Cogent Economics & Finance

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/oaef20

Education, skills, and duration of unemployment in Ghana

Ebenezer Gyan Yirenkyi, Godwin Debrah, Kwami Adanu & Edwin Atitsogbui

To cite this article: Ebenezer Gyan Yirenkyi, Godwin Debrah, Kwami Adanu & Edwin Atitsogbui (2023) Education, skills, and duration of unemployment in Ghana, Cogent Economics & Finance, 11:2, 2258680, DOI: 10.1080/23322039.2023.2258680

To link to this article: https://doi.org/10.1080/23322039.2023.2258680

Published online: 19 Sep 2023.

Yirenkyi et al., *Cogent Economics & Finance* (2023), 11: 2258680
https://doi.org/10.1080/23322039.2023.2258680

cogent economics & finance

GENERAL & APPLIED ECONOMICS | RESEARCH ARTICLE

Education, skills, and duration of unemployment in Ghana

Ebenezer Gyan Yirenkyi[1], Godwin Debrah[2], Kwami Adanu[1] and Edwin Atitsogbui[3]*

Received: 19 December 2022
Accepted: 09 September 2023

*Corresponding author: Edwin Atitsogbui, Department of Economics, University of Ghana, P. O. Box 57, Legon-Accra, Ghana
E-mail: akomei16@gmail.com

Reviewing editor:
Goodness Aye, Agricultural Economics, University Of Agriculture, makurdi Benue State, Nigeria

Additional information is available at the end of the article

Abstract: The unmatched growth in available jobs, given the rising youth population, is a major concern for policymakers in sub-Saharan African countries (SSAs), particularly Ghana. The weakness in the link between education and the needed skill by the industry, has been labelled as the cause of rising unemployment and prolonged unemployment duration in Ghana. This paper presents new evidence on the effect of education and skill—language, computer and numeracy skills—on unemployment duration in Ghana using the Skill Towards Employment and Productivity (STEP) skill dataset collected by the World Bank in 2013. The study employs Cox's Proportional Hazard Model to examine the effect of education, language, computer and numeracy skill on unemployment duration. We found that education reduces the duration of unemployment in general. However, the effect is higher for exiting salaried work compared to self-employed jobs. Proficiency in computer, English or Ewe reduces the duration of unemployment. In particular, we observe that individuals highly skilled in computer use are 34.4% more likely to exit unemployment compared to those without computer skills. Interestingly, the effect of computer skills is through channels other than formal education.

Subjects: Economics and Development; Microeconomics; Labour Economics; Education Policy; Language & Education

Keywords: unemployment duration; Ghana; education; skill; hazard ratio

1. Introduction

The increasing youth population and the growth of available jobs are major concerns for policymakers in Africa, particularly in Ghana. Although Ghana has relatively low unemployment compared to other sub-Saharan African countries (SSAs), high informality and vulnerable unemployment contribute to this low rate (World Bank, 2021). Nevertheless, Ghana's unemployment rate has been on an upward trend over the years, starting from 2.8% in 1984, reaching 3.3% in 1992, and peaking in 2000 at 10.4%. It decreased to 7% in 2003 and was expected to be 3.1% in 2006. However, in 2010, there was a significant increase of 5.8% in the jobless rate. In 2013, the unemployment rate was relatively unchanged compared to the previous year, while in 2016, it was almost 12% (Aryeetey & Baah-Boateng, 2015; Ghana Statistical Service-GSS, 2019). In 2021, Ghana's unemployment rate stood at 4.7% (World Bank, 2021).

Pertaining to the youth, almost 60% are reported to be employed, while about 12% are reported to be unemployed. The rest are classified as not being in the labour force (Ghana Statistical Service-GSS, 2019). A significant concern is the high unemployment rate among graduates, with

data from the Institute of Statistical, Social and Economic Research indicating that only 10% of graduates secure employment within a year of graduation. Each year, over 200,000 young Ghanaians, including graduates, unskilled and semi-skilled individuals, are on the lookout for jobs (Ghana Ministry of Employment and Labour Relations, 2014), underscoring the need for a substantial increase in job opportunities.

During the 1980s to 1999, the unemployment rate for men was higher than that of women. However, from 2000 to 2013, the trend reversed, and the unemployment rate for women became higher than that of men. According to Baah-Boateng (2012), the reverse in relative unemployment rates since 1984 is due to women's rising desire to join the labour market, as seen by the constant increase in women's labour force participation rate despite fewer work opportunities available. Ghana's 2015 labour force report suggests that about 40% of the youth have no education at all. In addition, only about 4% have acquired some tertiary education (Ghana Statistical Service-GSS, 2019).

The level of unemployment can be established by considering the probability of a person becoming unemployed as well as the probability of an unemployed individual either finding employment or leaving the labour market (Layard et al., I99I). The probability of an unemployed person leaving unemployment (getting a job), which is the concept of unemployment duration, is the focus of this study. The literature on unemployment duration is mainly focused on developed countries, leaving a significant research gap in understanding the dynamics of unemployment in developing countries like Ghana (Gedikli et al., 2022; Kherfi, 2015; Kriaa et al., 2020; Kupets, 2006; Tansel & Tasci, 2004). While existing studies have delved into key determinants of unemployment duration, such as the level of education, an examination of the various components of the education variable is still lacking.

This paper fills the gap by going beyond the widely researched topic of education's effect on unemployment duration. Using the current Skill Towards Employment and Productivity (STEP) skill dataset, our study examines how some specific employable skills—namely education, computer, numeracy, and language skills—affect unemployment duration. This is more pertinent as the rising unemployment in Ghana is due to disconnect between education and the skills required in the labour market (Dadzie et al., 2020). Moreover, the weakness in the educational system and what the industry requires has prolonged unemployment duration in Ghana (Dadzie et al., 2020). Acquisition of these skills such as computer, numeracy, and language skills, among other employable skills, provides a key advantage in the labour market (Segbenya et al., 2021). As suggested in the literature, both technical and soft skills propel productivity at work (see Tulgan, 2015). Perry et al. (2014) also hold the view that better and developed skills enable individuals to perform better. Hanushek et al. (2014) posit that improved skill reduces the likelihood of unemployment. This study is quite important because of the implications of long-term unemployment. Gedikli et al. (2022) argue that long-term unemployment can adversely affect the socio-economic and psychological well-being of the individual. Over time, one's skills deteriorate and could hinder chances of finding a job early. Joblessness for the young is particularly costly, according to human capital theory, because significant investment in human capital should occur during the early working years.

With around 40% of Ghanaian youth lacking education (Ghana Statistical Service-GSS, 2019), any findings showing that soft skills such as language skills, hard skills such as computer literacy and foundational skills such as numeracy skills can reduce unemployment duration would be welcoming news. This may guide policymakers to equip the uneducated youth with some skills or incorporate some of these skills into vocational training curricula in Ghana. The rest of the paper is organised as follows. The next section reviews related literature. Section 3 describes the data, while Section 4 outlines the estimation strategy. Section 5 reports and discusses the results. The last two sections conclude the paper, provide policy recommendations, and offer the study's limitations.

2. Review of related literature

A plethora of studies have addressed the determinants of unemployment both in developed and developing countries (Baah-Boateng, 2013; Bassanini & Duval, 2007; Eita & Ashipala, 2010). Many of these studies have mainly focused on individual characteristics such as age, level of education, type of occupation, location, marital status, sex and region. Individually acquired skills such as language, computer, and numeracy skills are key human capital accumulations that offer a labour market advantage. According to the human capital theory, individuals who acquire more education, skills, and training are likely to be more productive, earn higher wages, reduce the unemployment rate and perform better in the labour market than those who have not. However, these have not been adequately considered in previous studies on unemployment duration.

Kupets (2006) conducted a study in Ukraine to investigate the determinants of unemployment duration using the Ukrainian Longitudinal Monitoring Survey dataset, which has information on multiple unemployment spells from 1998 to 2002. The study employed a Cox proportional hazard model. The study focused on exit to inactivity and exit to employment. It was found that the overall time spent unemployed is significantly related to the individual's marital status, age, education, income while unemployed, and local demand constraints. For the level of education, for instance, the study found that individuals with higher education are more likely to stay longer searching for jobs than individuals with primary or unfinished secondary education. In Tunisia, Kriaa et al. (2020) also examined the unemployment duration determinants for young men and women using the Kaplan-Meier survival function estimates. They used data from the Panel Study of the Tunisia Labour Market 2014. It was found that the duration of finding the first job for young males is significantly different for young females. Females stay longer unemployed than males. The individual's education level significantly reduces unemployment duration, mainly for women. Concerning the location of the individual, they found a significant difference between those living in rural areas and those in urban areas. Moreover, unemployment duration is higher for residents living in regions with a higher unemployment rate. Regarding the age category, individuals aged 25–30 years have a higher probability of staying unemployed.

In Egypt, Kherfi (2015) used the 2006 and 2012 rounds of the Egyptian Labour Market Panel Survey to investigate the determinants of unemployment duration. The study found that women with secondary or higher education are shown to take longer to get work. Compared to older youth, those who joined the labour market as teenagers had more prolonged periods of unemployment. Men's father's education and unemployment length were adversely related, but women's father's education and jobless duration were unrelated. Men with no or low-skilled fathers quit unemployment faster, but women's father's occupations did not affect their chances of exiting unemployment. In Finland, Ollikainen (2003) also examined the gender dimension of the unemployment duration determinants, using a single risk discrete-time hazard model for the analysis. The study used Finland's 1997 nationally representative dataset. It was found that female unemployment duration was high for those with young children. Unemployment duration increases with age. In terms of the level of education, they found education to be positively related to unemployment duration. Arulampalam and Stewart (1995) also conducted a study on the determinants of unemployment duration in the period of higher unemployment. They found a significant effect of training on unemployment duration. The duration of unemployment was found to be significantly related to a completed apprenticeship.

In Turkey, Tansel and Tasci (2004) found that women have longer periods of unemployment than men. Age had a negative effect on the hazard rate, but education had a favourable effect. Sahin and Kizilirmak (2007) also conducted a similar analysis in Turkey, however, their study was on the determinants of unemployment insurance benefits in Turkey. The study found that the duration of unemployment benefits is highly correlated with age, sex, marital status, education, region, and job type. A recent study by Altindag et al. (2022) in Turkey also investigates education's impact on unemployment duration. Using a Cox proportional hazards model, the authors found that higher levels of education greatly decrease the length of unemployment. According to the

authors, this finding emphasises the relevance of education as a tool for lowering unemployment duration and enhancing labour market results. Gedikli et al. (2022) conducted a meta-analysis of longitudinal studies to examine the relationship between unemployment and well-being. The study included 86 studies with a total sample size of 438,772 participants. The authors found that unemployment was negatively related to well-being, with a moderate effect size. The negative effects of unemployment on well-being were stronger for younger individuals, those who were unemployed for longer periods of time, and those who were involuntarily unemployed. Pandey and Pandey (2014) argue that fluency in English enhances the chances of getting a job. They explain that interviewers make an impression on people based on language skills.

The literature review on unemployment duration covers studies conducted in various countries, including Ukraine, Tunisia, Egypt, Finland, Turkey, and a meta-analysis of longitudinal studies. However, in the Ghanaian context, the studies that addressed unemployment-related issues focused on education, training, labour market outcomes, and unemployment determinants in Ghana. Palmer (2007) reviewed the evidence on the relationship between education, training, and labor market outcomes in Ghana. Baah-Boateng (2013) examined the determinants of unemployment in Ghana and found that individual characteristics such as age, education level, occupation, and location significantly affect unemployment. Okoro et al. (2022) investigated the relationship between entrepreneurship education and youth unemployment challenges in Ghana, highlighting the importance of entrepreneurship education in mitigating the issue of youth unemployment.

3. Methodology

3.1. Data source and data description

The data used for this study measures skills in low and middle-income countries, which enables policymakers to understand the relevant skills needed in the labour market, among other key indicators. It is known as the STEP skills dataset, and it is collected by the World Bank.[1] The data is a nationally representative household- and employer-based dataset collected in 2013. The targeted individuals are only limited to adult individuals, employed or not, aged 15 to 64 in the urban areas of Ghana. The dataset covers a nationally representative sample of 2,987. It includes monthly unemployment duration for the individual respondents. The unemployment duration variable measures the time to find a job by individual respondents. It includes unemployment spells completed or not completed before the data was collected in 2013. If the individual worked at least 6 months since completing their highest level of education, the person is out of unemployment or has never experienced unemployment. This variable indicates whether the individual was never unemployed or finally exited unemployment. This study is only limited to the first employment after the individual completed their highest level of education. Subsequent unemployment after leaving one's job is not part of the analysis. Moreover, we assumed that those with an unemployment duration of less than one month were not unemployed because short periods like this do not have a psychological or economic burden on the individual and society.

The data also has information on ten languages spoken in Ghana: English, French, Akan, Ga-dangbe, Ewe, Guan, Mole-Dagbani, Grussi, Mande, Gurma. However, this study will only focus on four key languages: English, Akan, Ga-dangbe, and Ewe, because they are widely used languages relative to the others. The survey provides information on speaking, reading and writing proficiency. However, this study only focuses on speaking proficiency. That is, whether or not the individual speaks the language well enough to work in a job that requires that language. Language proficiency variables are binary in nature. We expect that proficiency in any of the languages should reduce the duration of unemployment. The data's numeracy and computer skill variables are measured as categorical variables (no skill, low, medium or high skill) with no skill as the base category. The data on the skill variables are self-reported. The data include demographic characteristics such as age, sex, number of children under six years, marital status, asset wealth index, and parent's level of education.

Table 1. Descriptive statistics of the variables used in the study

Variable	Total
Mean Unemployment Duration (Std.Dev.)	24.028 (23.841)
Mean Years education (Std.Dev.)	8.897 (3.538)
Mean Age (Std.Dev.)	37.244 (11.229)
Mean Asset index (Std.Dev.)	.091 (.847)
Mean number of Children (Std.Dev.)	.601 (.838)
Computer Literacy	
% No skill	83.5
% Low	6.1
% Medium	3.5
% High	7
Numeracy Skills	
% No skill	14.7
% Low	34.5
% Medium	49.3
% High	1.4
% English	69.8
% Akan	91.6
% Ga-Dangbe	26.9
% Ewe	19
% Female	55.3
% Married	63.7
Parent education	
% No education	31.2
% Basic	43.9
% Secondary	12
% Tertiary	13
Number of spells (observations)	985

Descriptive statistics of the data are presented in Tables 1, 2 and 3. Table 1 presents the of the variables used in the analysis, whereas Table 2 presents the unemployment duration by the level of education, computer, numeracy and language skills. From Table 1, the average unemployment duration is approximately 24 months, with a standard deviation of 24 months. Also, from Table 2, the unemployment duration is an average of 31 months for those without education and 28 months for individuals with basic education. The duration of unemployment is seen to be reduced with an increase in the level of education. Those with secondary education spend an average of 18 months searching for work. In contrast, individuals with tertiary education spend an average of 7 months (see Table 2). Moreover, those with no computer skills and low computer skills spend longer periods searching for employment, averaging 26 months and 15 months, respectively (see Table 2). For those with medium and high skills in computer usage, the average unemployment duration is 10 months and 12 months, respectively (see Table 2). We also observe a high unemployment duration for no, low and medium numeracy skilled individuals with an average of 25 months, 27 months and 22 months, respectively (Table 2). Higher numeracy skill individuals spend approximately 8 months to exit unemployment. In terms of language skills, we observe a higher unemployment duration for individuals without language skills (English, Akan, Ga-dangbe and Ewe), but the average duration of unemployment is high for those without English skills (See Table 2).

Table 2. Duration of unemployment (in months) by the level of education, computer, numeracy and language skills

Variable	Mean	Std.Dev.
Edu level (*n*=985)		
No Edu	30.571	23.287
Basic	28.466	25.097
Secondary	17.991	20.025
Tertiary	7.435	7.814
Computer (*n*=985)		
no skill	26.237	24.469
Low	15.583	19.568
Medium	9.618	11.871
High	12.159	15.059
Numeracy skill (*n*=985)		
no skill	24.579	22.666
Low	27.118	26.316
Medium	22.171	22.302
High	7.786	7.018
Language skill		
English skill	20.855	21.819
No English skill	31.38	26.588
Akan Skill	24.02	23.527
No Akan Skill	24.12	27.173
Ga-dangbe Skill	24.475	22.759
No Ga-dangbe skill	23.864	24.24
Ewe skill	20.305	21.464
No Ewe skill	24.901	24.294

Table 3. Distribution of respondents in terms of unemployment duration

Unemployment duration	Freq.	Percent	Cumulative percent
<3 months	129	13.10	13.10
3–6 months	191	19.39	32.49
7–24 months	176	17.87	5.36
13–24 months	161	16.35	66.70
>2years	328	33.30	1.00

Table 3 presents the distribution of respondents in terms of unemployment duration. We observe a greater percentage of respondents stay unemployed for over 2 years of job search (33.3%). Just a small proportion of the respondent leave unemployment within the first two months (13.1%). Within 3 to 6 months of searching for jobs, 19.39% reported finding employment. 17.87% reported that they found work within 7 to 24 months. Within the 2 years (13 to 24 months), 16.35% found employment.

3.2. Estimation techniques

The study employs Cox's Proportional Hazard, modelled by Cox (1972), to analyse the effect of education and skills on unemployment duration for individuals who experience unemployment after completing their highest level of education.

cogent economics & finance

Define $h(t) = h_0(t)\mathbf{exp}(X\beta)$, where $h(t)$ is the expected hazard at time t, $h_0(t)$ is the baseline hazard, which represents the hazard when all the main and the control variables are equal to zero, X is a set of control variables, β is the vector of model parameters. The Cox model uses data to find the maximum likelihood estimators of the regression coefficients in the hazard function.

A hazard ratio greater than 1 indicates that the risk of employment is increasing, a hazard ratio less than 1 indicates that the risk of employment is decreasing, and a hazard ratio equal to 1 indicates no difference (effect) between the two groups being studied. The hazard ratio is interpreted differently depending on whether the predictors are categorical or continuous. When it comes to categorical variables, a hazard ratio equal to 3 for a particular category means that the risk is thrice as great as the reference category. For continuous predictors, a hazard ratio equal to 1.4, for example, suggests that each one-unit increase in the predictor increases the hazard by 40%. We include a number of covariates, such as age and its square. The square term included helps analyse the nonlinear effect of age on unemployment duration. Sex variable is included to compare the effect of gender on unemployment duration. Being male is the base category. The number of children under six is included to assess the influence of infant children on one's ability to find employment. The Marital status of the respondent is included in the model and is measured as a dichotomous variable, with 1 representing married (either married or in a consensual union) and 0 otherwise (never married, separated, divorced or widowed). An asset wealth index variable is included as a covariate. It is an index created from household assets and ranges from −2.2 to 3.0. The final control variable is the parent's levels of education. This measures the highest education attained by the parents and is captured as a categorical variable (no education, basic, secondary and tertiary education) with no education as the reference category.

4. Results and discussions

Figure Figure 1 reports a non-parametric estimate (Kaplan-Meier) of the probability of remaining unemployed against time, based on sex, level of education, computer skill and numeracy skill. The estimate from the Kaplan-Meier estimates does not include individuals who secured jobs within

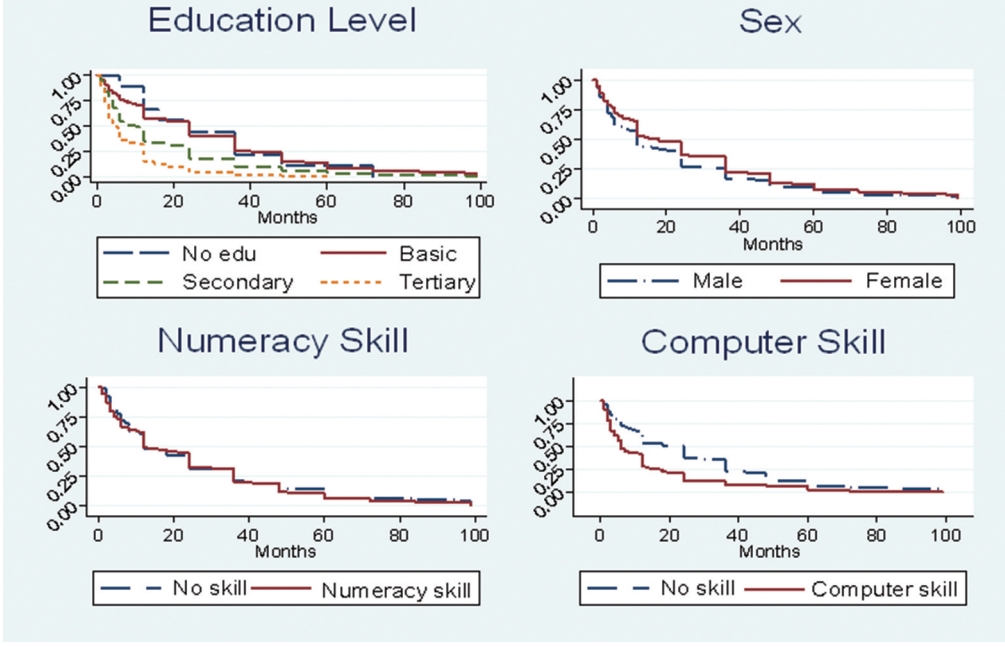

Figure 1. Probability of survival in unemployment by sex, level of education, computer skill and numeracy skill.

one month, as we assumed that individuals who found jobs within one month of unemployment did not experience unemployment. We see from the figure that the probability of remaining unemployed reduces with an increasing number of months.

In terms of educational attainment, the probability of continued unemployment is higher for an individual without education than those with basic education during the first 10 months of unemployment (Figure Figure 1). The difference narrowed significantly afterwards. For those with secondary education, the probability of remaining unemployed is lower than for those without or with basic education. Individuals who have attained tertiary education have the lowest probability of remaining unemployed. The steepness of the survival curve for those with tertiary education during about the first 10 months of unemployment suggest that tertiary-educated individuals exit unemployment more rapidly during that period.

Concerning the sex of the individuals, the probability of the females remaining unemployed was relatively higher than males over the entire period (Figure Figure 1). Regarding numeracy skills, we observe no significant difference between those with numeracy skills and those without. However, for computer skills, those without computer skills are more likely to remain unemployed than those with computer skills. We also observe a steeper curve for about the first 10 to 15 months of unemployment for individuals with computer skills than those without, indicating that proficient computer individuals exit unemployment more rapidly.

We run two different models to assess the effect of education and skills on unemployment duration controlling for the determinants that influence unemployment duration. In Model 1, we included education and the skill variables (numeracy, computer, English, Akan, Ewe, and Ga-dangbe skill). In contrast, Model 2 only includes skills and control variables. We report the hazard ratio instead of the coefficient or parameter estimate. Table 4 presents these results.

In Model 1 of Table 4, the hazard ratio of years of education is above one and also significant at 1%. A hazard ratio above one also means that the coefficient is positive, suggesting that an increase in years of education increases the log of the relative hazard. The hazard increased by 8.6%. This implies that an additional year of education increases the probability of exiting unemployment by 8.6%. Those with additional education have a shorter duration until exit compared to those with lower years of education. Our findings contradict the findings made by Kherfi (2015) and Kupets (2006), who concluded that an additional education significantly reduces the probability of finding a job and, thus, increases the duration of unemployment. However, the results are consistent with Tansel and Tasci (2004). They found that education has a favourable effect on one's unemployment duration.

Further analysis is performed to examine how education affects the time it takes to move to a particular type of employment-self (see Table 5). In this case, we only considered moves to self-employment or salaried work. The hazard ratio for those who exit to salaried work is higher than for those who exit into self-employed jobs suggesting that more education shortens unemployment duration for individuals seeking to exit into salaried employment. This is expected as most self-employed jobs are in the informal sector and are generally characterised by low earnings and poor working conditions, which are not lucrative enough to entice people to work there (Ghana Statistical Service-GSS, Labour force report, 2015). Also, it may take time for people to raise the capital needed for self-employment jobs.

For the skill variables, we observe a significant effect for medium and high computer skills and Ewe skills on unemployment duration (Table 4). English skill is not significant in Model 1 of Table 4, but it is significant in Model 2, suggesting that the English skill effect may be through education. We did not find any effect of numeracy skills on employment duration. Model 2 of Table 4 also suggests that computer and Ewe skills influence the duration of unemployment through channels other than formal education. This may mean that those with formal education certificates may be able to reduce their

Table 4. Cox Proportional hazard Model of unemployment duration

	Model 1	Model 2
Years of educ.	1.086***	
	(0.014)	
Comp skill (ref. no use)		
Low	1.239	1.370**
	(0.178)	(0.197)
Medium	1.507**	1.864***
	(0.281)	(0.342)
High	1.344**	1.620***
	(0.198)	(0.231)
Num skill (ref. no use)		
Low	1.037	1.009
	(0.106)	(0.103)
Medium	1.096	1.090
	(0.106)	(0.105)
High	1.395	1.603
	(0.415)	(0.475)
English skill	1.024	1.259***
	(0.087)	(0.100)
Akan skill	1.184	1.129
	(0.144)	(0.136)
Ga-Dangbe	0.985	0.920
	(0.075)	(0.069)
Ewe	1.187**	1.218**
	(0.102)	(0.104)
Age	0.895***	0.898***
	(0.020)	(0.020)
age2	1.001***	1.001***
	(0.000)	(0.000)
Female	0.958	0.935
	(0.070)	(0.068)
Num. children	0.968	0.957
	(0.043)	(0.042)
Mar stat	1.059	1.051
	(0.082)	(0.082)
High edu parent		
Basic	1.007	1.027
	(0.081)	(0.082)
Secondary	1.126	1.200
	(0.130)	(0.138)
Tertiary	0.942	1.017
	(0.106)	(0.114)
Asset index	0.922*	0.988
	(0.043)	(0.045)
N	985	985
Log likelihood	−5867.314	−5888.934

Note: ***, ** and * represent 1%, 5% and 10% significance level, respectively. Robust standard errors are reported in parentheses.

Table 5. Cox Proportional hazard Model of unemployment duration (exit to self-employment or salaried work)

	Self-employment	Salaried worker	Self-employment	Salaried worker
Years of educ.	1.046***	1.134***		
	(.018)	(0.019)		
Computer skill (ref. no use)				
Low	1.019	1.348*	1.076	1.598***
	(.240)	(0.221)	(.253)	(0.261)
Medium	1.343	1.701***	1.504	2.332***
	(.427)	(0.340)	(.474)	(0.457)
High	.743	1.332*	.816	1.815***
	(.212)	(0.226)	(.231)	(0.293)
Numeracy skill (ref. no use)				
Low	1.047	1.152	1.029	1.103
	(.146)	(0.159)	(.144)	(0.152)
Medium	1.110	1.131	1.107	1.125
	(.150)	(0.144)	(.149)	(0.143)
High	1.878	1.078	1.995	1.294
	(1.008)	(0.366)	(1.067)	(0.437)
English	.872	1.480***	.980	2.011***
	(.097)	(0.191)	(.100)	(0.247)
Akan	1.163	1.257	1.148	1.142
	(.203)	(0.200)	(.199)	(0.180)
Ga Dangbe	1.116	1.062	1.063	0.981
	(.114)	(0.103)	(.107)	(0.094)
Ewe	.989	1.245**	1.008	1.282**
	(.123)	(0.135)	(.126)	(0.140)
N	985	985	985	985
Loglikelihood	−3116.176	−3354.335	−3119.698	−3382.895

Note: ***, ** and * represent 1%, 5% and 10% significance level respectively. Robust standard errors are reported in parentheses. All the models have been controlled for the other determinants that affects unemployment duration.

unemployment duration by getting some of these skills. For high skilled computer users, in particular, we observe that they are 34.4% more likely to exit unemployment than those without computer skills.

Table 5 shows that computer skills did not affect exit to self-employed jobs. The effect of computer skills is significant for exit to salaried work for all levels of computer proficiency. Though all the levels of computer proficiency reduce the unemployment duration, it is not necessary to acquire a high or advanced level of computer skill to exit unemployment quickly. The intermediate level is fair enough. This is not to discourage individuals from acquiring a high level of computer skills as it also shortens the unemployment duration.

The numeracy skill variable was not significant at all though it points to a positive relationship with the probability of leaving unemployment. We find no significant effect of language skills on exit to self-employed jobs. This means that an individual does not need to be proficient in any of the languages examined to secure a self-employed job quickly. However, for salaried work, language skill is essential, as proficiency in English or Ewe are associated with a reduction in the duration of unemployment. Ewes are most likely to educate themselves than the Akan, mostly due to limited jobs in the Volta

region. This makes most of them end up in jobs in public service, teaching, and nursing than jobs in the informal sector or self-employed. We also link this finding to the descriptive statistics in Table 2, where we found that individuals who are proficient in English and Ewe spend less time searching for a job compared to those proficient in the other languages.

5. Conclusion

The goal of this study is to examine the effect of education and skills on unemployment duration using the STEP skill dataset collected by the World Bank in 2013. The dataset covers a nationally representative sample of 2,987, and the targeted individuals are only limited to adult individuals, employed or not and are within the ages of 15 to 64 in the urban areas of Ghana. The study employs Cox's Proportional Hazard model by Cox (1972) for the empirical estimation.

We find that education reduces the duration of unemployment in general. However, the effect is higher for exiting salaried work compared to self-employed jobs. The results are in line with previous studies. Concerning the skill variables, we find that unemployment duration is more likely to reduce with proficiency in computer use. However, this effect is only significant for exit to salaried work but not self-employment. For language skills, we found that English and Ewe skills are associated with unemployment duration and that proficiency in English or Ewe reduces the duration of unemployment. Education can help people become more adaptable. Individuals with higher levels of education tend to be better prepared to adjust to changes in the labour market. This can increase their value to businesses and their chances of staying employed. Overall, education substantially impacts employment duration by providing individuals with the necessary skills, knowledge, and adaptability to succeed in the job market.

The finding of this study is of interest to policymakers in ministries, departments and agencies in the education and labour sector. The result on the effect of education on unemployment duration suggests that policies to reduce unemployment duration should encourage individuals to increase their level of education. Policies should target key skills such as computer and basic language skills. Governments can invest in education to increase access and ensure that individuals have the necessary skills and knowledge to succeed in the job market. Though junior and secondary education is free in Ghana and some parts of the world, the government can promote funding, scholarships, and grants to support needy students in attaining higher education. Moreover, there should be an investment in job training programs to help individuals acquire new skills and knowledge needed to succeed in the job market.

6. Limitation

The study has identified two limitations that need to be considered. Firstly, the study relies on self-reported language, computer, and numeracy skills measures. Although these skills may directly or indirectly contribute to unemployment duration, other relevant skills, such as communication, problem-solving, time management, and technical skills, are also directly related to unemployment duration. Unfortunately, due to data unavailability, the study was unable to capture these skills.

It is important to note that the self-reported measures used in the study may not accurately reflect the actual skill levels of the individuals. Therefore, there may be a risk of bias or inaccuracy in the study findings. Moreover, the exclusion of other important skills may limit the generalizability of the study's results and the conclusions that can be drawn from it.

Future research should consider using more objective measures to assess individuals' skills and aim to capture a broader range of relevant skills that may influence unemployment duration. This will help provide a more comprehensive understanding of the factors that contribute to unemployment duration and will ultimately aid in developing more effective policies and interventions to address the issue.

Author details
Ebenezer Gyan Yirenkyi[1]
Godwin Debrah[2]
Kwami Adanu[1]
Edwin Atitsogbui[3]
E-mail: akomei16@gmail.com
[1] Department of Economics, Ghana Institute of Management and Public Administration, Accra, Ghana.
[2] Department of Statistics and Actuarial Science, University of Ghana, Accra, Ghana.
[3] Department of Economics, University of Ghana, Accra, Ghana.

Disclosure statement
No potential conflict of interest was reported by the author(s).

Data availability statement
The dataset used for the analysis is a nationally representative household-based and employer-based Skill Towards Employment and Productivity (STEP) skills dataset collected by the World Bank. The data is open access and was obtained from the World Bank website and made available from the corresponding author upon reasonable request (for data source, see https://microdata.worldbank.org/index.php/catalog/2015/related-materials).

Citation information
Cite this article as: Education, skills, and duration of unemployment in Ghana, Ebenezer Gyan Yirenkyi, Godwin Debrah, Kwami Adanu & Edwin Atitsogbui, *Cogent Economics & Finance* (2023), 11: 2258680.

Note
1. https://microdata.worldbank.org/index.php/catalog/2015/related-materials

References
Altindag, D. T., Dursun, B., & Filiz, E. S. (2022). The effect of education on unemployment duration. *Economic Inquiry*, *60*(1), 21–42. https://doi.org/10.1111/ecin.13027
Arulampalam, W., & Stewart, M. B. (1995). The determinants of individual unemployment durations in an era of high unemployment. *The Economic Journal*, *105*(429), 321–332. https://doi.org/10.2307/2235493
Aryeetey, E., & Baah-Boateng, W. (2015). *Understanding Ghana's growth success story and job creation challenges* (WIDER Working Paper No. 2015/140).
Baah-Boateng, W. (2013). Determinants of unemployment in Ghana. *African Development Review*, *25*(4), 385–399. https://doi.org/10.1111/1467-8268.12037
Baah-Boateng, W. (2012). *Labour market discrimination in Ghana: A gender dimension*. Lambert Academic Publishing.
Bassanini, A., & Duval, R. (2007, 1). The determinants of unemployment across OECD countries: Reassessing the role of policies and institutions. *OECD Economic Studies*, *2006*(1), 7–86. https://doi.org/10.1787/eco_studies-v2006-art2-en
Cox, D. R. (1972). Regression models and life-tables. *Journal of the Royal Statistical Society: Series B (Methodological)*, *34*(2), 187–202. https://doi.org/10.1111/j.2517-6161.1972.tb00899.x
Dadzie, C. E., Fumey, M., & Namara, S. (2020). *Youth employment programs in Ghana: Options for effective policy making and implementation*. International Development in Focus. © World Bank. https://doi.org/10.1596/978-1-4648-1579-9
Eita, J. H., & Ashipala, J. M. (2010). Determinants of unemployment in Namibia. *International Journal of Business & Management*, *5*(10), 92. https://doi.org/10.5539/ijbm.v5n10p92
Gedikli, C., Miraglia, M., Connolly, S., Bryan, M., & Watson, D. (2022). The relationship between unemployment and well-being: An updated meta-analysis of longitudinal evidence. *European Journal of Work and Organizational Psychology*, *32*(1), 1–17. https://doi.org/10.1080/1359432X.2022.2106855
Ghana Ministry of Employment and Labour Relations. (2014).
Ghana Statistical Service-GSS. (2019). Ghana living standard Survey (GLSS) 7. Main Report.
Ghana Statistical Service-GSS, Labour force report. (2015).
Hanushek, E. A., Schwerdt, G., Wiederhold, S., & Woessmann, L. (2014). Returns to skills around the world. *European Economic Review*. https://doi.org/10.2139/ssrn.2374631
Kherfi, S. (2015). Determinants of Unemployment Duration. In R. Assaad, & C. Krafft (Eds.), *The Egyptian Labor Market in an Era of Revolution* (pp. 90–107). Oxford University Press.
Kriaa, F., Mohamed, B., & Mathlouthi, Y. (2020). Determinants of unemployment duration for young men and women in Tunisia. *Economics, Management and Sustainability*, *5*(2), 78–95. https://doi.org/10.14254/jems.2020.5-2.5
Kupets, O. (2006). Determinants of unemployment duration in Ukraine. *Journal of Comparative Economics*, *34*(2), 228–247. https://doi.org/10.1016/j.jce.2006.02.006
Okoro, J. P., Nassè, T. B., Ngmendoma, A. B., Carbonell, N., & Nanema, M. (2022). Entrepreneurship education and youth unemployment challenges in Africa: Ghana in perspective. *International Journal of Management & Entrepreneurship Research*, *4*(5), 213–231. https://doi.org/10.51594/ijmer.v4i5.328
Ollikainen, V. (2003). *The determinants of unemployment duration by gender in Finland* (Discussion Paper No. 316). https://www.doria.fi/bitstream/handle/10024/148295/k316.pdf?sequence=1
Palmer, R. (2007). *Education, training and labour market outcomes in Ghana: A review of the evidence* (Working Paper No. 9). https://www.ssoar.info/ssoar/handle/document/6733
Pandey, D., & Pandey, P. (2014). Better English for better employment opportunities. *International Journal of Multidisciplinary Approaches and Studies*, *1*(4), 93–100.
Perry, A., Wiederhold, S., & Ackermann-Piek, D. (2014). How can skill mismatch be measured? New approaches with PIAAC. *Methods, Data, Analyses*, *8*(2), 38.
Sahin, H., & Kizilirmak, A. B. (2007). Determinants of duration of unemployment insurance benefits in Turkey. *Applied Economics Letters*, *14*(8), 611–615. https://doi.org/10.1080/13504850600592473
Segbenya, M., Oppong, N. Y., & Baafi-Frimpong, S. A. (2021). Effect of COVID-19 on the acquisition of employable skills among national service personnel in Ghana. *Journal of Work-Applied Management*, *13*(2), 215–225. https://doi.org/10.1108/JWAM-12-2020-0058
Tansel, A., & Tasci, H. M. (2004). Determinants of unemployment duration for men and women in Turkey. *SSRN Electronic Journal. Available at SSRN 512222*. https://doi.org/10.2139/ssrn.512222
Tulgan, B. (2015). *Bridging the soft skills gap: How to teach the missing basics to todays young talent*. John Wiley & Sons. https://doi.org/10.1002/9781119171409
World Bank. (2021). World Bank World Development Indicators Database. https://databank.worldbank.org/source/world-development-indicators