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How Useful is your Education for Work? Lessons from Graduates' Transition to Employment in Three African Countries

Laté A. Lawson^{1*}, Woulamé Oudjim^{2,4} and Stephen Acquah³

¹Education Sub Saharan Africa (ESSA), United Kingdom and Ghana. E-mail: late@essa-africa.org

²Education Sub Saharan Africa (ESSA), United Kingdom and Ghana. E-mail: woulame@essa-africa.org

³Education Sub Saharan Africa (ESSA), United Kingdom and Ghana. E-mail: stephen@essa-africa.org

⁴FaSEG-Université de Lomé, Togo.

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Abstract

Higher education for young people, including marginalised groups, is crucial for fostering equitable and sustainable development. Yet, in a context of youth bulge and youth employment crisis, education may not deliver on its promises, motivating this investigation into graduates' transition to employment. Drawing on recent data from Ghana, Kenya and Uganda, this study reports on graduates' opinions on the usefulness of their education or training for transitioning into the workforce, exploring the impact of various factors such as the quality of the educational system, age, gender, STEM education, and residence areas, among others. Our findings reveal that not all graduates perceive their education as highly beneficial for securing employment and excelling in their roles. The quality of the education system and gender are found to drive the perceived usefulness of education to transition into employment. Specifically, compared to their male counterparts, female graduates view their education as less beneficial for finding a job, while a higher-quality education system is associated with a more positive perception of its effectiveness in preparing graduates for the workforce. In light of these results, we advocate for policies that go beyond expanding access to higher education. We emphasize the urgent need to enhance the quality of tertiary education and training for African youth, as this plays a pivotal role in their transition into employment.

Keywords: Higher education, Transition to employment, Quality of education, Control function, Africa

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1. Introduction

Africa is home to one of the world's largest youth populations, projected to exceed 830 million by 2050, presenting both an opportunity and a challenge for the continent's development (United Nations, 2015).

* Corresponding author: Laté A. Lawson, Education Sub Saharan Africa (ESSA), United Kingdom and Ghana. E-mail: late@essa-africa.org

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However, this demographic dividend remains largely untapped, with two-thirds of non-student youth facing unemployment or vulnerable employment situations (AfDB, 2016). The disparity between job creation and youth entrants into the labour market further exacerbates this issue. For instance, according to AfDB (2016), only 3 million formal jobs are created yearly in Africa while 10 to 12 million youth enter the labour market. In this context, various questions emerge regarding graduates' employability: How do young graduates in Africa navigate their transition from education to employment? How useful is their education or the quality of the educational system for finding a job? This paper aims to address these questions by examining the views of African graduates about the role of education and skills training in facilitating successful transitions from education to employment.

Human capital theory underscores the importance of investing in skills training and education to drive economic growth and social progress (see e.g., Becker, 1994; Fitzsimons, 2017). In sub-Saharan Africa, significant efforts are made to expand access to education, resulting in high enrolment rates of 98%, 75%, and 10% in primary, secondary, and higher education, respectively, as of 2020 (WDI, 2022a, 2022b, 2022c). However, the effectiveness of these educational policies hinges on the extent to which graduates' skills and knowledge are valued in the labour market. Education is indeed an investment with the potential for high returns, but its benefits can only be fully realised when graduates are able to secure meaningful employment opportunities that align with their training.¹

Existing research has extensively explored the relationship between education and labour market outcomes, predominantly focusing on industrialized countries (see e.g., Griliches, 1977; Card and Krueger, 1992; Altonji et al., 2016; McGowan and Andrews, 2017). However, there are notable gaps in empirical studies examining the transition from higher education to employment, especially in developing settings such as sub-Saharan Africa, hereafter SSA. For instance, in the SSA context, (i) persisting discontinuities in the education-training-work continuum, are less investigated; (ii) graduates' perspectives are absent in existing assessments of the process of transitioning into employment; and (iii) the role of quality of the education (system) in the transition process is also somewhat disregarded. These gaps motivate investigations into the education-training-work continuum to inform policy interventions aimed at enhancing youth employability in the region.

Against this background, this article contributes to the existing literature by analysing graduates' transition from school to employment using primary micro-data we collected in Ghana, Kenya, and Uganda. Specifically, we focus on graduates' opinions on the usefulness of their education or training to transition into employment and their assessment of the role of the quality of the education they have undergone. In addition to reporting on graduates' perspectives on the usefulness of education, we investigated the causal link between the usefulness of education for work, the quality of the educational system and the preparedness for tertiary education. In so doing, individual characteristics such as gender, age, and area of residency (urban, rural, semi-urban) served as control variables.

Overall, the contribution of our study is twofold. Firstly, we leverage human capital theory and discussions about the education-training-work continuum and the youth employment crisis in Africa to report on graduates' views about the usefulness of their education to transition to employment. Secondly, this article proposes a framework for assessing the interconnection between the quality of the education system and the usefulness of education for work as experienced by graduates, exploring the role of gender, location, and fields of education. Among other things, regardless of gender, our results suggest that not all graduates find their training very useful for securing a job and for work delivery. Moreover, the quality of education is a significant predictor of the usefulness of education as perceived by graduates themselves.

The remainder of this paper is organised as follows. Section 2 reviews lessons learned from existing literature by targeting studies on the transition from school to work. Section 3 presents the data. Section 4 discusses our empirical framework. Section 5 presents the results of our analysis. Finally, in Section 6, we conduct a robustness check, and in Section 7, we discuss our results and draw some conclusions.

2. Some Lessons from Existing Research

This article explores the transition of recent graduates in SSA as they move from school to employment. It

¹ 'Youth bulge' is a situation where the highest shares of the total population are made up of youth (UN, 2018).

builds on the literature on the education-training-work continuum in developing settings. This Section focuses on the most relevant literature, deliberately excluding the extensive literature on the returns of education, as this may be less relevant for this work.

2.1. School-to-Work Transition in Africa: An Employment Crisis

School-to-work transition is traditionally known as the passage from school to employment and the adoption of the role of a worker. (see e.g., [Saks, 2018](#); [Schoon and Heckhausen, 2019](#)). The subject remains one of the most important concerns for decision-makers aiming to tackle the issue of youth unemployment. Theoretically, most social studies on the school-to-work transition are grounded in the Diamond-Mortensen-Pissarides job search and matching model (see e.g., [Mortensen and Pissarides, 1999](#); [Pissarides, 2000](#)). This model is a framework describing the formation of a working relationship between an unemployed worker and a firm. Researchers have expanded the initial model to account for phenomena specific to developing settings, such as the coexistence of a formal and informal sector and underemployment.

The empirical literature on the topic mainly discussed the determinants of the transition process and the employment crisis in developing settings. An employment crisis is characterised by youth unemployment, job-skills mismatch, and youth poverty trap, which arises when populations grow faster than new job creation. The issue has been researched by authors such as [Irwin et al. \(2018\)](#), [Sumberg et al. \(2020\)](#) and [Carreras et al. \(2021\)](#), where besides population, other potential sources of employment crisis have been investigated. In sub-Saharan Africa, the youth demographics, also known as 'youth bulge', is among the dominant narratives explaining the phenomenon ([United Nations, 2018](#)). Despite being Africa's greatest asset, the potential of the youth on the continent remains untapped due to unemployment and underemployment ([Sumberg et al., 2021](#); [AfDB, 2016](#)).

Existing evidence backs the youth demographics narratives of the employment crisis. First, while 10-12 million young people enter the labour market each year, only 3 million formal jobs are created over a year, resulting in youth unemployment as highlighted by [AfDB \(2016\)](#). Second, on labour market participation, research shows that unemployment among African youth is twice as high compared to adults ([Koira, 2015](#)). If this trend persists, by 2025, nearly half of the youth population, excluding students, will face unemployment and economic inactivity (see e.g., [AfDB, 2016](#)).

Besides the youth population, further explanations identified in the dominant narratives for the youth unemployment crisis include job-skills mismatch ([Irwin et al., 2018](#); [Carreras et al., 2021](#)). This argument states that there is a potential discrepancy between skills needed by African economies (skills sought by employers) and the ones brought by young people to the labour market, which has motivated interventions such as Technical and Vocational Education and Training (TVET) and entrepreneurship to address youth unemployment. In publications by [Brück et al. \(2016\)](#) and [Williams \(2016\)](#), youth unemployment crisis in poor settings can be linked to civil unrest, violence, and radicalisation.

2.2. Factors Affecting the Transition to Work

Transitioning from school to work is a crucial stage in a young graduate's career path. Consequently, prior research has highlighted the role of education and individual factors ([Calves et al., 2013](#); [Rankin and Roberts, 2011](#); [Boutin, 2013](#)), and gender ([Manacorda et al., 2017](#)), social networks ([Lassassi and Muller, 2013](#); [Nordman and Pasquier-Doumer, 2015](#)) and career services ([Dodd et al., 2021](#); [Asare et al., 2023](#)) in shaping the transition process.

Concerning individual factors, recent literature underscores the importance of qualifications in the transition process. In this, while [Assaad et al. \(2010\)](#) and [Boutin \(2013\)](#) provide evidence of a positive correlation between the level of education and graduates' job satisfaction in Egypt and Mali respectively, [Nilsson \(2019\)](#) argues that education is not always associated with shorter transition periods. The duration of the latter, however, depends on individual preferences such as higher expectations and reservation wages, as evidenced by [Rankin and Roberts \(2011\)](#) for South African youth. The role of fields of education has also been explored in developing settings. In China, for instance, the work by [Kong and Jiang \(2011\)](#) shows that graduates from engineering experience shorter transition periods, compared to law graduates. This echoes the analysis by [Jaunky and Khadaroo \(2007\)](#) in Mauritius, where social science graduates appear to experience relatively long transition periods.

Researchers have also delved into the role of gender in graduates' transition to the labour market. Findings from the International Labour Organisation (ILO) School-to-Work-Transition Survey (SWTS) reported by Matsumoto and Elder (2010) and ILO (2014) indicate that, compared to their male counterparts, female graduates face disadvantages, resulting in longer transition periods, whether to satisfactory employment or self-employment. The analysis by Boutin (2013) and Manacorda *et al.* (2017) reached similar conclusions, suggesting that being a woman is a strong predictor of the length of the transition, and even that women need twice as much time as their male counterparts to transition into employment.

Lastly, the significance of social networks has been explored and proven to be a crucial factor in the transition to the labour market since the network of social ties increases the likelihood of finding a job (see e.g., Sousounis and Lanot, 2018; Bramoullé and Saint-Paul, 2010). This is supported by arguments stating that during the job search process, graduates leverage social ties, including parents, employed friends, and contacts to find and facilitate a smoother transition into employment. In conclusion, while differences may be observed in the quality of the first paid jobs and/or in the length of the transition, existing research seems unambiguous about individual, socio-economic and gender-related factors affecting graduates' school-to-work transition.

2.3. The Role of Education Quality

Researchers largely investigated the correlation between the quality of education and labour market outcomes. However, there is a notable dearth of studies investigating the role of the quality of the education system in graduates' transition into employment.

Initially, measuring quality of education, which encompasses facets not entirely observable per se, appears to be quite challenging (McGuinness, 2003). Therefore, scholars such as Dale and Krueger (2002), Black *et al.* (2005) and Black and Smith (2006) highlight the need for indicators that combine several aspects. While Dale and Krueger (2002), for instance, used the selection criteria of colleges as a proxy for educational quality, Black *et al.* (2005) and Black and Smith (2006), cautioning against relying on a single indicator, proposed a quality index that considers various dimensions.

In recent works, it appears that since more capable students are selected by even more selective institutions, a positive link between earnings (achieved by graduates) and the quality of the institutions is less surprising. Such conclusions can be found in the studies, among others, by Chevalier (2014), Broecke (2012), Witteveen and Attewell (2017), Borgen (2014 and 2015) and Anelli (2020), where a myriad of empirical strategies, including regression with discontinuity, propensity score matching, and multi-level analysis are considered. On the other hand, given the selection bias, measurements of quality and potential non-linearity, obtaining unbiased estimates of the effect of quality is almost impossible. Moreover, it is fairly unknown whether the returns of educational quality persist over the different stages of a career (Klein, 2021). Overall, notwithstanding inconsistencies relating to the measurements of quality and the magnitude of its effect, existing works mostly concur that quality matters to graduates' labour market outcomes.² The question remains whether the same applies to the usefulness of education for finding a job as experienced by Africa recent graduates.

In conclusion, although employment challenges do not only affect youth, evidenced-based career interventions may help large numbers of students and recent graduates prepare for their transition into employment. In this, local research on youth employment as well as reports on the usefulness of education to transition into employment, as experienced by African graduates, as intended in this article, hold significant importance. They provide the basis for evidence-driven and tailored interventions aimed at addressing the needs of young graduates.

3. Data

3.1. Data Description: The Sample

To explore the drivers of the usefulness of education for finding a job and work delivery, as experienced by recent graduates themselves, we use primary data collected in Ghana, Kenya, and Uganda in 2021. For the data collection, Education Sub Saharan Africa (ESSA) has commissioned IPSOS-Ghana to conduct a survey

² Dale and Krueger (2002) is one of the few studies concluding for no-significant effects.

focusing on undergraduate and graduate students, recent graduates, and faculty members in the three countries under consideration.³ Initially, the data is collected to provide insight into young people’s uptake, understanding, and perspective on access to education, quality of education as well and the transition from school to work. The survey included 406 participants in Ghana, 202 in Kenya and 225 in Uganda. Table 1 describes the sample composition in Ghana, Kenya and Uganda.

Country	Respondents	Recent Graduates	Age 18-24	Age 25-29	More than 30
Ghana	406	122 (30%)	15.57%	53.28%	31.15%
Kenya	202	61 (30%)	21.31%	60.66%	18.03%
Uganda	225	85 (38%)	24.70%	67.06%	8.24%

Notes: The percentage relating to age groups are calculated using the sub-sample of graduates.

This work focuses on the sub-sample of recent graduates which represents 30%, 30% and 38% of total respondents in Ghana, Kenya and Uganda, respectively. This is justified by the argument that among the three groups considered, students, recent graduates and faculty members, the perspective of recent graduates is the most valuable for assessing school-to-work transition since they are in the process of transitioning or have recently transitioned from school to work. A breakdown by age group shows that most recent graduates in all three countries are between 25 and 29 years of age. However, in Ghana, there is a relatively large number of graduates aged 30 years and above (31.15%) compared to Kenya and Uganda where graduates over 30 years old represent 18% and 8%, respectively.

3.2. Usefulness of Education

As set out before, this paper is concerned with the school-to-work transition in sub-Saharan Africa. Specifically, it explores the usefulness of education for work as experienced and reported by recent graduates. To do so, we targeted responses to the survey questions, ‘Do you feel that the training you received in the past is useful in getting a job?’ and ‘Do you feel that the training you received in the past is useful for work delivery?’. Overall, the responses to these survey questions show that not all recent graduates think that their education is very useful for finding employment and for work delivery.

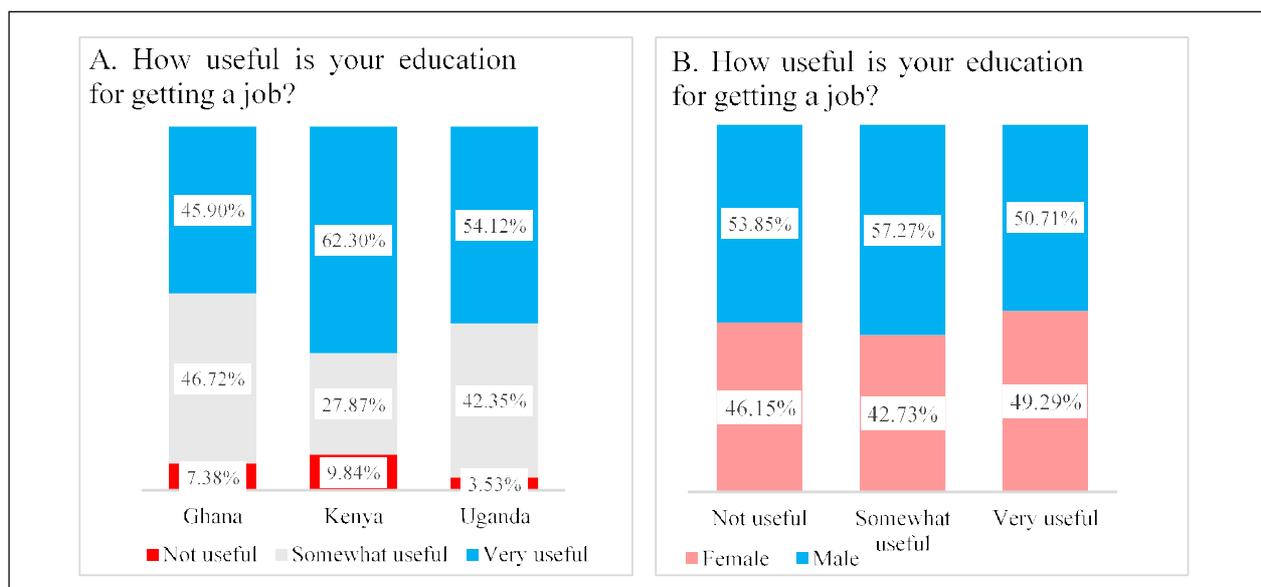


Figure 1: Usefulness of Education for Work

Notes: Only the sub-sample of graduates is used for this analysis and in the remainder of the paper.

³ IPSOS Group is a multinational market research and consulting firm with headquarters in Paris, France.

As reported in Figure 1, for a significant share of recent graduates, the usefulness of their education for work is quite mitigated. Specifically, for circa 54%, 38% and 46% of recent graduates from Ghana, Kenya and Uganda respectively, their education/training is only ‘Somewhat useful’ and ‘Not useful’ at all for finding a job. A similar observation is made when we consider the usefulness of education for work delivery, raising the following questions: what makes higher education useful for work in sub-Saharan Africa? Does the usefulness of education as perceived by recent graduates vary depending on their field of education, gender, age, and geographical location (urban vs. rural)?

From a gender perspective, no significant differences appear between the shares of female and male recent graduates on the selected modalities: ‘Very useful’, ‘Somewhat useful’ and ‘Not useful’ (Figure 1). Considering sub-samples of male and female graduates (see Figure 2), very similar distributions appear. Basically, 55% and 50% of female and male recent graduates, respectively, find that their education is ‘Very useful’ for getting a job. Based on these observations, there seems to be no clear gender difference in the school-to-work transition as experienced and reported by recent graduates in the examined countries.

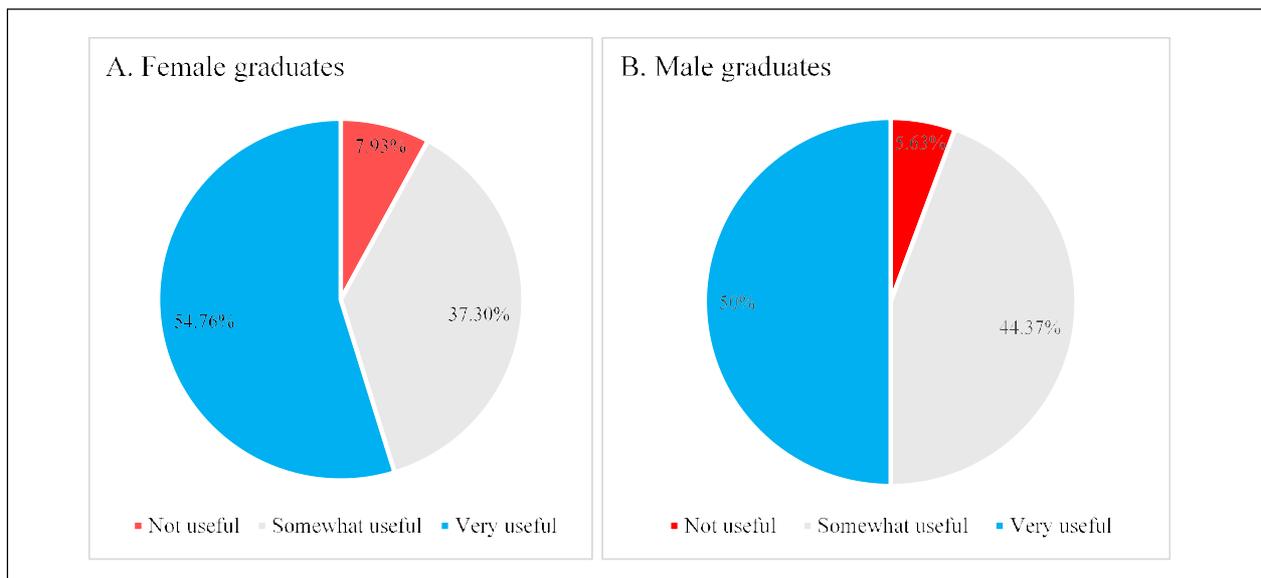


Figure 2: Usefulness of Education for Work: A Gender Perspective

3.3. The Explained Variables

To explore the usefulness of education for work as experienced by recent graduates, we consider responses to the survey question, ‘Do you feel that the training you received in the past is useful in getting a job?’.

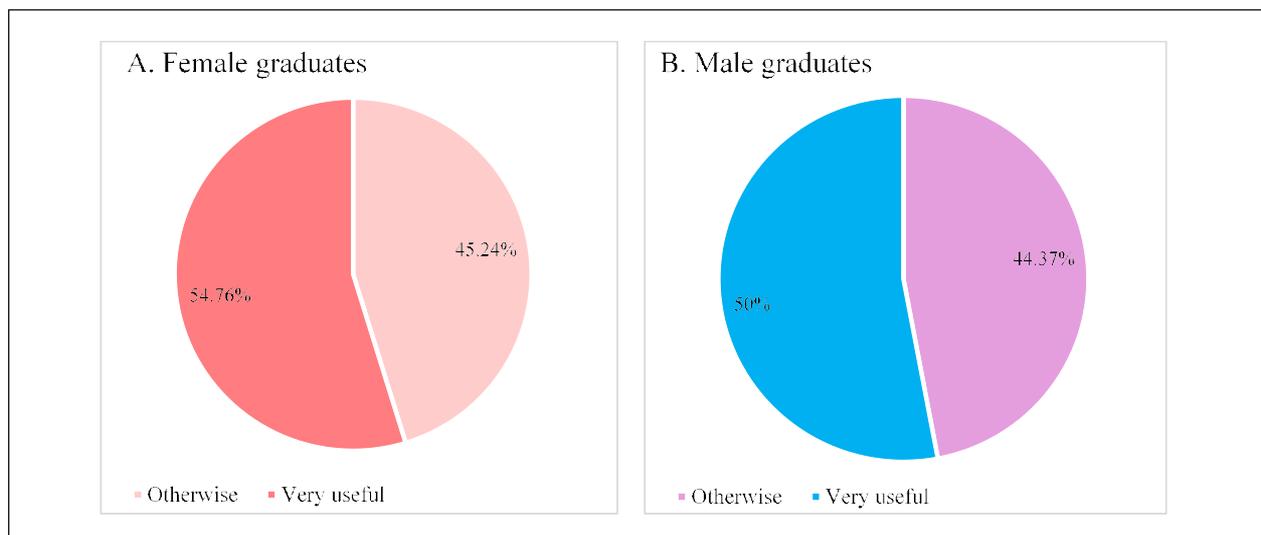


Figure 3: The Explained Variable: Usefulness of Education for Work

Using these, we created a new binary variable by recoding responses to the question as being ‘Very useful’ and ‘otherwise’, which will serve in the framework of regression analyses. We adopted the approach of a binary outcome for two obvious reasons. The first rationale pertains to the limited size of our sub-sample. Second, using a binary explained variable produces unambiguous and easily readable results. Based on Figures 1 and 2, it appears that across the three countries considered, 54.76% and 50% of female and male graduates respectively find their education to be very useful to finding a job. Figure 3 presents the gender distribution based on the response variable (the binary variable). Analysing the outcomes, ‘very useful’ and ‘otherwise’, it is noticeable that the sample is somewhat balanced, at least when seen through the gender lens.

3.4. The Explanatory Variables

Individual Characteristics of Respondents: The dataset includes individual characteristics such as the gender and age of respondents, in addition to the area of residence, assets, fields of study, and access to educational scholarship, among others. In addition to Table 1, which presents the demographic characteristics of the sub-sample, Table 2 shows that the average age of recent graduates is around 26-27 years.

Regarding gender, although the data collection process aimed at achieving a 50-50 male-female ratio, the sub-sample of recent graduates does not reflect that. Overall, 46% of respondents are female, as indicated by Table 2. Our hypothesis for considering the gender of respondents among explanatory variables implicitly implies that the usefulness of education as perceived by graduates may vary across genders. A similar argument applies to the residence areas of respondents. Concerning the latter, our data distinguishes between rural, semi-urban and urban areas. Moreover, the descriptive statistics show that 24% of respondents are graduates of Science, Technology, Engineering, and Mathematics (STEM), while 18% of graduates declared that they had a scholarship.

	Min	Median	Mean (%)	Std. Dev.	Max
Age	20	26	26.98	3.61	40
Quality of the educational system	1	3	3.15	1.29	5
Gender (Female = 1)	-	-	46		-
Scholarship (Yes = 1)	-	-	18		-
Student loan (Yes = 1)	-	-	11		-
STEM (Yes = 1)	-	-	24		-
Residence areas					
Rural	-	-	29%		-
Semi-Urban	-	-	35%		-
Urban	-	-	36%		-
Assets/Wealth score	-0.25	-0.6	0.0	0.23	1.08

Notes: Descriptive statistics combining both continuous and categorical variables. The mean stands for the percentage of people responding “Yes” to the corresponding question.

A Multi-Dimensional Indicator of Assets: The questionnaire also includes questions related to individual and household’s assets of respondents. Specifically, we listed a series of assets and asked graduates to select Yes or No depending on the presence of these assets in their household.

Table 3 presents the different assets and the share of respondents who declared owning the corresponding assets (or present in their household). Considering cars, for instance, 28% of respondents declare that there is a car in their household, while only 4.11% of households own multiple cars. Also, a landline phone is present only in 4.1% of graduates’ households. Exploiting these dichotomous variables, we construct an asset indicator following the literature on non-monetary poverty.

Mobile Phone	Colour TV	Music System	Gas Cooker
92.16%	84.33%	82.09%	72.01%
Fridge/deep freezer	Use charcoal/wood	Video system	Electric cooker
67.54%	66.04%	37.31%	34.70%
Cable satellite	Car	Air conditioning unit	Kerosene stove
31.72%	28.36%	24.63%	22.01%
Household help	Gas and electric stove	Washing machine	Black-white TV
14.93%	14.18%	13.43%	6.72%
Personal driver	Telephone (landline)	Multiple cars	-
5.60%	4.10%	4.10%	-

Notes: The number of respondents is 268. The percentages correspond to the share of respondents reporting “Yes” to the corresponding assets.

As poverty is a multi-faceted phenomenon, existing research has developed several approaches to assess it (see e.g., Asselin, 2009; Alkire and Santos, 2013). In the nonmonetary paradigm, different schools of thought can be identified, among others, the basic needs school (Streeten, 1979) and the capability school (Sen, 1995). In short, while the basic needs school considers the minimum material resources necessary to measure poverty or well-being, the capabilities approach characterises poverty as a deprivation of capabilities, understood as a lack of multiple forms of freedom that people appreciate and have reason to value. Empirical applications of these approaches consist of considering several dimensions of well-being and computing a composite non-monetary indicator of poverty (see e.g., Ambapour, 2020; Djahini-Afawoubo et al., 2023).

Our study taps into this literature to construct an indicator of assets and uses the latter as a single explanatory variable, instead of a myriad of binary variables. In doing so, we aim at controlling for the family background of respondents. Concretely, we use a (2-step) Multiple Correspondence Analysis (MCA), which seems to be the natural approach for computing composite indicators in the presence of a set of binary variables (Asselin, 2009; Ambapour, 2020). The first MCA helped us understand the contribution of the different variables to the total inertia, while the results of the second MCA are used to compute the weighted score (indicator of assets) by combining the values of the first five composite dimensions.

4. Methodological Approach

4.1. The Linear Probability Model

To assess the drivers of the usefulness of education as perceived by graduates, we adopt a methodology that corresponds to the nature of the explained variable y , which equals 1 when education is found to be “very useful”, and 0 otherwise, as introduced before. In such a context, textbooks of econometrics suggest applying a probability modelling: a logistic regression.⁴ In the presence of a set of explanatory variables, x_1, x_2, \dots, x_k (say vector X), and assuming the zero conditional mean assumption holds, $E(\varepsilon / X) = 0$ (with ε the error term), the probability of success, $(P(y = 1 | X))$, as noted by Wooldridge (2013, p.239), the Linear Probability Model can be written as:

$$P(y = 1 | X) \equiv E(y | X) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k \quad \dots(1)$$

The parameters’ estimation procedure for a Linear Probability Model relies on the maximum likelihood techniques, a comprehensive description of which can be found in textbooks of econometrics, for instance, Greene (2003, p.638) and Wooldridge (2013, p.239). It is crucial to remember that this model explains the usefulness of education to transition into employment as reported by recent graduates by, among others, their gender and age, their field of education, as well as their views about the quality of the educational system.

⁴ We are aware, as noted by Greene (2003, p.638), that both Logit and Probit models can be used in this context and our choice of a logistic distribution is more based on practicality than theoretical considerations.

The model as intended so far may suffer from endogeneity issues. For instance, one may imagine that the quality of the educational system as rated by recent graduate reversely depends on their experience in transitioning from school to work. Hence, graduates may rate the educational system are very good because they successfully or easily transitioned into employment, in which case they will also rate their education or training as very useful in finding a job. This, indeed, may cause reverse causality (an endogeneity issue), leading to biased parameter estimates.

4.2. Addressing Endogeneity

A novel approach to deal with endogeneity in probability models uses the Control Function Approach (CFA), as introduced by Lee (2007) and used in Wooldridge (2015) and Lawson, Nguyen-Van (2020). Let us assume in the regression model (1) that x_k is the endogenous regressor causing reverse causality, and that Z_k is an excluded instrumental variable. The CFA to endogeneity issues proposes a first-stage regression, the residuals of which are used as an additional explanatory variable in Equation (1). The first-stage regression is:

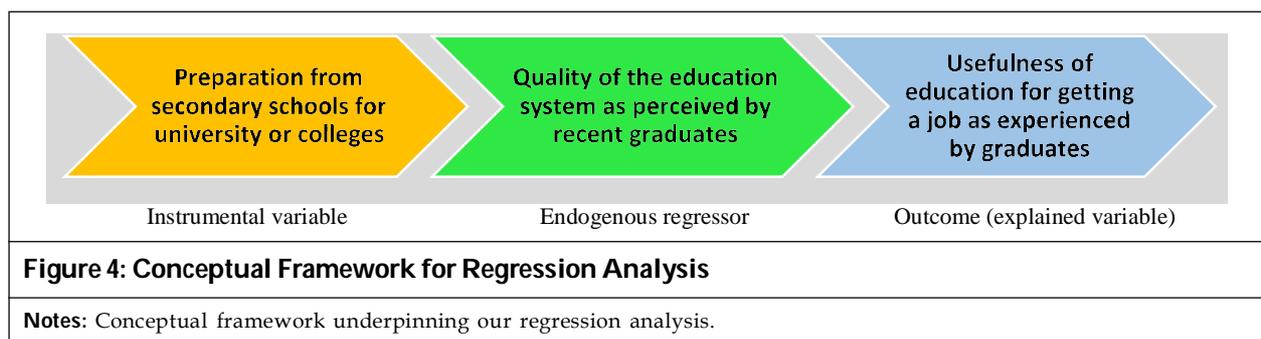
$$x_k = \alpha_0 + \alpha_1 x_1 + \alpha_2 x_2 + \dots + a_k Z_k + \mu \tag{2}$$

where μ , the error terms are supposed to be $\mu_i | x_1, x_2, \dots, Z_k \sim N(0, \sigma^2)$. After estimating the parameters of Equation (2), the predicted residuals will serve as an explanatory variable in Equation (1), which becomes:

$$P(y = 1 | X) \equiv E(y | X) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k + \beta_u \hat{\mu} \tag{3}$$

In our context, where we suspect the perceived ‘quality of the educational system’ as a potential source of endogeneity issues, we propose to use as an excluded instrumental variable the graduates’ response to the question: ‘How did secondary school education prepare you for university or college?’. Below is an outline of our conceptual framework, as it depicts the interconnection between the instrumental variable, the endogenous regressor and the explained variable. Briefly, this indicates that a good preparation from secondary school paves the way to a high-quality tertiary education system, which drives the usefulness of education to find employment.

Our rationale for using such an instrumental variable, namely the preparation received from secondary schools for university or colleges, is grounded in the idea that the latter is more closely associated with, and mirrors, the quality of the educational system, compared to the usefulness of education to transition into employment.



5. Results

The outputs of our data analysis reported in Table 4 show very interesting results regarding the usefulness of education in finding a job, as experienced by recent graduates. Three main specifications have been used for both the first and second-stage regressions, where control variables have been subsequently added. Observing the information criteria (F-Statistic, Adjusted R², Log Likelihood), the third specification appears to be the one with the highest predictive power. Therefore, the interpretation of results is based on specification 3.

The results of the first-stage regression (spec. 3) indicate that our instrumental variable, the preparedness for university, perfectly serves its purpose since it is statistically significant. This shows that our excluded instrument is valid in addressing the endogeneity issues related to the presence of ‘quality of the educational system’ among explanatory variables. Given this result, the residuals of the first-stage regression can be used in the second-stage regression, as prescribed by the control function approach.

Regarding the second stage regression, it also supports the validity of our approach in addressing endogeneity issues since the residuals of the first stage are statistically significant, as described in Wooldridge (2015). Moreover, based on the different parameter estimates, it is obvious that the model is globally significant. Finally, the result interpretation will discuss our main hypothesis about the interconnection between the usefulness of education to find a job and the quality of the educational system, in addition to the role of gender, age and field of study.

Quality of Education: The quality of the education system is linked to the usefulness of education in finding a job. This positive link is robust throughout our different specifications, and by controlling for the role of student finances, country effects and area of residence (urban, semi-urban and rural), among others. This outcome demonstrates that the quality of the education system plays a significant role in the usefulness of education for transitioning into employment. This aligns with the findings in the existing literature on the benefits of quality education, as documented by Anelli (2020) and Klein (2021), which also establishes a positive correlation between the quality of education and graduates' earnings. Based on this, we can argue that the quality of the educational system, as perceived by recent graduates themselves, significantly influences graduates' transition into a decent job in the three countries considered.

Answering our research question, how do graduates navigate their transition into employment, our analysis so far establishes that for almost 50% of graduates, education is very useful for finding a job. Moreover, results reported in Table 4 establish that the better the quality of the educational system, the more useful education is for finding a job. Besides the quality of the educational system, characteristics such as gender, fields of education and age have been considered.

Gender: Existing research also demonstrates that gender influences the transition to work. Also, it is stated that, compared to their male counterparts, female graduates are generally disadvantaged, and experience longer transition periods (Boutin, 2013; Manacorda et al., 2017). This has motivated controlling for the effects of gender in our analysis. Our result shows that gender is negatively linked to the usefulness of education in finding a job. However, the latter interconnection is not statistically significant as for the other fields of education compared to STEM. This implies that, as observed previously in Figures 1 and 2, male and female graduates share similar perspectives on the usefulness of education to transition into employment.

Girls in STEM: The interaction effect of being a female graduate (Female = 1, Male = 0) and a graduate from STEM (STEM = 1, others = 0) shows very interesting results. Concretely, compared to their male counterparts, being a female graduate from STEM is negatively linked to the usefulness of higher education to transition into employment as perceived by graduates. The latter negative correlation supports narratives stating that female graduates are disadvantaged in the process of transitioning into employment, and this appears to be the case for female graduates of STEM.

Age: Research indicates that the age of a graduate is a predictor of labour market outcomes (Mare et al., 1984; Harris et al., 1996), and therefore affects her transition into employment. Our results suggest that age plays a non-linear role in the transition to employment as it is negatively linked to the explained variable while its quadratic form shows a positive relationship. Specifically, this implies that contrary to younger graduates for whom education is less useful to find a job, older graduates report their education to be very useful.

Other Characteristics: In addition to these three characteristics, it is observed that the economic status of graduates, proxied by the indicator (score) of assets, is not statistically significant. The same applies to country and residence areas control variables, indicating that the usefulness of education in the transition to employment as reported by graduates does not show discrepancies related to these phenomena. Also, having access to educational scholarship (Yes = 1, No = 0) does not seem to ease graduates' transition into employment. This implies that whether they access educational scholarship during their training or not, graduates share the same views about the usefulness of education to transition into employment.

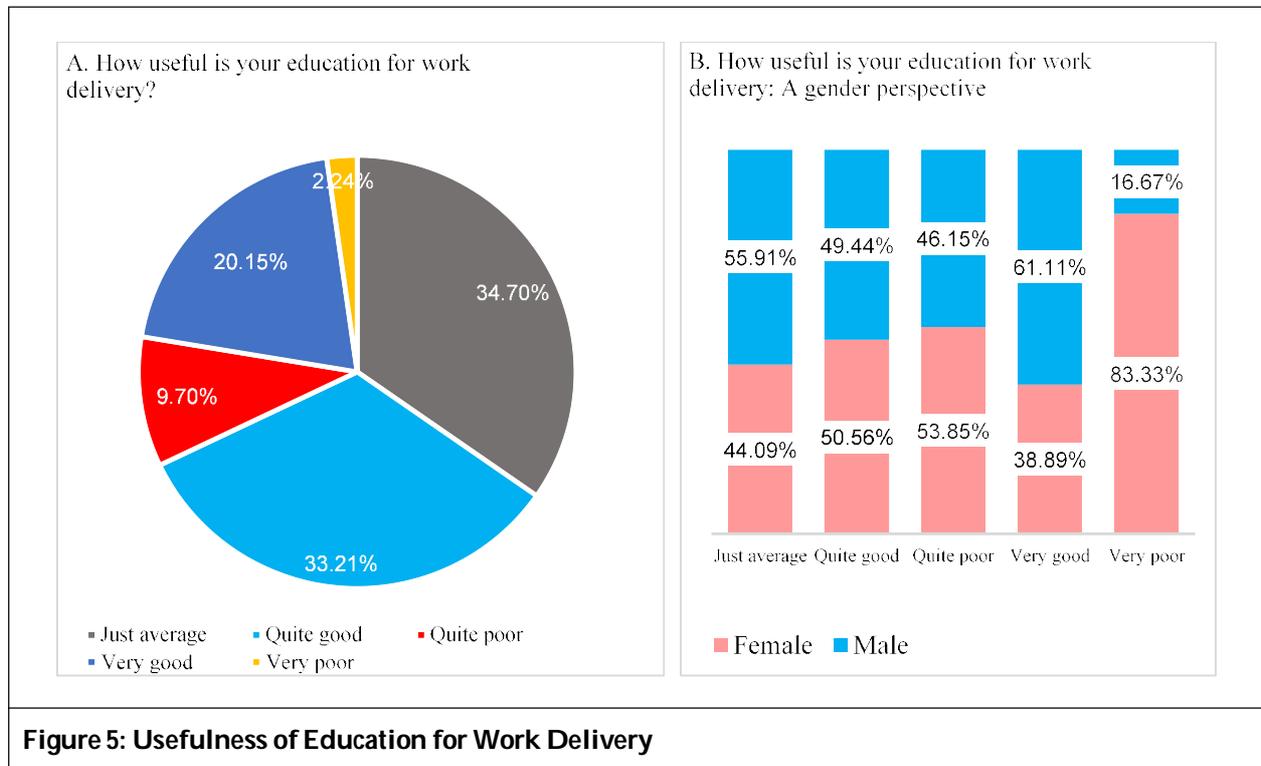
Our regression analysis has revealed some very interesting results regarding the factors driving the usefulness of education to transition into employment as perceived by graduates. Next, we check our initial results for robustness considering the three characteristics of interest: 'quality of the educational system', 'gender' and 'age'.

Table 4: Results of Analysing the Usefulness of Education			
	Results of Second-Stage Regression		
Dep. Variable: How useful is your education for finding a job			
	(spec. 1)	(spec. 2)	(spec. 3)
Quality of ed. system		2.222***(0.484)	2.140***(0.466)
Age	2.238***(0.464)	-0.169**(0.078)	-0.187**(0.080)
Age squared		0.001**(0.001)	0.001**(0.001)
Female (base = Male)		-0.162(0.354)	-0.125(0.351)
Factor (STEM) 1		0.233(0.404)	0.343(0.404)
Female in STEM (Yes)		-1.838**(0.824)	-1.959**(0.831)
Wealth score			-0.371(0.783)
Access to scholarship (Yes)			-1.217***(0.457)
Access to student Loan (Yes)			-0.615(0.511)
Residence Area			
Semi-Urban (base = Rural)	0.348(0.361)	0.493(0.377)	0.408(0.383)
Urban (base = Rural)	0.662(0.420)	0.717(0.442)	0.658(0.444)
Country			
Kenya (base = Ghana)	-0.041(0.393)	-0.154(0.417)	0.178(0.458)
Uganda (base = Ghana)	0.131(0.332)	0.007(0.347)	0.161(0.363)
Constant			-2.845(1.966)
Residuals of 1 st stage	-7.358***(1.568)	-3.634*(2.002)	
Residuals of 1 st stage	-1.933***(0.465)	-1.916***(0.483)	-1.822***(0.464)
Residuals of 1 st stage			
Observations	250	250	250
Log Likelihood	-150.593	-147.067	-145.718
Akaike Inf. Crit.	315.187	318.134	321.436
Chi-square (P-value)	43.785(8.1e-08)	50.838(4.4e-07)	53.536(1.5e-06)
Results of First-Stage Regression			
Quality of the educational system (as perceived by graduates)			
Preparation from high school	0.328***(0.073)	0.322***(0.073)	0.338***(0.073)
Constant	1.919***(0.356)	0.794(1.008)	0.534(1.009)
Included instruments	✓	✓	✓
Observations	250	250	250
Adjusted R ²	0.115	0.151	0.176
F-statistic	6.322***(244)	4.255***(239)	3.871***(236)
Notes: *, **, and *** respectively stand for significance levels at 10, 5 and 1%. Logistic regression model with control function approach. Bootstrap standard errors are in parentheses. Extended results for the first-stage regressions are presented in the appendix. As instrumental variable for the perceived 'quality of the educational system', we use how graduates rate the preparation provided by secondary school for higher education. STEM = Science, Technology, Engineering, and Mathematics.			

6. Robustness Analysis: Usefulness of Education for Work Delivery

To check the robustness of our first results related to the role of quality education, gender and age in the usefulness of education for work as experienced by graduates, we consider a different indicator. Indeed, our survey questions also ask graduates the following: 'How useful/good is your education for work delivery?' Responses to this question on a 5-point Likert scale range from 1 to 5, where 1 is 'very poor' and 5 is the highest score standing for 'very good'.

Figure 5 shows the distribution of responses to the question related to the usefulness of education for work delivery. Observing the data, for most graduates, the education and training they received is just average for work delivery (34.7%). This is followed by a significant proportion of graduates (33.2%) reporting that their training is quite good. Interestingly, as before, there is a remarkable group indicating that their education is poor ('Very poor' and 'Quite poor') for work delivery. From a gender perspective, Figure 5B, it is noted that male and female graduates report different opinions on the usefulness of education for work delivery.



Using this new explained variable (5-point scaling) and adopting the same conceptual framework as before, we posit that if our initial results relating to the role of the quality of the education system, age and gender are robust, this second analysis should deliver very comparable results. Table 5 presents the results of our robustness analysis. Overall, as before, the model holds statistically, since the F-Statistic is significant with a fair predictive power. As previously, we base our interpretations on specification 3 as it shows the highest Adjusted R^2 .

Considering the quality of the educational system, the results of this robustness analysis indicate that it is a significant predictor of the usefulness of education for work whether this concerns the transition into employment or work delivery. Based on this outcome, we conclude that our initial comments on the role of the quality of the education system in the transition to employment are valid.

Regarding gender, while its negative effect was not statistically significant in our initial analysis, this second analysis shows a significant negative effect of gender. The latter resonates with Figure 5B, where different opinions are observed for male and female graduates in response to the question about the usefulness of education for work delivery. This result implies that, compared to male graduates, female graduates find their education or training less useful for work delivery. Once again, our result resonates with existing literature on gender disparities in the transition to work. Moreover, the interaction effect of being a female and a STEM graduate shows a negative correlation, as before, but lost its statistical significance.

Our first result also indicates that the age of graduates plays a crucial role in their transition into employment. Using the new indicator of the usefulness of education, we find results corroborating our initial analysis. As before, age shows a negative sign while its quadratic term shows a positive effect supporting our initial conclusions about non-linearity in the role of age.

Besides the main characteristics, our robustness analysis also controls for country effects, residence areas, assets score and indicators of student finances, namely access to student loans and educational scholarships.

Table 5: Results of Robustness Analysis Using a Different Response Variable			
Dep. Variable: How useful is your education for work delivery?			
	Spec. 1	Spec. 2	Spec. 3
Preparation from high school	0.784***(0.163)	0.765***(0.168)	0.720***(0.160)
Age		-0.060*(0.031)	-0.068**(0.031)
Age squared		0.005*(0.003)	0.001**(0.0003)
Female (Yes)		-0.475*** (0.145)	-0.463*** (0.143)
STEM (Yes)		-0.260(0.168)	-0.223(0.166)
Female in STEM (Yes)		-0.228(0.319)	-0.264(0.320)
Wealth score			-0.061(0.315)
Access to ed. scholarship (Yes)			-0.494*** (0.173)
Access to student loan (Yes)			-0.315(0.204)
Residence area (base = Rural)			
Semi-urban	-0.062(0.149)	0.040(0.154)	-0.003(0.155)
Urban	0.275(0.173)	0.301*(0.179)	0.267(0.178)
Country (base = Ghana)			
Kenya	0.070(0.159)	0.060(0.167)	0.222(0.180)
Uganda	-0.259*(0.138)	-0.266*(0.143)	-0.197(0.148)
Constant	1.079*(0.554)	2.683*** (0.810)	3.064*** (0.789)
Residuals of 1 st stage	-0.641*** (0.169)		
Residuals of 1 st stage		-0.607*** (0.174)	
Residuals of 1 st stage			-0.555*** (0.167)
Observations	250	250	250
Adjusted R ²	0.151	0.178	0.195
F-Statistic	7.217***	4.688***	4.059***

Notes: *, **, and *** respectively stand for significance levels at 10, 5 and 1%. Linear regression model with control function approach. Bootstrap standard errors are in parentheses. Extended results for the first-stage regressions are presented in the appendix (see Table 6). As instrumental variable for the perceived 'quality of the educational system', we use how graduates rate the preparation provided by secondary school for higher education. STEM = Science, Technology, Engineering, and Mathematics.

Regarding the latter, the results support our initial assessment. As before, the estimated parameter shows a significant negative relationship. This means that accessing a scholarship during education or the training process is not a guarantee for an easy transition into employment or work delivery.

Overall, this robustness check has produced results largely corroborating our initial discussions regarding the crucial role of the quality of the educational system in fostering graduates' transition into employment. Moreover, this analysis has validated existing evidence implying that, compared to males, female graduates are largely disadvantaged in the transition into employment, as graduate opinion on the topic reflect the same.

7. Discussion

This study probes to understand young graduates' transition into employment using data collected in three African countries, namely Ghana, Kenya and Uganda. Initial data manipulations by restricting the sample to individuals who reported on the usefulness of education for getting a job and for work delivery have reduced the sample size to 268 recent graduates. The data indicates that for more than 50% of tertiary education graduates their training is very useful for getting a job. Moreover, our analytic results show that quality

education is a significant predictor of the usefulness of education for work as experienced by graduates. However, some elements of our analysis deserve brief discussions.

7.1. Indicators of Quality and Usefulness of Education

Existing research on the quality of the educational system and labour market outcomes reveals that measuring the quality of education is challenging, and researchers rely on various approaches (see e.g., [McGuinness, 2003](#); [Dale and Krueger, 2002](#); [Black and Smith, 2006](#)). In the context of our study, we rely on a quality measure as reported by graduates themselves. Although this may not be the perfect way of proceeding, it ensures variability across individuals, as to the usefulness of education to transition into employment. Regarding the latter factor, responses to both questions, 'Do you feel the training you received in the past is useful in getting a job?' and 'Do you feel the training you received in the past is useful for work delivery?', show variabilities among individuals. This is because graduates come from different institutions, and fields of study, and have distinct experiences in navigating the higher education system in their respective countries and institutions. Therefore, one may not expect the measures of quality and of the usefulness of education for work to remain constant across individuals. Furthermore, computing a different quality indicator that satisfies the condition of variability across individuals and countries is virtually impossible with our actual data, justifying the use of graduates' perspectives on the topic.

7.2. Missing Variables and Endogeneity

Our data collection and analysis might overlook some measurable and non-measurable explanatory variables, among others, the fixed effects for universities and colleges and indicators of graduates' network and family social ties which likely play a crucial role in their transition process into employment. Ignoring these characteristics in our analysis may also cause endogeneity due to measurement errors and missing variables.

These observations justify our choice of using a Control Function Approach (CFA), contrary to a standard two-stage regression method which, after the first-stage regression, uses the predicted value of the endogenous regressor. The CFA, however, by using the residuals of the first-stage regression as an additional explanatory variable in the second-stage, captures the effects of non-measurable and missing variables as well (see e.g., [Lee, 2007](#); [Wooldridge, 2015](#)). Moreover, the estimated parameter of the residuals is statistically significant. Consequently, we can argue that our analysis has dealt well with endogeneity issues.

8. Conclusion

This paper contributes to existing literature on graduates' transition into employment by using data collected in Ghana, Kenya and Uganda. The scholarly knowledge on the topic has discussed the youth bulge and the employment crisis in African countries. In contexts where 10 to 12 million youth enter the labour market each year but only around 3 million formal jobs are created yearly, questions surrounding graduates' transition to work are of crucial importance to resorb youth under- and un-employment in Africa. Our analysis draws on human capital theory, contextual discussions about the education-training-work-continuum, and primary data to empirically investigate the usefulness of education in the transition to employment.

Our dataset, among others, includes indicators of the age of graduates, their gender, their opinion about the quality of their education as well as the usefulness of the education or training they received for work. A descriptive analysis of the latter indicator shows that for a substantial share of graduates, the education or training they received is not very useful for finding a job as for work delivery. These responses analysed through the gender lens show that almost equal shares of male and female graduates report the same views.

A deeper inquiry into the drivers of such perspectives on the usefulness of education for work revealed the crucial role played by the quality of the educational system. On this, the results of our regression suggest that the better the quality of the educational system, the more useful is education for transitioning into employment. The latter result aligns with existing literature and emphasises the importance of quality education for work delivery. In addition, the age and gender of graduates appear to affect their transition into employment. For instance, the outcomes of our analysis suggest that, compared to their male counterparts, most female graduates that their education not very useful for work delivery. Also, compared to males, female STEM graduates find their training less useful for getting a job.

In terms of policy implications, this study calls for further efforts to improve the quality of the education system and training given to African youth. Training students in fields and providing them with skills that match the labour market's needs will improve the usefulness of education for finding employment and for work delivery. This is crucial as it will ease and shorten their transition into employment.

Author Contributions

All authors contributed equally to this manuscript.

Conflict of Interest

The authors declare no conflict of interest.

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Appendix

Dep. Variable: Dependent variable:Quality of the educational system as perceived by graduates			
Preparation from high school	0.328***(0.073)	0.322***(0.073)	0.338***(0.073)
Age		0.042(0.042)	0.049(0.042)
Age squared		-0.0002(0.0003)	-0.0003(0.0003)
Female (base = Male)		0.298(0.183)	0.277(0.182)
STEM (Yes)		0.209(0.221)	0.163(0.220)
Female in STEM (Yes)		0.343(0.425)	0.421(0.423)
Wealth score			0.566(0.414)
Access to ed. scholarship (Yes)			0.484**(0.215)
Access to student loan (Yes)			0.018(0.275)
Residenc Area (base = Rural)			
Semi-urban	-0.027(0.202)	-0.142(0.204)	-0.135(0.205)
Urban	-0.465**(0.203)	-0.517**(0.203)	-0.535***(0.202)
Country (base = Ghana) Kenya	0.309(0.202)	0.378*(0.204)	0.372*(0.224)
Uganda	0.090(0.186)	0.150(0.191)	0.131(0.198)
Constant	1.919***(0.356)	0.794(1.008)	0.534(1.009)
Observations	250	250	250
Adjusted R ²	0.115	0.151	0.176
F-statistic	6.322***(244)	4.255***(239)	3.871***(236)

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