
○ Underemployed but were available and want to work more hour	114	57.0
○ Underemployed were not available and don't want to work more hour	10	5.0
2. Unemployed	7	3.4
Total	200	100

Table 2: Demographic characteristics of the subjects (N=183)

Hours worked a week (hrs)	30
Monthly income (ETB)	2003
Individual land (ha)	0.12
Family land (ha)	1.58
Family size (person)	8
Gender (%)	
○ Male	73
○ Female	27
Marital Status (%)	
○ Single	64
○ Married	36
Village of residence (%)	
○ Denkaka	37
○ Dere	25
○ Koftu	23
○ Godino	15

Note: ETB is Ethiopian currency Birr (1USD = 32.5ETB) at the time of writing

Table 3: Employment characteristics

	Adequately employed (N: 69)	Underemployed (N: 114)
1. Demographic Characteristics (%)		
○ Hours worked a week (hrs)	45	21
○ Monthly income (ETB)	2341	1799
○ Respondent age (years)	24	24
○ Education level (years)	7	7
○ Individual land (ha)	0.17	0.10
○ Family land (ha)	1.86	1.42
○ Family size (person)	8	8
○ Gender (%)		
Male	78	69
Female	22	31
○ Marital Status (%)		
Single	57	69
Married	43	31
○ Village of residence (%)		
Denkaka	43	32
Dere	16	31
Koftu	19	13
Godino	22	24
2. The sector of activity (%)		
○ Agriculture	46	64
○ Service	33	24
○ Manufacturing	19	5
○ Construction	2	5
○ Mining	0	2
3. Employment status (%)		
○ Employee	18.8	3.5
○ Self-employed	69.6	71.1
○ Contributing family worker	11.6	25.4
4. Occupation (%)		
○ Medium Skilled	48.0	21.9
○ Low skilled	42.0	51.8
5. Infrastructure Access (%)		
○ Transport access	21.3	12.0
○ Electricity supply	35.5	24.0
○ Irrigation Supply	26.2	19.7
○ Credit supply	3.8	2.2

Source: Author Survey, 2019

Table 4: Variables, their description, and expected sign

Variables	Description	Expected sign
Individual's land	Hectare	-
Family land	Hectare	-
Marriage	Dummy (If Married=1; otherwise=0)	+
Dere	Dummy (If Dere =1; otherwise=0)	-/+
Agriculture	Dummy (If Agriculture=1; otherwise=0)	+
Manufacturing	Dummy (If Manufacturing=1; otherwise=0)	-
Employee	Dummy (If Employee=1; otherwise=0)	-
Contributing family work	Dummy (If Contributing family=1; otherwise=0)	+
Irrigation access	Dummy (Have access=1; otherwise=0)	-
Credit supply	Dummy (Received=1; otherwise=0)	-

Table 5: The determinants of logistic regression model for rural youth underemployment

Number of obs.	=	183
LR chi2(10)	=	69.49
Prob > chi2	=	0.0000
Pseudo R2	=	0.2865
Log likelihood	=	-86.5102

Variables	Coefficient	Std. Err.	P> z	Marginal effect
Individual land	-0.7	1.139472	0.539	-0.1081348
Family land	-0.624**	0.2225211	0.005	-0.0964543
Marriage	0.447	0.4327227	0.302	0.0689958
Dere village	0.268	0.5279942	0.612	0.0413838
Agriculture	1.398**	0.5067982	0.006	0.2160452
Manufacturing	-0.505	1.02133	0.621	-0.078074
Employee	-1.458	1.054888	0.167	-0.2253307
Contributing family work	0.663	0.5082115	0.192	0.1025134
Irrigation access	-2.226**	0.4753463	0.000	-0.3440152
Credit access	-0.895	0.8390309	0.286	-0.1383349
Constant	1.653**	0.6105289	0.007	-0.1081348

t statistics in parentheses

**indicate statistical significance at 1%