

Sub-Sahara Africa's Higher Education: Financing, Growth, and Employment

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Abstract

Although higher education plays a vital role in the socio-economic development of Sub-Saharan Africa, enrollment in universities in the region is unexpectedly low compared to other regions. However, Sub-Saharan African countries have made strides in increasing access to higher education amidst constraints and challenges. The efforts have led to increases in enrollment and what many countries did not anticipate is the increase in unemployment from the greater output of students. In this study, we use panel data from eleven Sub-Saharan African countries for 2000-2018 to analyze the relationship between higher education and unemployment. A panel fixed effect model was estimated, and the results indicate that unemployment has a negative and significant effect on higher enrollment. Besides, higher education enrollment has a significant but negative effect on employment. Per capita income significantly affects enrollment into higher education and has the expected sign. The estimates further show that government expenditures on higher education play a significant role in the demand for places in higher education.

Keywords: enrollment rate, higher education, unemployment, Fixed Effect Model, hausman test

1. Introduction

African countries have sharply expanded higher education since independence in the 1960s. Immediately after independence, stress was put on human resource formation to develop and modernize various economy sectors. Higher education (tertiary education) was viewed as a tool for development - producing a more significant number of graduates to create a critical mass of skills and experts for economic growth and development (Teferra, 2013; Gyimah-Brempong, Paddison, & Mitiku, 2006). The rationale for considerable investments in higher education across different African countries has been that higher education would continue to contribute to output growth and economic development, besides the personal economic and non-economic benefits.

Higher education builds employment capacity through human capital formation (Amin, 2005; Teferra, 2013). Achieving sustainable growth in Sub Saharan Africa (SSA) requires that the region's economies develop workforce skills that can harness scarce resources for higher economic productivity (World Bank, 2010). Thus, investing in higher education is key to providing individuals with the skills and knowledge to sustain economic transformation. Research has shown that higher education significantly contributes to economic growth and development. Oketch, McCowan, & Schendel (2014) provided a rigorous review of previous studies on the impact of tertiary education on development and reported a positive impact of tertiary education on graduates' capabilities. Several other studies have shown strong evidence of higher education's positive impact on productivity and economic growth (Keller, 2006; Gyimah-Brempong, Paddison, & Mitiku, 2006; Amin, 2005; Fonkeng and Ntembe, 2009; Ganegodage & Rambaldi, 2011).

Higher education should satisfy the labor market demands, assuming that one of the roles of higher education is in broadening and deepening the labor market, creating jobs, and growing Sub Saharan African economies. The benefits from investment in African higher education are significant for young people, society, and the economy: great employment opportunities, a better quality of life, improved economic growth. In Africa's higher education, returns to investments are the world's highest, 21 percent (Sonia & Rose, 2016). Studies show that about 0.39 percentage points can raise by one year of higher education, which could generate about a 12 percent rise in GDP (Valero and Reenen, 2018).

However, higher education in Sub-Saharan Africa is under-funded despite the enrollment growth that outpaces the financing capacities (Experton & Fevre, 2010). The decline in government-dominated funding of higher education

demonstrates how this financing source is unsustainable in the medium to long-term (Teffer, 2013). Government spending in most countries is overstretched and is insufficient to respond to the surge in demand for access to higher education in these countries. The current levels of spending on higher education are insufficient to provide the desired level of quality in instruction that provides graduates with the required skills to find jobs and thrive in the labor market (Experton & Fevre, 2010; Johnstone, 2015; Darvas et al., 2017). The problem of shortages in funding shortages in SSA is endemic, and countries of the region need to undertake financial management reforms that focus on the diversification of funding sources that are sustainable (Teferra, 2013).

There is an endless quest for higher education, yet little or no literature on how higher education output transforms the economy, especially in the graduates' employability in Sub Saharan Africa. Despite the role of Higher education in creating employment opportunities, evidence on the impact of higher education on job creation in Sub Saharan Africa is limited. The current study examines the relationship between the demand for higher education and unemployment. The research seeks to determine whether the high unemployment rate among higher education graduates affect the demand (demand for enrollment) for higher education in SSA. Hence, we hypothesize that the higher number of unemployed graduates negatively affects higher education enrollment in SSA. We draw on the framework developed by Oketch, McCowan, & Schendel (2014, p. 10), to develop a model for estimating the relationships between the demand for higher education and unemployment and income.

2. Growth in Higher Education in Sub-Sahara Africa

Growth in higher education enrollment depends, among other things, on demographic factors, the high growth rate in secondary and primary education systems which are the key inputs in the higher education system (Maigaard and Mingat, 2012; Darvas et al., 2017). Enrollment considerations are essential because Sub-Saharan Africa has a youthful population, with a population of 1.1 billion, and about 70 percent of the population is under 30 years old (PopulationPyramid.net, 2019). Furthermore, a rise in public demand for higher education tends to be associated with factors such as income and economic growth, increase in global competitiveness, progress in healthy and stable political institutions, upsurge in private demand as opportunities to good jobs, and improvement in social justice (Oketch, McCowan, & Schendel, 2014; Mohamedbhai 2007).

Table 1 shows tertiary education indicators and per capita income for selected years beginning from 2010. Although differences may exist among countries, the information depicts, on average, the situation in the region. As a percentage of total education expenditures for Sub-Saharan Africa was 19.7% in 2010, higher education expenditures declined to 18.4 % in 2012 before rising to an estimated 23.2 % in 2018. The rate of unemployment (Note 1) is unexpectedly low compared to the actual number of graduates that are unemployed in the region. The GDP per capita in 2010 constant US\$ rose from \$1589 in 2010 to \$1705 in 2014 before declining slightly to \$1675 in 2018. The selected indicators may not improve in the coming year, given the current disastrous economic situation caused by the health pandemic (COVID-19).

Table 1. Selected Higher Education Data for Sub Saharan Africa: Selected Years

Country	2010	2012	2014	2016	2018
Tertiary education expenditures (% of government expenditures on education)	19.7	18.4	21.0	21.8	23.2*
GDP per capita (Constant 2010 US\$)	1589	1638	1705	1682	1675
School Enrollment, tertiary (% gross)	7.9	8.6	9.0	9.2	9.4
Unemployment (% of the total labor force)	5.9	5.8	5.7	6.1	6.2

Source: World Bank World Development Indicators 2020

The indicators shown in Table 2 are essential for investigating the relationship between unemployment and higher education enrollment. However, the indicators are only for 2017. The unemployment rate in South Africa (Note 2) might be surprising, but this may suggest that the other countries in the sample do not have adequate reporting instruments and the difficulties of capturing unemployment in these countries. Hence, the estimates may not show the accurate figures of the situation. Mauritius, Cape Verde, and South Africa have high per capita income, which can significantly affect these countries' enrollment rates.

Table 2. Selected Education Indicators for 10 Sub Saharan African Countries, 2017

Country	Unemployment rate	Gross Enrollment rates	GDP per capita	Higher Edu Exp. % of the total	Educ. Exp. % GDP
Benin	2.2	16.7	862	20.2	3.8
Ghana	6.6	16.2	1738	17.7	4.5
Mali	9.4	6.2	764	22.9	3.7
Cote d'Ivoire	2.5	7.82	1616.2	24.6	4.36
Mauritius	6.8	38.8	10199.5	5.9	5.02
Senegal	6.4	11.2	1489	32.2	6.2
South Africa	27.3	20.6	7488	14.4	6.1
Togo	1.7	12.9	657	18.8	4.9
Guinea	3.6	15.4	893	36.7	2.2
The Gambia	8.9	5.7	501	2.1	4.2
Cape Verde	12.2	21.7	3631	17.2	5.2

Source: World Bank World Development Indicators 2018

The World Bank 2017 report on Sub-Saharan Africa shows rising demand and supply of higher education, which also demonstrates inequality in access and economic returns depending on the income groups. One notable aspect is that SSA experienced the fastest growth in enrollment rate for the period 1970-2013. However, SSA's higher education enrollment rate steadily remained around 4.0 percent and was the lowest in the world (World Bank, 2017) compared to the world average of 28 percent and developed countries' average of 74 percent. The reason is that the SSA region started from a shallow base. In 1970, SSA had less than 400,000 but grew to 4.5 million in 2000, 7.3 million in 2013, and 8.8 million students in 2016 (UIS, 2018; World Bank 2017). Figure 1 shows profound disparities in enrollment across the world and the low enrollment level in Sub Saharan African countries.

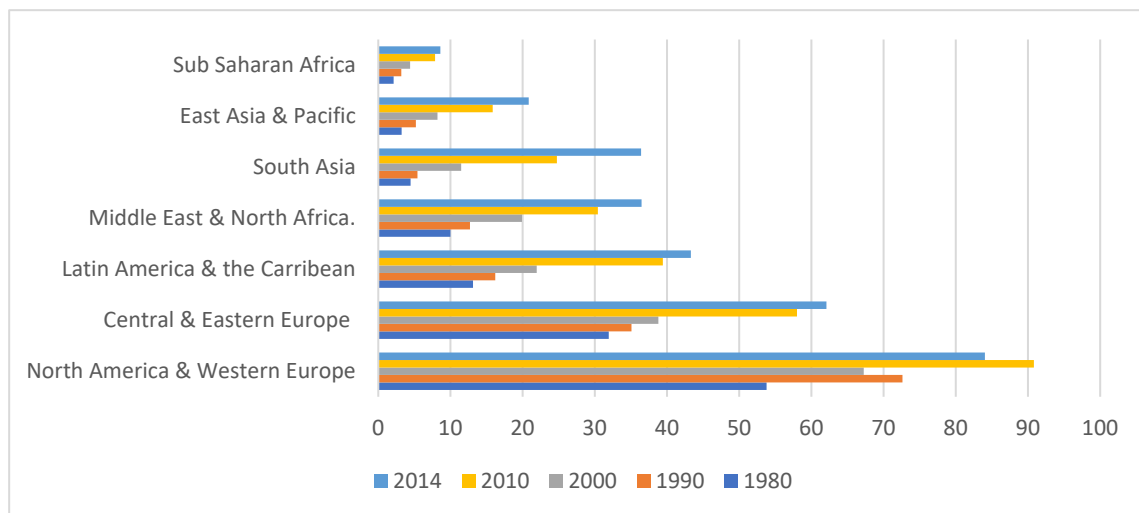


Figure 1. Higher Education enrollment ratios by region

Source: Constructed from World Bank EdStats/UNESCO Institute for Statistic.

The distribution of enrollment rates shown in Table 1 also shows the disparity in enrollment between "high-income" countries and "low-income" countries. In the current study, countries are categorized as "high income" countries if the GDP per capita were more than \$2000. High-income countries have high enrollment rates in high education (28%), as shown in Figure 1, while low-income countries have low enrollment rates in higher education, with SSA having less than 6 percent. Enrollment in higher education in SSA is less than 6% compared to the world average of 26 percent. Despite the low enrollment rates in SSA, there has been a remarkable growth since 2000. The high enrollment growth

poses some challenges, especially in terms of limited resources leading to a high student/teacher ratio and lecture hall overcrowding with an additional 50 percent more students per lecturer than before. The enrollment growth has implications, for instance, the quality of education in the developing world (Sonia & Rose, 2016; UIS, 2018). According to the UIS (2013) study, in 2010, over 74 percent of the eligible population of North Africa and Western Europe enrolled in higher education, and in SSA, the estimates were 6 percent. Some have argued that there is a critical threshold to be reached for tertiary education to have a substantial impact on macro outcomes.

2.1 Sources of Financing Higher Education

The sources of higher education financing in Sub-Sahara Africa are few and limited. The sources include: i) government or public financing; ii) parents and their substitutes or family and households; iii) students themselves; iv) individual and institutional donors, and v) income-generating activities of the academic institutions. The combination of these sources tends to generate a limited amount in SSA countries. The total costs of higher education are considerably higher than the available sources of financing, especially the public revenues that the primary source of higher education financing (World Bank, 2019; Oketch, 2016; Johnstone, 2015; Teferra, 2013; World Bank, 2010; Albrecht & Ziderman (1995)

During the 1990s, the World Bank deemphasized lending for higher education and cut down higher education lending while prioritizing primary education. Other donors followed the same line of reasoning and acted accordingly. However, in its 2019 Report, the World Bank reversed its stand and started emphasizing African higher education's primary role as the "agent of transforming lives by expanding employment prospects in SSA." The government challenges in higher education financing are universal, but SSA's extent and implications are critically different. Many factors contribute to this difference: i) the fiscal base is thin and weak; ii) sharp growth in demand; iii) decreasing public spending per student; iv) limited coverage of primary school and not yet universal although top priority; v) households and families are still spending a large amount of money in primary education (Oketch, 2016; Teferra, 2013). Sub Saharan Africa had a total of 200 public universities and 468 private higher education institutions in 2009 compared to 1700 public universities and 2500 private universities for the United States alone in the same period (Sonia & Rose, 2016). Universities in SSA face reductions in government funding and need to strengthen collaboration with the private sector, especially in infrastructural development like academic facilities, faculty, and students' housing (The Christie Company, 2018).

2.2. Alternative Financing Sources and Benefits

Albrecht & Ziderman (1995) examined the public financing of higher education and its effects on quality and efficiency. They concluded that the rapid growth of students' population in higher education is mainly due to the liberal admission policy of easy access to higher education institutions imposed on the government's institutions' administration. Accordingly, enrollment in developing countries has overgrown since the 1980s, while the actual public expenditure has sharply declined. They consider different ways of expanding and widening the higher education funding base to include student loans and tuition increases. Nevertheless, this also posed additional issues, including affordability and access for low-income families.

A key argument is that a bulk of the benefits of higher education go to the individual. According to Becker's Human capital theory (1993), education is an investment in human capital, just as an investment in physical capital, critical to economic growth. Education with training generates skills and knowledge that transform people into productive human capital. Increases in human capital increase productivity and consequently raise earnings. The link between education and earnings has been established within the framework of production function and return analysis rate at the individual and social levels (Psacharopoulos, 1994 & Mincer, 1974). There is a strong correlation between education and earnings, with the latter rising with education level (Becker, 1993). Returns to higher education include private and social returns or non-monetary outcomes for individuals. These include better health, higher tax revenue collections, and increased community engagement (Long 2014 and Bento, et al., 2018).

Students graduating from the upper secondary education level are increasing and provide a potential source of enrollment of students into higher education (Maigaard & Mingat, 2012). Estimates of cost-benefits of undergraduates' education show substantial returns to an undergraduate degree (Abel & Deitz, 2014; Abel et al., 2014; Oreopoulos and Petronijevic, 2013). That is, investing in college education is an excellent financial investment, particularly in countries like the United States or Japan, where the labor market is highly absorptive. However, the assumption of full employment may not hold in the SSA situation because of the high unemployment. Unemployment means a loss in output that would have increased the aggregate output and, at the same time, raised the income of the individuals with significant social impact (Monga et al. 2019; World Bank, 2017).

3. Research Method

In this study, we investigate the relationship between the demand for higher education and unemployment in Sub Sahara Africa using panel regression. Specifically, in the absence of an accurate measure of the demand for higher education in Africa, the study utilizes the enrollment rate as a proxy for higher education demand. The study uses the following variables: gross domestic product per capita and public expenditures to control higher education enrollment.

$$ENR_{it} = \beta_0 + \beta_1 UEM_{it} + \beta_2 \ln GDPpc_{it} + \beta_3 EDUEXP_{it} + \beta_4 HEDUCEXP_{it} + \beta_5 HINC_{it} + \mu_{it} \quad (1)$$

$$i = 1, \dots, 198; \quad t = 1, \dots, 18 \text{ (2000 - 2017)}$$

where, ENR = Gross tertiary enrollment (Note 3) UEM = Unemployment rate, GDPpc = Per capita GDP, EDUEXP = Education expenditure, HEDUEXP = Higher education expenditure, HINC = Dummy variable for high per capita income countries where HINC = 1 if income per capita is more than \$3000, and 0 otherwise and μ is the random error term. Next, we determine unemployment and enrollment rates into higher education. The expectation is that enrollment rates will increase if unemployment were low, and potential students are assured that they will be gainfully employed upon graduation. The relationship between unemployment and enrollment into higher education can be estimated from the following equation.

$$UEM_{it} = \beta_0 + \beta_1 ENR_{it} + \beta_2 \ln GDPpc_{it} + \beta_3 EDUEXP_{it} + \beta_4 HEDUCEXP_{it} + \beta_5 HINC_{it} + \mu_{it} \quad (2)$$

Equations (1) and (2) are estimated as fixed effects models based on the Hausman tests shown on tables (3) and (4). The fixed-effects model (FE) is used in analyzing the impact of variables that vary over time. In the current study, the FE explores the relationship between tertiary enrollment and unemployment within eleven Sub Saharan African countries selected for the study. Each country has characteristics such as its political system or even its income that may bias the predictor variable, and the fixed-effects remove the effect of those time-invariant characteristics so that the net effect of the predictors on the outcome variable can be assessed (Greene, 2008, p. 183). Unlike the fixed effects, the random effects (RE) assume that variation across entities is random and uncorrelated with the predictor or independent variables included in models (1) and (2).

3.1 Data Sources

The dataset used in this study is from World Bank Development Indicators (WDI) drawn from eleven SSA countries as listed in Table 2. The dataset provides detailed total enrollment of students in education levels, and the datasets also include expenditure on education. We supplement the WDI data with educational expenditures from UNESCO Statistics Institute and OECD Data. The study uses panel data for eleven African countries to investigate the relationship between enrollment (demand for tertiary education) and unemployment in the selected sub-Saharan African countries.

3.2 Hausman Specification Test: Fixed or Random Effects Model

The Hausman was conducted to determine whether a fixed-effects (FE) or random effects (RE) model is more appropriate for the SSA data. The fixed effects allow for controlling for variables that are constant across countries. The Hausman tests the following null hypothesis:

$$H_0: \hat{\beta}_{RE} = \hat{\beta}_{FE}$$

where $\hat{\beta}_{RE}$ and $\hat{\beta}_{FE}$ are vectors of the coefficient for the time-varying explanatory variables, with the exclusion of time variables, the null hypothesis will be rejected if the random effect model is inconsistent fixed effect model is the preferred one. The test determines whether the unique errors are correlated with the regressors. The fixed effect model is chosen over the random effect model and the former controls for time-invariant differences between the countries included in the panel and the fixed-effect model's estimated coefficients. The time-invariant characteristics of the model are omitted so that the model is unbiased. Whether to obtain model estimates by running a fixed or random effect model was decided by running a Hausman test. A test is conducted to see if the errors are correlated with the regressors by testing the null hypothesis that they are not correlated against the alternate hypothesis that they are correlated (Greene, 2008, chapter 9).

Table 3. Hausman Specification Test to Decide between the Fixed and the Random Effects Models

Equations Ho: difference in coefficients not systemic		
	Chi2(1) = Values	Prob > Chi2
ENR	55.82	0.0000
UEM	20.88	0.0000

The Hausman test results for both equations reject the null hypothesis that the random effect model is consistent as the p-value (Prob > chi2) is less than 5%. Equations (1) and (2) are estimated as a fixed-effects model, as seen in Table 3.

3.3 Tests for the Presence of Heteroscedasticity and Cross-Sectional Dependence

Equations (1) and (2) are estimated with the assumption that the regression errors are homoscedastic with constant variance across time series and countries. The presence of constant variance was tested using the Breusch-Pagan / Cook-Weisberg test for heteroscedasticity. As the results in Table 4 show, the null hypothesis of differences in the variances across errors is rejected. The diagnostic tests show no evidence of heteroscedasticity and no evidence of cross-sectional dependence or contemporaneous correlation.

Table 4. a) Heteroskedasticity Test

Equations	Ho: $\sigma(i)^2 = \sigma^2$ for all i	
ENR	chi2(3) = 3.99	Prob>chi2 = 0.2625
UEM	chi2(4) = 14.72	Prob>chi2 = 0.053

The p-value for both tests is less than 0.05. Thus we reject the null hypothesis and conclude that there is no evidence of heteroscedasticity.

b) Pesaran's Test for Cross-sectional dependence

<code>.xtreg logenr loggdppc logheduexp logeduexp, fe</code>		
<code>.xtcsd, pesaran abs</code>		
Pesaran's test of cross sectional independence	= 0.996,	Pr = 0.3191
Average absolute value of the off-diagonal elements		= 0.423

4. Empirical Results

The results based on p-values show that unemployment has a significant and negative effect on higher enrollment (Table 5). Thus, a higher level of unemployment confirms that higher levels of unemployment are a disincentive to the demand for tertiary education. Once prospective students find that their peers are unable to find jobs after graduating from university, they look for alternative ways of earning incomes. Education expenditures (logEDUEXP) and tertiary education expenditures (logHEDUEXP) are a significant determinant of the decision to enroll in tertiary education in the selected Sub Saharan African countries.

The results equally show a strong positive effect of per capita income (logGDPpc) on tertiary enrollment. Higher incomes are an incentive for enrollment into the university in SSA. Thus, poorer countries will enroll fewer students than in richer countries. This problem is pervasive across SSA countries, some of which have a greater portion of their populations living below the poverty line. Table 6 below shows the estimated results for unemployment as it related to a set of predictors for the selected Sub Saharan African countries included in the sample.

Table 5. Regression Results for Gross Tertiary Enrollment: Fixed Effect estimates (Dependent Variable logENR)

	(1)	(2)	(3)	(4)
UEM	-0.041** (0.020)	-0.024 (0.015)	-0.041*** (0.011)	-0.037** (0.010)
logGDPpc		2.815*** (0.299)	1.657*** (0.231)	1.070*** (0.283)
logHEDUEXP			0.861*** (0.076)	0.373** (0.163)
logEDUEXP				0.675*** (0.202)
Constant	4.901*** (0.083)	-3.483*** (0.894)	-6.612*** (0.678)	-6.865*** (0.654)
N	126	126	126	126

Standard errors in parentheses * p<.10, ** p<.05, *** p<.01

The results show that for all the five models, the log of per capita income has a strongly significant effect on unemployment and surprisingly has a negative sign. Students from wealthier backgrounds are more likely to enroll in the university, but most often, more affluent families will choose to send their kids abroad or send them to professional schools where they can afford the high cost, and the prospect of getting employed upon graduation are higher in those institutions. Government expenditures have a significant but negative effect on unemployment, while higher education has a significant and negative effect on unemployment. These results are not surprising as lower expenditures on tertiary education are likely to increase unemployment. Enrollment into tertiary education is negatively related to the unemployment rate and is significant. A possible reason is that some people choose not to enroll in academic programs when jobs are not available. Their opportunity cost may be too high, more so if they come from low-income families.

Table 6. Regression Results for Unemployment in Selected Sub Saharan African Countries: Random Fixed Effect Estimates (Dependent Variable: logUEM)

	(1)	(2)	(3)	(4)
logGDPpc	1.350 (1.269)	1.024 (1.341)	2.623 (1.690)	3.183** (1.596)
logHEDUEXP		0.522 (0.626)	3.431** (1.379)	3.684*** (1.292)
logEDUEXP			-3.791** (1.632)	-0.484 (1.713)
logENR				-2.950*** (0.691)
Const.	-0.035 (3.832)	-3.087 (5.155)	1.958 (5.391)	-15.693** (6.537)
N	126	126	126	126

Standard errors in parentheses * p<.10, ** p<.05, *** p<.01

5. Discussion

While the prospect for economic growth is high for Sub-Saharan Africa countries, these countries need workers with the relevant skill sets to support economic growth and development. However, as Oketch (2016) and Johnstone (2015) point out, the total cost of higher education in SSA is relatively high compared to the available financing sources. Economic growth and development can provide the opportunity for job creation, and this is possible with investments to improve the training and quality of higher education graduates. At the macro level, policies that generate economic growth and promote job growth in both the public and private sectors must be strongly supported and should be the

top policy priority. Thus, with vibrant economies, SSA countries' higher education should receive more funding for quality improvement, thus creating more opportunities for graduates. This study has established that higher education expenditures are strongly related to tertiary enrollment; thus, allocating more funding to higher education can boost enrollment and the quality of education provided.

The current study results have shown a negative but significant relationship between unemployment and enrollment rates in Sub-Saharan Africa. This result is a plausible expectation where the labor market is less absorptive because of fewer opportunities and high unemployment (Monga et al. 2019; World Bank, 2017). The problem faced by most SSA countries requires an expansion in industrialization while extending to a knowledge-based global economy, to allow for growth in employment opportunities. The International Finance Corporation (IFC) has estimated that by 2030, Sub-Saharan Africa would have over 230 million job opportunities needing digital skills. Accordingly, IFC is urging SSA countries to enhance their digital skills through improvement in digital training programs. Digital skills are drivers for economic growth and development as well as competitiveness (World Bank, 2019). There are growing employment opportunities, especially in Information and Computer Technology ICT, digital employment, robotics, and artificial intelligence (Hjort & Poulsen, 2019; World Bank, 2019).

The limited employment opportunities in SSA have led to the migration of trained and skillful workers seeking employment opportunities in other countries (Capuano & Marfouk, 2013). Student migration is also on the rise, with more than 223,000 students studying outside their home countries in 2008, accounting for 7.5% of the global number of students enrolling outside their home countries (Sonia & Rose, 2016). These figures exclude individuals who migrate for reasons other than educational, including migration because of a lack of employment opportunities in the source countries. The immigrants from host countries send material remittances and intellectual remittances to source countries through a collaboration with home universities. Some African universities design innovative ways of incorporating diaspora in the ranks of their academics. The partnership with the African diaspora enriches higher education across African universities, as demonstrated by the African Institute for Mathematical Sciences (AIMS) and the University of Ghana's Pan-African Doctoral Academy (PADA) replicated by Nigeria's Kwara State University and the University of Johannesburg in South Africa. All done to improve the people's skillsets and employability as well as the economies' absorptive capacities.

6. Conclusion

The study finds that a higher level of unemployment leads to low higher education enrollment in general. The significant effects suggest that higher levels of unemployment are a disincentive to the demand for higher education. Per capita income has a significant and robust effect on higher education enrollment and a significant but negative effect on the unemployment rate as expected. Higher education graduates in sub-Saharan Africa face the challenge of not finding gainful employment because of either the absence of employment opportunities or a mismatch of the skills acquired through university. However, it is highly likely that both situations are occurring. Universities in Sub-Saharan Africa must ensure that they provide high-quality education, which is central to finding a solution to the job debacle.

The employment crisis in Africa, especially for higher education graduates, can be mitigated by focusing efforts on improving the quality of teaching, implementing good economic policies that create jobs to absorb the trained graduates from the university. These measures have far-reaching implications for the social and political stability of countries in the region. Also, high unemployment can cause considerable losses in productivity and output. Inadequate resources, both physical and human, tend to limit the quality of education programs. Quite often, the students are not exposed to experiential learning and soft skills, which many employers may be looking for. While the government and university institutions can work together to tackle the unemployment of graduates, the private sectors and businesses could provide students internships and training. This would be including extending funding to create an impact and allow these graduates to find jobs. Future research could focus on identifying the curriculum that meets the needs of the industries to produce the industry-ready graduates, taking into consideration global competitiveness.

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Notes

Note 1. The rate of employment in Sub-Saharan Africa as reported in the World Development Report 2020 is estimated at 6.2%. This rate is calculated at the number of people in the active population that are seeking for jobs. The rate will not show those who are actually not working or have given up the search for jobs because jobs are limited in SSA.

Note 2. South Africa has a formal system of reporting people who are actively seeking for work compared to countries in Sub Saharan Africa where accurate reports of unemployment are not available.

Note 3. Gross Enrollment Ratio (GER) is calculated by dividing the total number of students enrolled in higher education in a given academic year by the country's total population and by multiplying the result by 100,000. The ratio of total enrollment is regardless of age.

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