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DEVELOPMENT ECONOMICS | RESEARCH ARTICLE

The effects of schooling on rural unemployment in Ethiopia

Abdisa Olkeba^{1*}, Tsegamariam Dula², Paulos Gutema³, Degefa Tolossa³, Abate Mekuriaw³ and Alemu Azmeraw Bekele³

Abstract: Nowadays, education is considered an instrument that we use to eradicate poverty. It is also presumed as an indicator of modernization and a development realization tool. Education creates an opportunity to be employed in good positions in reducing unemployment. Scholars debate whether education reduces rural unemployment. Some scholars argue that education is a powerful weapon to reduce rural unemployment. Others encounter that education does not necessarily decrease rural unemployment. This paper describes the effects of schooling on rural unemployment in Ethiopia. We used a quantitative approach with a descriptive research design in this study. A sample of 8700 participants, based on the Ethiopian Central Statistics Agency data collected in 2021, was

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PUBLIC INTEREST STATEMENT

Education is considered an instrument to realize development when it reduces the number of unemployed by increasing knowledgeable and skillful people to open a new franchise or get a job in the profession they train. An agricultural system has dominated the Ethiopian economy that can absorb much rural employment. In reality, the area has not created extensive job opportunities yet. However, there is debate among scholars about whether schooling reduces rural unemployment. This paper describes the effects of schooling on rural unemployment in Ethiopia. We used a quantitative method with a descriptive design to conduct the study. The finding shows that lack of job opportunities, training, experience, and unrelated jobs to education in rural areas is the cause of unemployment. On the other hand, the probit model result shows that schooling has a statistically significant positive effect on employment.

obtained. We used descriptive and probit models to analyze the data. The descriptive results showed that rural unemployment is unequally distributed based on education, sex, and regional states. The majority are still participating in the agriculture sector. Besides, the finding also reveals that lack of job opportunities, training, experience, and unrelated jobs to education in rural areas is the cause of unemployment. However, the probit model result shows that schooling has a statistically significant positive effect on employment. As a result, for a one-unit increase in education, the probability of employment increases by 0.15. It concludes that schooling is paramount in decreasing rural unemployment in Ethiopia if much attention is given. We recommend that the government should transform rural areas' activities from agricultural-oriented to services-oriented activities to create extensive job opportunities in rural areas for rural youths, especially educators.

Subjects: Development Studies; Development Policy; Rural Development; Sustainable Development

Keywords: effects; Ethiopia; rural; unemployment; schooling; probit model

1. Introduction

Literarily, education is said to be an instrument of poverty reduction. Among many elements, education investment in human capital is fundamental for economic development (Abafita & Kim, 2014) and is considered a development tool (Phiri, 2019). However, scholars debate whether education reduces unemployment, particularly in developing countries' rural areas. Also, scholars argue about unemployment and non-employment concepts. Unemployment is a condition where people seek work but have no job (Greve, 2022; Murphy & Topel, 1997), whereas non-employed are potential workers who choose not to seek employment (Murphy & Topel, 1997). Unemployment relates to psychological distress that manifests in self-esteem decrement and financial strain (Achdut & Refaeli, 2020). Contrarily, Jones and Riddell (2006) demonstrate that it is challenging to differentiate unemployment from non-employment. Consequently, we used both of them interchangeably in this research to include those who were discouraged and stopped looking for work to indicate the concept of unemployment (Achdut & Refaeli, 2020; Jones & Riddell, 2006). Unemployment is the most alarming issue at the global level (Batu, 2016). That leaves discussion room for researchers to suggest possible solutions regarding the nexus between education and unemployment. Alcin et al. (2021) stipulate that education is key to improving rural unemployment. In a country where the education rate is high but the unemployment rate is reduced, the rate of employment increases (Alcin et al., 2021; Pompei & Selezneva, 2021; Zimmer, 2016). Thus, there is a disproportional relationship between education and unemployment because education decreases unemployment issues (Brunello, 2021).

On the other hand, Egessa et al. (2021) argue, by using logistic regression, that compared to illiterate rural unemployment, educated rural unemployed have fewer opportunities to be employed in Uganda due to low-quality education, mismatch of job and skills, job preference, and slow growth of the private sectors. As a result, the work of Egessa and his colleagues rejected most research findings that demonstrate education increases the level of employment rate. Further, Nganwa et al. (2015) posit that uneducated rural unemployed have a better chance to be employed, for instance, in Ethiopian urban areas. Similarly, higher education increases the rural unemployment rate in Pakistan because of the economic crisis and frequent changes in education policy. The frequent change in higher education policy in the country increases the unemployment rate since old curriculums are replaced by new curriculums that exclude the graduates with old curriculums from the market (Fatima & Sharif, 2015). Accordingly, education is not a guarantee to reduce rural unemployment.

Schooling is a tool to sustain modernization and development that rearranges rural social, cultural, and livelihood patterns. Thus formal education is presumed as modernity, urbanity, globalized, and social mobility in rural Africa (Phiri, 2019) because it increases human capital development (Abafita & Kim, 2014). Woldehanna (2003) concludes that schooling enhances the welfare rate by 8.5 percent in Ethiopia as they enter into profitable farm and non-farm activities.

Conversely, the inability of the market to create job opportunities for educated labor shows an educated un-employability (Alcin et al., 2021). Among many factors, lack of competencies, including the mismatch of education with work and lack of skills cause rural unemployment (Robayo & Estévez, 2019). Hence, formal education does not necessarily lead to employment opportunities but results in imaginary anticipation (Phiri, 2019). Consequently, the connection between education and unemployment forces policymakers to design a policy to create job opportunities for educated rural unemployed (Alcin et al., 2021).

In Ethiopia, the rate of unemployment is 8.0 percent at the national level, whereas the rate of rural unemployment is 12.0 percent in 2021 (Ethiopian, 2021). Rural unemployment in Ethiopia varies since it differs in location, sex, marital status, and education level (Batu, 2016). Regionally, Benishangul Gumuz Regional State has the lowest unemployment rate, whereas Gambella Regional State has the highest unemployment rate (Broussar & Tekleselassie, 2012). Regarding sex composition, females are more unemployed than males. Regarding marital status, unmarried participants are more unemployed than married participants concerning marital status (Batu, 2016). Also, Abafita and Kim (2014) depict that the rate of female schooling is lower than males in the country. As the level of education has increased, the unemployment rate also increases because the Country cannot create extensive job opportunities in rural areas (Broussar & Tekleselassie, 2012). Besides, as the level of schooling rises, the rural youths migrate to urban areas seeking better jobs and life.

Rural areas have chances to create job opportunities if we work on them. The main areas that attract new job seekers in Ethiopia are livestock, cash crops, food crops, and agro-food industries (Boulanger et al., 2019). However, the educated rural unemployed cannot get jobs though the schooling rates have increased since the country's economy cannot create extensive job opportunities for new graduates (Broussar & Tekleselassie, 2012). Furthermore, about 88.7% of children are working in farm areas. Hence, they cannot access education (ILO, & CSA, 2018). However, due to investment in education, rural labor forces involved in agriculture have decreased from 80% in 2005 to 73% in 2013 as they shifted to service activities in sugar and cement factories dominantly (Ibid). The main objective of this paper is to describe the effects of schooling on rural unemployment in Ethiopia. Yet, this paper does not discuss all the nexuses between education and the unemployment rate. It is limited to the effects of schooling on unemployment in Ethiopia's rural areas based on the Central Statistics Agency (CSA) data collected in 2021. Thus, it neither compares the urban with rural areas nor captures the essence of unemployment over several years. Additionally, the paper did not focus on each level of education categories—primary, secondary, and tertiary—it navigated the general concepts of schooling effects on rural unemployment in Ethiopia.

The paper has five sections. The first section deals with the introductory part that we have stated above. Section two deals with empirical review, whereas section three consists of a methodology of the study. Section four encompasses results and discussions. Finally, section five concludes the paper by focusing on the fundamental concept.

2. Empirical review

2.1. Education work relation

Education and work unrelated is one factor that causes graduate unemployment because the designed curriculums did not consider the agricultural systems (Fatima & Sharif, 2015). Further, the absence of an education-work relation neither creates job opportunities nor reduces the unemployment rate since it cannot alter economic activities from rural to others. Hence, unless the

education is related to work, it is challenging to reintegrate into the labor market. That results in the absence of job-specific causes and an experience gap in rural unemployment. School-unrelated work causes two kinds of unemployment: voluntary unemployment and forcible unemployment. Furthermore, the lack of a conducive environment in agricultural activities demotivates graduates from getting jobs in rural areas (Unay-Gailhard et al., 2019).

Ethiopia has not developed a modern educational system that produces students who can solve problems (Jima, 2022) because the education system does not relate to the situation in the country. Hence, most graduates cannot create work in rural areas. Bishaw and Lasser (2012) add that education curriculums have not depended on the realities of the social, cultural, and economic nature and situation of the Country, and they are copied from somewhere without contextualizing to the Ethiopian context. Thus, modern education does not prepare students to be entrepreneurs, particularly in rural areas (Yimer et al., 2022). Further, the economic capacity of the Country cannot take the graduates, especially in engineering fields (Yimer et al., 2022). If we supported education, Boulanger et al. (2019) show that livestock has a greater capacity to employ more labor followed by cash crops when there is a rural policy that can support them. But we argue that the government has given less attention to the area.

2.2. Self-confidence and self-esteem to be an entrepreneur

Agriculture, mainly crop and livestock, natural resource-based, and non-farm activities are the main areas that create job opportunities in rural areas if educators have the confidence to invest in them (Boulanger et al., 2019). Most students in rural areas did not continue their education till high school and above in Ethiopia. Instead, they drop out of school and help their parents by fetching water and collecting firewood. Also, they have developed less confidence to start work that generates income in rural areas. Hence, they sell wood and charcoal occasionally (ILO, & CSA, 2018). According to ILO, and CSA (2018) report, female students seek jobs more than male students though both seek work in rural Ethiopia. According to the report, for most rural students, 97.1% of students work for their families without any payment. On the other hand, the availability of the credit program has positive effects on learners to be entrepreneurs because it increases their self-confidence (Woldehanna et al., 2006).

2.3. Knowledge and skills students acquire at school

Ethiopia's education curriculum cannot prepare students for entrepreneurship (Yimer et al., 2022). Schooling increases farmers' knowledge, skills, and qualities that help them to avert poverty in Ethiopia (Woldehanna, 2003).

Boulanger et al. (2019) depict that:

The government has to set a strategy that targets job seekers who possess specific skills and knowledge and are willing to transfer. That is a way of linking rural unemployment to existing job opportunities in rural and urban areas through the information provision. This component focuses on finding rural unemployed permanent jobs in rural institutions/cooperatives, the private sector, and the lowest government hierarchy, and temporary employment opportunities in megaprojects such as sugar factories or dam constructions. Overseas employment opportunities have also been part of the policy package through providing skills/language training for the rural unemployed (p: 24).

Education and training increase labor's skills to participate in off-farm activities such as carpenter and masonry and raise productivity (Boulanger et al., 2019). Ethiopian education curricula lack rural occupation vocational training that helps students return to rural areas and engage in rural economic activities (Bishaw & Lasser, 2012). As a result, graduates lack detailed knowledge and skills to engage in rural areas on-farm and off-farm activities. Instead, they prefer to migrate to urban areas to search for jobs. Many rural laborers have not developed the necessary skills since

they attended mainly elementary school. However, rural education helps rural laborers raise the knowledge and skills to engage in self-employment (Boulanger et al., 2019).

2.4. Proficiency in agro-business

There is a proportional relationship between irrigation on the one hand and productivity and rural employability on the other hand if the land ownership issue is addressed (Boulanger et al., 2019). Though it is not supported by education, about 93% of rural unemployed participate in agriculture, forestry, and fishing, whereas 0.1% are involved in mining and quarrying (ILO, & CSA, 2018). That means they have little proficiency in agribusiness rather, they inherit from their parents. Education can raise productive capacity among learners (Woldehanna, 2003). In Ethiopia, there are no graduates with well-organized policies to be proficient in agro-business (Belay, 2003).

Historically, Ambo Agricultural School was established in 1931 to give general agricultural education. Further, the Agricultural Ministry was established in 1943. The Imperial Ethiopian College of Agriculture and Mechanical Arts was launched in 1950 at [Haramaya] University. Derg also focused on agriculture education by designing policies like the Peasant Agriculture Development Extension Programme (PADEP). Furthermore, the Ethiopian Peoples Revolutionary Democratic Front (EPRDF) did the same thing (Ibid). However, these were not implemented well and forced/attracted students to agro-business.

2.5. Practice-based education

Non-practiced-based curriculums increase unemployment rates because the learners cannot operate practically when they attend education. And they cannot create a new work environment in rural areas (Dambudzo, 2015). The Ethiopian education system lacks practice-related education (Bishaw & Lasser, 2012). For this reason, the graduate face challenge to engage in a rural occupation such as fishery, mining, agro-process, tourism, and others. The Ethiopian government has to focus on Science, Technology, Mathematics, and Engineering (STEM) and applied science to ensure practice-based education (Ibid). Students should learn education in and outside school to enhance practical education (Kibret, 2019). However, little attention has been given in Ethiopia to designing curriculums that deliver education-based on practical aspects. And learners cannot go to the field due to financial constraints in Ethiopian schools even though curriculums allow it.

2.6. Learning new information

Schooling enhances the adoption of new technologies and facilitates entry into highly profitable farm and non-farm activities (Woldehanna, 2003). In rural areas, students are far from the information system because of the low accessibility of information communication technology (ICT) and the Internet (Bishaw & Lasser, 2012). That means rural students have little information about the rural occupation. Belay (2003) posits that relevant technology is inadequate to disseminate agricultural information in Ethiopia. We argue that learning information consists of adapting to the new environment and job-related flow of information. Unless sufficient information is disseminated for rural unemployment regarding the availabilities, opportunities, importance, and profits of off-farming and on-farming, the migration of Ethiopian rural unemployment from rural to urban areas will exacerbate the unemployment rate in urban areas. Because they cannot get work in urban areas as they have presumed before. Consequently, the government must work hard to expand and double information access means to rural areas by creating an ICT hub that disseminates information.

3. Methodology of the study

We used the quantitative method to describe the effects of schooling on rural unemployment in Ethiopia. In quantitative research, data are collected through inventories and questionnaires. Besides, researchers primarily use post-positivist claims for developing knowledge (i.e., cause and effect thinking, reduction to specific variables and hypotheses and questions, use of measurement and observation, and the test of theories (Creswell, 2009). With this background, the researchers go to the study area, observe, and gather data through questionnaires (Ibid). In this

research, we used a quantitative approach to describe and analyze the number of participants who enrolled in school, their levels of schooling, unemployment variation among regions, causes of unemployment, and age and gender status of unemployment. The study employed descriptive statistics like percentage, mean, and probit to analyze data. The data source is the Ethiopian Central Statistics Agency (CSA) which was collected from 8700 participants in 2021. The data were collected from all regional states of the Country.

3.1. Model specification

The research aims to describe the effects of schooling on rural unemployment in Ethiopia. Hence, we employed the probit model to estimate the effect of schooling with selected variables on rural unemployment in Ethiopia. The probit model is a regression analysis that we used to estimate the effect of a given independent variable like schooling on a binary dependent variable like rural unemployment. One of the main reasons to use a probit model in this paper is because it allows the researchers to estimate the probability that a given rural youths are unemployed, given their level of schooling. That is useful in rural unemployment as it allows us to estimate the impact of schooling on the likelihood of being unemployed in rural areas (Asafu-Adjaye, 2012; Ashenfelter & Ham, 1979; Woldehanna, 2003). Furthermore, the researchers preferred probit to logit because probit has a shorter tail than logit, and we expect a very low probability for the two extremes.

Thus, we anticipated that the distribution would be normal. It is also a popular choice for analyzing binary dependent variables because it depends on the assumption that the error term is normally distributed, which is assumed in regression analysis. Besides, it provides consistent and asymptotically normal estimates of the parameters, even when the underlying data is not normally distributed (Greene, 2003).

By the same token, the probit model assumes that the binary response variable Y follows a standard normal distribution, and the probability of Y being equal to 1 is modeled as a function of the linear combination of the predictor variables multiplied by their respective coefficients. Estimating the probit model involves maximizing the likelihood function based on the observed data, which determines the optimal values for the coefficients β . These coefficients represent the effect of each predictor variable on the probability of the binary response variable.

For this study, we adopted Greene's (2003), probit model to investigate the effects of schooling on rural unemployment depicted as follows. The model is described in marginal effects to present results as differences in probabilities.

$$\Pr(Y = 1 \mid X) = \Phi(\beta X)$$

Where:

- $\Pr(Y = 1 \mid X)$ represents the probability of the binary response variable Y (Employment Status) being equal to 1 given the values of the predictor variables X —schooling—(independent variables).
- $\Phi(\cdot)$ represents the cumulative distribution function (CDF) of the standard normal distribution.
- β represents the vector of coefficients associated with the predictor variables X , schooling.
- X represents the matrix of predictor variables, including both continuous and categorical variables.

Finally, we analyzed the data we obtained from the CSA of Ethiopia by using Stata software version 17.

4. Results and discussions

4.1. Descriptive results

The unemployment pattern in Ethiopia varies across regions based on location, sex, marital status, and education (Batu, 2016). In this study, we attempted to present the descriptive results by sex composition of unemployment, unemployment marital status, level of education, unemployment variation among the regional states, job opportunities in rural areas, and factors that challenge employability.

4.1.1. Rate of unemployment and employment by sex

This study reveals that the unemployment rate for males in rural Ethiopia is 19.8%, whereas the rate for females is 41.9% regarding the description of rural unemployment by sex. That shows that there is a higher level of unemployment among females in rural Ethiopia than males. On the other hand, the employment rate for males is 21.2%, whereas the rate for females is 17.1%. That indicates a higher level of employment among males in rural Ethiopia compared with females (as described in Table 1).

Several potential factors could contribute to these differences in unemployment and employment rates between males and females in Ethiopia. One possible factor is discrimination against women in the labor market. Melka et al. (2022) found that females in Ethiopia face significant barriers to accessing education and job opportunities and may be paid less than men for similar work. Another possible factor is cultural constraints and expectations in shaping females' participation in the labor market. In several traditional societies, including Ethiopia, females are expected to prioritize caregiving responsibilities over paid work. That can limit their opportunities to participate in the rural labor market. Lastly, there could be economic factors that contribute to these disparities. For instance, Ethiopia's economy is heavily dependent on agriculture and characterized by a large informal sector based on the patriarch economic activities usually led by males. These sectors have low-paying jobs and may not provide enough opportunities to sustain a decent living (Joachim et al., 2018). In conclusion, while the precise factors contributing to these disparities are complex and multifaceted, research shows that discrimination against females, cultural norms, and economics are the main challenging factors.

4.1.2. Unemployment by age

Under this sub-section, we described the age of unemployment. Different countries have different legal ages of unemployment and working age. In this paper, we used the international legal working age, which is 18 years old. As indicated in Table 2, the majority of unemployed age, 53.2%, are between 18 and 28 years old. At this age, the majority of them finish either diploma or degree programs because the minimum usual age for starting formal education is eight years in Ethiopia. Suppose that, if one person completes a diploma, that means grade 10 and three years of college education, the age will be the sum of eight years before schooling, 10 years of schooling, and three years of college education, 21 years old. The age increases as the level of education rises. It follows that 32.5% of rural unemployed age is less than 18 years old. Those are youths who work in rural farm areas like cattle keeping. The finding is consistent with ILO, and CSA (2018) that depict many rural children cannot access education since they are working in farm areas. In summary, the productive labor force is unemployed in Ethiopian rural areas, which might stagnate the Country's development.

Table 1. Percentage of unemployment and employment in rural Ethiopia (%)

	Male	Female	Total
Unemployment	19.80	41.90	61.70
Employment	21.20	17.10	38.30

Source: Authors' computation based on 2021 CSA data, 2023.

Table 2. Unemployment by age in rural Ethiopia

Variable	Description	Frequency (N)	Percentage (%)
Age	Less than 18	2828	32.50
	18–28	4628	53.20
	29–39	826	9.50
	39–49	348	4.00
	Greater than 49	70	0.80
	Total	8700	100.00

Source: Authors' computation based on 2021 CSA data, 2023.

Table 3. Literacy rate of unemployment

Variable	Option	Frequency (N)	Percentage (%)
Have you attended education?	Yes	5316	61.1
	No	3384	38.9
	Total	8700	100

Source: Authors' computation based on 2021 CSA data, 2023.

4.1.3. Education status

Regarding educational attendance, the finding stipulates that 61.1% of rural unemployed have attended both formal and informal educations, whereas 38.9% of rural unemployed have not attended education (as shown in Table 3). It reveals that, there is an almost unequal distribution of rural unemployment in this group who have attended education or have not attended either formal or informal education.

The finding relates to the age of unemployment since the majority of them are between 18 and 28 years old. That means most of the unemployed attended education whose age are working age. Contrarily, the majority of rural employees who engage in rural jobs have not completed formal education. Consequently, this finding confirms the arguments of Egessa et al. (2021), Nganwa et al. (2015), and Fatima and Sharif (2015) that uneducated rural unemployed have a better chance of being employed in rural areas compared to educated ones.

4.1.4. Regional distribution of rural unemployment

Unemployment and its pattern in rural Ethiopia varies by region. The finding indicates that rural unemployment is the highest prevalence in the Oromia region, 12%, followed by Southern Nations, Nationalities, and Peoples Regional State—7.7%. However, both the Harari region and Dire Dawa town, 1.8%, have the lowest prevalence of rural unemployment rate (as described in Annex 2). Here, many reasons support the above statistics. One possible reason is that the Oromia region covers a large proportion of land in Ethiopia. Another reason is that the Region is the most populous one where we can get tremendous of unemployment. Thus, the Region does not create extensive job opportunities for rural unemployment. Also, the Region is the home of different ethnic groups due to its geopolitics. On the other hand, Harari and Dire Dawa are small in land size. Further, they are urbans, and hence there are no rural areas. Nevertheless, the research focuses on rural areas. The finding rejects the work of Broussar and Tekleselassie (2012) that showed Benishangul Gumuz Regional State has the lowest unemployment rate, whereas Gambella Regional State has the highest unemployment rate.

4.1.5. Job opportunities in rural areas

Concerning the types and areas that create job engagement in rural areas, most of them, 21.6% are engaged in self-employed agriculture, followed by self-employed in non-agriculture sectors such as microfinance and carpenter, 21.3%. Also, 16.4% are engaging in the unpaid family

Table 4. Reason for unemployment in rural Ethiopia (%)

Reasons	Distributions	
	Frequency (N)	Percentage (%)
No work related to my profession	426	4.90
Lack of job opportunities	4654	53.49
Lack of training	1044	12.00
Lack of experience	757	8.70
Lack of vacancy advertisement	348	4.00
Introduction of the modern system of work	17	0.20
In search of a better job opportunity	129	1.49
Not to work at a distant place	235	2.70
To alter the usual place of work	17	0.20
Low payment/salary	43	0.49
Slack period	348	4.00
Off-season	191	2.20
The inconvenience of working time	104	1.20
Unable to speak the local language	52	0.60
COVID19	96	1.10
Others	244	2.80
Total	8700	100.00

Source: Authors' computation based on 2021 CSA data, 2023.

agriculture sector (as indicated in Annex 3). That shows agriculture has created extensive job opportunities in rural areas if we emphasize it. Boulanger et al. (2019) present that the livestock, cash crops, food crops, and agro-food industries that constitute agriculture are the main areas that attract new job seekers in Ethiopia. From this, we conclude that rural transformation in Ethiopia is low and cannot create job opportunities in the services sectors since the majority are still participating in the agriculture sectors. Consequently, the government needs to give much more attention to rural transformation that can create comprehensive job opportunities in rural areas. That gradually reduces the rural-to-urban migration of the unemployed in search of jobs.

4.1.6. Reason for unemployability

Table 4 result reveals that the main reason for not getting a job in rural Ethiopia is the lack of job opportunities, 53.49%. The results also reported a lack of training, 12.00%, and a lack of experience, 8.70%, are the main reasons for not getting a job in rural Ethiopia. This finding confirms Batu (2016) that most unemployed do not get jobs in rural areas because of a lack of job opportunities. Contrarily, COVID-19 and the inability to speak the local language contribute a little to challenging factors of unemployment.

4.2. Econometrics results

We used the probit model to investigate the effects of schooling on rural unemployment in Ethiopia. Before estimating the variable in the probit model, we checked the multicollinearity of the variable. The results show that, there is no collinearity between the independent variables (as indicated in Annex 1).

4.2.1. Sex

The coefficient of -1.175 with a p-value of 0.000 indicates that gender has a statistically significant effect on rural unemployment. Specifically, being female (1 represents a female and otherwise

Table 5. Probit model, in marginal effect, estimation of schooling and other selected variable effect on rural unemployment in Ethiopia

Variables	Coef.	Std. Err.	Z	P>Z	dy/dx
Sex	-1.175	.109	-10.72	0.000	-0.468
Age	0.123	0.023	5.17	0.000	0.049
Age Square	-0.001	0.000	-4.94	0.000	-0.000
Can_read_and_write	-0.654	0.382	-1.71	0.087	-0.261
Attend_formal_or_informal_education	0.380	0.142	2.68	0.007	0.151
Hights_grade_completed	-0.003	0.004	-0.73	0.464	-0.001
Certificate_received_from_TVET	-0.188	0.128	-1.47	0.142	-0.075
Marital_status	0.216	0.060	3.58	0	0.086
Educational_skill	0.0781	0.093	0.84	0.403	0.031
_cons	1.464	0.582	2.51	0.012	
Probit regression	Number of obs.= 8700				
	LR chi²(9) = 204.66				
	Prob > chi² = 0.0000				
	Pseudo R² = 0.1697				
log likelihood = -500.70672					

Source: Authors' computation based on 2021 CSA data, 2023.

a male) is associated with a decrease in the probability of employment by 0.468 (as described in Table 5). This finding aligns with certain studies like Batu (2016) and Abafita and Kim (2014) that have shown gender disparities in employment rates, with males often having higher employment rates compared to females in some contexts. However, it is essential to consider specific social, cultural, and economic factors within Ethiopia to gain a comprehensive understanding. This finding is consistent with existing literature that shows gender disparities in employment opportunities and wages (World Economic Forum, 2020).

4.2.2. Age

With a coefficient of 0.123 and a p-value of 0.000, age has a statistically significant positive effect on employment. The dy/dx value of 0.049 suggests that for each additional year of age, the probability of employment increases by 0.049. This finding is consistent with the notion that as individuals gain more experience and reach working age, their likelihood of being employed tends to increase. Nevertheless, the age square result demonstrates that the increment of age employability continues to a certain age, but it gradually declines after a while. That means the relationship between age and employability is not straightforward. It increases initially, reaches some maximum point, and decreases slowly but surely as employees approach retirement.

4.2.3. Schooling/education attending

The coefficient of 0.380 with a p-value of 0.007 suggests that attending formal or informal education has a statistically significant positive effect on employment. The dy/dx value of 0.151 indicates that for a one-unit increase in schooling, the probability of employment increases by 0.151. That aligns with the understanding that education is often associated with improved job prospects and higher employment rates. This finding aligns with OECD's (2020) research that supports the education importance to secure employment.

4.2.4. Marital status

With a coefficient of 0.216 and a p-value of 0.000, marital status has a statistically significant positive effect on employment. The dy/dx value of 0.086 suggests that being married (assuming 1 represents married and 0 represents unmarried) is associated with an increase in the probability of employment by 0.086. This finding may relate to factors such as stability, financial security, or other sociocultural aspects, which can influence employment outcomes. The finding is consistent with research that shows married individuals tend to have more stable employment and higher incomes (Research Center, 2019).

5. Conclusion

Most scholars agree that education is an instrument that, we use to eradicate poverty. Phiri (2019) illustrates that formal education is presumed modernity, urbanity, globalized, and social mobility in rural Africa. In this paper, we investigated the effects of schooling on rural unemployment in Ethiopia. The descriptive findings revealed that females' unemployment rate is greater than that of males because of structural, socio-cultural, economic, and political factors. The result confirms the works of Batu (2016) and Abafita and Kim (2014) findings, which show females are more unemployed than males. Married participants are more unemployed than unmarried participants concerning marital status because they have become stable socially and economically. Regarding the unemployment age, the majority of unemployment lies between 18 and 28 years old followed by under 18 years old. That means the productive ages are unemployed which might stagnate the entire development. Unless a concrete measure is taken, it will affect the Country's economy since it depends on productive educators.

In the same manner, unemployment and its pattern in rural Ethiopia vary by regional state—rural unemployment is the highest prevalence in the Oromia region, 12% because the Region covers many areas and is the home of many youths, followed by Southern Nations, Nationalities, and Peoples Regional State—7.7%. However, the Harari region and Dire Dawa town, 1.8%, have the lowest prevalence of rural unemployment rate because both of them have no rural areas. The finding rejects the work of Broussar and Tekleselassie (2012) that showed Benishangul Gumuz

Regional State has the lowest unemployment rate, whereas Gambella Regional State has the highest unemployment rate. The main reason for not getting a job in rural Ethiopia is the lack of job opportunities and the absence of training and experience.

On the other hand, the probit model test, marginal effect, showed that schooling has a statistically significant positive effect on employment. As a result, for a one-unit increase in schooling, the probability of employment increases by 0.151. The finding aligns with the OECD (2020) that highlights the education importance in increasing employment. It also confirms idea that schooling increases human capital development (Abafita & Kim, 2014) and can raise productive capacity (Woldehanna, 2003). It concludes that schooling is paramount in decreasing rural unemployment in Ethiopia if much attention is given. We recommend that the government should transform rural areas' activities from agricultural-oriented to services-oriented activities to create extensive job opportunities in rural areas for educators, especially for females. The paper helps policymakers and other stakeholders to invest in education to reduce rural unemployment. Further, it showed that education should relate to practice and skilled-based curriculums that could prepare rural graduates to engage in rural economic activities. In line with this, policymakers and curriculum designers should revisit curriculums.

However, the paper is limited to the effects of schooling on unemployment in Ethiopia's rural areas based on the Central Statistics Agency data collected in 2021. Thus, it neither compares the urban with rural areas nor captures the essence of unemployment collected over several years. Additionally, the paper did not focus on each level of education categories—primary level, secondary, and tertiary—it navigated the general concepts of rural unemployment in Ethiopia at large. Consequently, future research should focus on that limitation.

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Correction

This article has been corrected with minor changes. These changes do not impact the academic content of the article.

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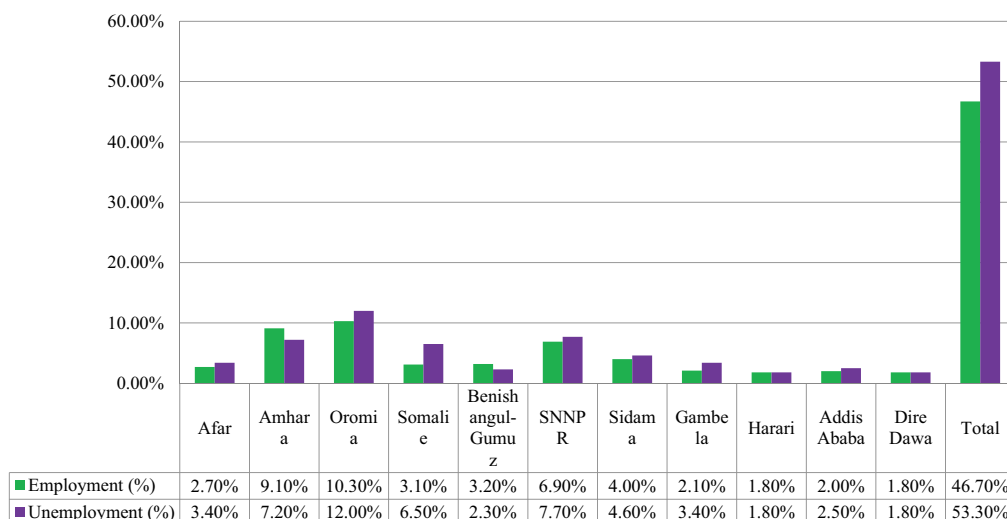
Annex 1. Results of multicollinearity diagnosis

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error				Tolerance	VIF
(Constant)	0.921	0.190		4.838	0.000		
Sex	0.410	0.036	0.385	11.435	0.000	0.827	1.209
Relationship to the head of the household	0.016	0.009	0.060	1.886	0.060	0.930	1.075
Age	-0.002	0.002	-0.044	-1.22	0.223	0.706	1.416
Can You Read and Write?	0.215	0.118	0.056	1.819	0.069	0.987	1.013
attended formal education	-0.121	0.047	-0.083	-2.595	0.010	0.925	1.081
What was the highest grade you have completed?	0.001	0.001	0.025	0.707	0.48	0.772	1.295
received a certificate from TVET	0.066	0.043	0.053	1.537	0.125	0.774	1.291
Marital Status	-0.072	0.020	-0.115	-3.519	0.000	0.879	1.138
education skill	-0.024	0.031	-0.025	-0.781	0.435	0.903	1.108

Source: Authors Computation based on 2021 CSA data, 2023.

Annex 2. The pattern of unemployment in rural Ethiopia by region

Source: Authors Computation based on 2021 CSA data, 2023



Annex 3: Types and areas of employment in rural Ethiopia (%)

Source: Authors' computation based on CSA, 2021 data, 2023

