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Education and Economic Growth Variations: Implications for Post COVID- 19 Sustainable Development Recovery Strategy in Low-Income Countries

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ABSTRACT

No country is like any other, therefore it is vital to ascertain factors explaining the differences in education and economic growth among and within low-income countries. The main question is why are there variations in countries? The answers to this question has the potential to provide insights for designing and implementing post-Corona virus infectious disease-19 (COVID-19) recovery strategies aimed at promoting inclusive sustainable development. Prior to COVID-19, the Sub Saharan Africa (SSA) region contained the largest number of low-income countries with low economic growth and lower access to education. An understanding of factors that explain the variations that existed before COVID-19 should be considered in developing recovery strategies. The study used a panel data summary statistics of education and economic growth dataset from the year 2000 to 2018 from 15 low-income countries in Sub-Saharan Africa to examine factors that explain the variations in education and economic growth patterns in those countries. The findings reflected that within individual countries rather than between countries variations explain the differences in education and economic growth. The findings led to the conclusion that education and economic growth variation trends observed in Sub-Saharan Africa for the past 19 years are better explained by variations over time and not by time-invariant factors between countries. Drawing on the observed trends over time the implications for post-COVID-19 sustainable development recovery strategy formulation are presented in this study.

keywords: Between, Within, Variations, Education, Economic growth, Sustainable development, Post COVID-19, low-income countries, Sub Saharan Africa

1. Introduction

Policymakers are concerned with the need to formulate post COVID- 19 sustainable development recovery strategies both in developed and less developing countries. In light of the subdued economic development trends, what is of major concern is the fact many international and local initiatives were implemented in many countries for more than three decades yet it appears the intended outcome of improved economic growth through increased access to education has not been achieved. In particular, several country-specific goals have been put in place to promote equitable access to education for all through international global initiatives that started in 1990. A recent report by the World Bank (2021) indicates that by the year 2000 a total of 189 countries had adopted the Education for All (EFA) that was aligned to Millennium Development Goals (MDGs). Achieving EFA would have simultaneously contributed to the attainment of MDGs goals which were development-oriented. Despite these significant global efforts, it remains unclear what variations contributes to these observed long-term trend of unsustained economic activity. This study seeks to examine the variations that

explain the differences in education and economic growth in low-income countries to draw implications for post-COVID-19 sustainable development recovery strategy. Within variations changes within a country over time or variations related to time-invariant that takes place across individual countries.

The United Nations (UN) Department of Economic and Social Affairs Economic (2021a) post-COVID -19 advocate that recovery policies should not only be aimed at restoring the economy to its pre-pandemic path but also driven toward a more sustainable and inclusive economy. Long before COVD-19, low-income countries were facing significant structural barriers to sustainable development and were subject to economic vulnerabilities and low human capital. The call for a new recovery strategy prevails amidst a high prevalence of disparities in education and economic growth across countries. From the 1970s to date, the Sub-Saharan African region continued to contain the highest number of least developing countries in the world. Since COVD-19 disrupted learning is expected to cause major shrinkages in economic growth. In particular, COVID -19 intensifies the concerns, threats, and uncertainties about the possibility of attaining Sustainable Development Goals by 2030 in all countries, including low-income countries. COVID-19 further highlighted the level of inequalities and disparities within and across countries and requires new recovery strategies. Often overlooked is the fact that the education and economic policies need to differ across countries depending on the level of economic development and understanding of the between and within-country factors that explain the variations

Regarding sustainable development goals, it is important to develop education and economic development policies that stimulate and sustain economic growth in low-income countries given their socio-economic vulnerability. It is therefore important that the characteristics of low-income countries and the implication of those differences should be understood and taken into consideration in the formulation of COVID-19 sustainable development recovery strategies. United Nations Conference on Trade and Development UNCTAD (2021) consist of 46 countries, 28 of which are from Africa and the Sub-Saharan African region specifically. This means that approximately 28 out of 49 countries are falling within the least developed economies thus an estimated 57%. Sub-Saharan African low-income countries have been characterized by low average income, low economic growth, and low access to education.

2. Theoretical Framework

This study is based on the capability approach theoretical framework that explains that human development is based on the conditions that are created to enable them to realize these abilities. Sen, (1990) and Nussbaum (1988, 1992, 2020) advocate that every human being has the potential to unleash their abilities should barriers that hinder their functionality be identified and addressed. Education is recognized as a key factor for economic growth, yet disparities in enrollment have been observed in both primary and secondary school education. If the human capabilities approach principle applies, it can be argued that conditions that promote school enrollment that has the capacity to stimulate economic growth should be looked at. In his ground seminal work, the capability approach, Sen (1990), and later Nussbaum (2020), advocates that unless conditions are created that enable human beings to achieve their capabilities and abilities, created opportunities risk not achieving the desired outcomes. Sen (1979a) refuted the utilitarian approach that the mere distribution of resources without looking into the contextual circumstances is an inadequate approach to promote development. Education is considered as a determinant of economic growth (Hanushek and Woessmann, 2020: Xu, Hsu, Meen, and Zhu 2020, Valero, 2021b). This study is premised on the belief that education and economic development policy need to differ across countries depending on the

level of economic development and on factors underlying variations in education and economic growth.

3. Literature Review

Numerous studies have examined the relationship between education and economic growth (Valero, 2021). Education economics literature has highlighted that economic growth varies across countries due to differences in education within countries (Hanushek, 2020a). The most used variable in literature to measure the economic growth of a country is the Gross Domestic Product, which is defined by the World Bank as the total measure of the value of final goods and services produced by a country during a given period. The human capital theory extending the endogenous economic growth and recognizes education as an input that has a significant impact on economic growth (Hanushek, and Woessmann, 2020b). Empirical evidence on establishing the significant relationship between education and economic growth, shows that the impact differs within countries. However there is limited focus on exploring the factors explaining the differences in education and economic growth. Policy recommendations and advice based on, significance or non-significant correlational findings of relationships might be biased or inadequate since these aspects do not establish the factors explaining the underlying variances. Aiyar and Ebek (2020) argue that disparities in economic growth are mediated by equality of condition and opportunity. This suggests there is a need to establish contextual factors that influence an observed phenomenon. Often overlooked is that level of economic development influences economic growth and education patterns

4. Methodology

To determine the factors the influence the variations in education and economic growth, a panel data summary analysis was conducted. Implementing panel data summary statistics according to Prada and Cimpoeru, (2020) helps to establish three important measures. First, the overall variation which shows the variation over both time and cross-sectional dimensions. Secondly, the between variation shows the variation over the cross-sectional dimension, namely referring to individuals. Lastly, within variation – shows the variation over time. Economic growth, primary and secondary data that is freely available to the public at the World Bank was collected and analyzed.

5. Results and Discussion

Appendix A presents the panel data summary statistics. There is high variability in economic growth, primary school, and secondary enrolment within countries over the 19 years under investigation. It is observed that there is an overall low variation in economic growth as indicated by a standard deviation from the average overall mean in countries such as Burkina Faso, Burundi, Madagascar, and Togo. The low difference between the mean and standard deviation of economic growth indicates low economic growth has been experienced over time. This indicates that minor or insignificant changes have been experienced in economic growth during the 19 years. Interestingly the results show that for within-country variations, variations over a given period contribute to the observed low economic growth for the period rather than between variations. these findings indicate that the amount of good and services produced within the past 19 years have continuously been low. The implication of these findings is that policy changes aimed at stimulating sustainable economic growth for the past 19 years have not resulted in a significant change in economic growth. Low-income countries interested in promoting economic growth through promoting access to education should review their educational policies aimed at promoting economic growth as a basis for policy formulation.

Turning to education this study found that there are substantial differences in the overall mean score of primary and secondary enrolment as proxies of education in low-income countries, indicating significant variations in enrolments in these countries. The findings show that primary school enrolment in the majority of the countries is characterized by low standard deviation from the overall mean in countries such as Burundi estimated at 2.5302 and 2.6987, Madagascar, 3.0601 and 4.659, Sudan, 4.6417 and 3.6935. The low difference between the overall mean and standard deviation indicates that although there are differences in primary and secondary enrolment over time within individual-specific countries their variations are only insiginificant.

These findings implicatesthe Sustainable Development Goals (SDGs) Agenda 2030 in particular Sustainable Development Goal 4(SDG4). The SDG4 refers to the attainment of quality education as the critical driver for the development and attainment of the other proposed SDGs (The United Nations Educational, Scientific and Cultural Organization, 2016). Cognizance should be given to the fact that all countries including low-income countries in SSA were part of the Education for All (EFA) by 2015 which was adopted in by The Dakar Framework in April 2000.

Access to learning opportunities that equip students with skills, knowledge, and competencies that enable them to unlock their productive potential is central to economic growth in any economy. Thus promoting access to education as reflected by primary and secondary school enrolment is central to achieving the fourth goal of SDG andsustainable development.

There are high variations in primary education in all countries as shown in Table A. The findings in Table A show a high margin between the coefficient of the overall means and standard deviation indicating that there are major variations in primary school enrolment. For instance the findings in Table A show that, Burundi has a mean score 109.3645 and standard deviation of 30.0000, Madagascar 134.547 and 15.7327, Malawi 139.0646 and 6.4003, Rwanda 136.0849 and 13.2406. A similar trend was found in countries such as Guine Bissau, Mozambique, Uganda, Sierra Leone and Sudan. This wide range indicates that there is high variability within individual countries in primary enrolment during the period. Furthermore, this indicates that it is the within variations that contributed the largest portion of the variations observed over time. These findings suggest that major changes have been observed in primary school education enrolment in low-income countries over the past 19 years. If such significant changes have been made in primary school enrolment why has such investment in education not translated to notable economic growth over the given period of years and what warrants exist that increased primary education will contribute to economic growth? an increase in primary education does not appear to contribute to economic growth as expected. Under such drastic variations, what can policymakers do to align to SDG4? If these variations are maintained, will primary education enrolment contribute as a catalyst for post COVID- 19 sustainable development recovery strategy in low-income countries?

The findings in Table A show high deviations ranging between mean and standard deviation in secondary school enrollment. For instance, mean and standard deviation were observed as in Sudan, 40.16 and 3.75, Sierra Leone 38.42 and 3.76, Togo 44.88 and 6.37 This trend shows that there is high variability in secondary school enrollment in low-income countries. This study also found a wide range of secondary disparities withincountries during the period as reflected by a wide range between minimum estimated and maximum. For instance, Burkina Faso 10.42 and 40.71, Burundi 10.10 and 49.25, Mali, 6.20 and 35.41, Togo, 32.03 and 61.85, Rwanda 11.41 and 40.90. Similar trends were observed in most if not all the group of countries under investigation. Further analysis reveals that the within variations explain the disparities observed during this period. This suggests that there were several factors inside these countries

that contributed to the observed disparities in enrolment. Judging by these findings, the desire to promote sustainable development post COVID-19 might be impossible should policymakers fail to first establish and address prexisting conditions hindering school enrolment in low-income countries. disparities in secondary school enrolment are explained by within-country variation in all countries. These findings show a long-term trend that should be considered when designing COVID- 19 sustainable development recovery strategy in low-income countries.

5.1. Lessons for Post COVID- 19 Sustainable Development Recovery Strategy in Low Income Countries

Policymakers are concerned with understanding factors that explain an observed phenomenon. This study may provide useful input to the policymakers for formulating and revising the development policy by indicating the need to first consider the evidence of the within-country variations in education and economic growth. Particularly COVID-19 presents a threat to the attainment of sustainable development goals prompting countries to look for recovery strategies. Based on the findings of this study, it is imperative to understand the factors that contribute to within countries variations before designing and implementing policies that are aimed at promoting sustainable development. The findings indicated that there are high disparities in education in primary and secondary education during the period under investigation. In this regard educational and development policy makers should concentrate on identifying the underlying factors that explain the variances in primary and secondary school enrollment as well as revising economic growth policies. These findings are consistent with the reports by the UN Economic and Social Council, (2019, 2020) that revealed that low income country completion rate for primary school is 34% for children from the poorest 20% of households whilst 79% for the children from the richest households with the rates relatively higher for high income, upper and middle-income countries. This may explain the low secondary school enrolment observed.

This study is not without limitations. The panel data summary statistics are limited to establishing whether the variations observed in low-income countries in Sub-Saharan Africa between 2000 and 2018 are determined by either between or within variance. The limitation of data availability resulted in exclusion other low-income countries within the Sub-Saharan Africa region. Moreover, the descriptive statistics were limited to explaining the characteristics of the variable under study without further establishing correlations. As such, future research may focus on country-specific studies using mixed-method approaches to establish factors that explain the variations in the findings. Although this study has limitations it contributes to the existing literature on understanding disparities and inequalities in education and economic growth in low-income countries in Sub Saharan Africa region.

6. Conclusion

This study set out to explore the factors explaining the variations in school enrollment and economic growth with the aim of drawing lessons for post COVID- 19 sustainable development recovery strategy in low-income countries. In light of post-COVID-19 sustainable development recovery strategy, the study provided evidence that within-country variations over time contribute long-term observed trends in education and economic growth patterns in low-income countries in the Sub-Saharan Africa. Overall, this study recommends that post COVID -19 recovery strategies should take into consideration the implications of the within-country variations that explain the disparities that have been observed over time. This study concludes that within-country variations explain the differences observed in education and

economic growth in low-income countries in Sub-Saharan Africa. The within-country variation patterns suggest long term trends have developed overtime that are not short-term fluctuations. It is thus recommended that policy aimed at promoting sustainable development post-COVID-19 should first identify and understand factors that contributed to the observed trend within countries over time should be taken into account first before formulating recovery strategies

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Appendix A

Table 1.
Panel data Summary statistics

Country		Mean	Std Dev	Minimum	Maximum	Observation
Burkina Faso –GDP	Overall	5.65	1.79	1.89	8.67	19
	Between			5.65	5.65	1
	Within		1.79	1.89	8.67	19
Primary School enrolment	Overall	71.92	17.58	45.02	96.09	19
	Between			71.93	71.93	1
	Within		17.58	45.02	96.09	19
Secondary School Enrollment	Overall	22.77	9.57	10.42	40.71	19
	Between			22.77	22.77	1
	Within		9.57	10.42	40.71	19
Burundi- GDP	Overall	2.5302	2.70	-3.90	5.41	19
	Between			2.53	2.53	1
	Within		2.70	-3.90	5.41	19
Primary School enrolment	Overall	109.37	30.00	58.01	140.83	19
	Between			109.37	109.37	1
	Within		30.00	58.01	140.83	19
Secondary School Enrollment	Overall	26.23	13.92	10.10	49.25	19
	Between			13.92	13.92	1
	Within		13.92	10.10	49.25	19
Chad- GDP	Overall	6.69	8.97	-6.26	33.63	19
	Between			8.97	8.97	1
	Within		8.97	-6.23	33.63	19
Primary School enrolment	Overall	80.54	11.34	63.67	101.58	19
	Between			11.34	11.34	1
	Within		11.34	63.67	101.58	19
Secondary School Enrollment	Overall	19.07	4.29	10.77	24.68	19
	Between			4.29	4.29	1

	Within		4.29	10.77	24.68	19
	Overall	8.9697	3.80	-2.16	13.57	19
Ethiopia -GDP	Between			3.80	3.80	1
	Within		3.80	-2.16	13.57	19
	Overall	82.14	13.79	54.72	100.97	19
Primary School enrolment	Between			13.79	13.79	1
	Within		13.79	54.72	100.97	19
	Overall	27.69	6.95	13.54	37.58	19
Secondary School Enrollment	Between			6.95	6.95	1
	Within		6.95	13.54	37.58	19
	Overall	3.35	2.5	-1.71	8.08	19
Guine Bissau -GDP	Between			2.50	2.50	1
	Within		2.50	-1.71	8.08	19
	Overall	105.27	9.79	75.62	122.44	19
Primary School enrolment	Between			9.79	9.79	1
	Within		9.79	75.62	122.44	19
	Overall	28.09	2.91	18.09	34.16	19
Secondary School Enrollment	Between			2.91	2.91	1
	Within		2.91	18.09	34.16	19
	Overall	3.06	4.66	-12.41	9.78	19
Madagascar-GDP	Between			4.66	4.66	1
	Within		4.66	-12.41	9.79	19
	Overall	134.55	15.73	101.46	149.31	19
Primary School enrolment	Between			15.733	15.73	1
	Within		15.73	101.49	149.31	19
	Overall	33.00	4.84	21.47	38.51	19
Secondary School Enrollment	Between			4.84	4.84	1
	Within		4.84	21.47	38.51	19
	Overall	4.21	3.18	-4.98	9.60	19
Malawi-GDP	Between			3.18	3.18	1
	Within		3.1	-4.50	9.60	19
	Overall	139.06	6.40	126.55	147.34	19
Primary School enrolment	Between			6.40	6.40	1
	Within		6.40	126.55	147.40	19
	Overall	34.34	4.32	28.04	40.77	19
Secondary School Enrollment	Between			4.32	4.32	1
	Within		4.32	28.04	40.77	19
	Overall	4.87	3.51	-.84	15.38	19
Mali -GDP	Between			3.51	3.51	1
	Within		3.51	-.84	15.34	19
	Overall	75.22	7.26	57.86	84.120	19
Primary School enrolment	Between			7.26	7.26	1
	Within		7.26	57.85	84.20	19
	Overall	34.47	7.91	17.45	44.01	19
Secondary School Enrollment	Between			7.91	7.91	1
	Within		7.91	17.45	44.02	19
	Overall	6.75	2.44	1.18	12.09	19
Mozambique-GDP	Between			2.44	2.44	1
	Within		2.44	1.18	12.09	19
Primary School	Overall	102.94	10.84	76.16	112.61	19
enrolment	Between			10.84	76.16	1

	Within		10.84	76.16	112.61	19
Secondary School Enrollment	Overall	21.09	9.19	6.20	35.41	19
	Between			9.19	9.19	1
	Within		9.19	6.20	35.41	19
Niger-GDP	Overall	5.02	2.97	-1.21	10.55	19
	Between			2.97	2.97	1
	Within		2.97	-1.21	10.55	19
Primary School enrolment	Overall	56.43	13.37	32.36	74.74	19
	Between			13.37	13.37	1
	Within		13.37	32.36	74.00	19
Secondary School Enrollment	Overall	12.95	5.41	6.49	24.25	19
	Between			5.41	5.41	1
	Within		5.41	6.49	24.25	19
Rwanda-GDP	Overall	7.66	2.49	2.20	13.19	19
	Between			2.50	2.50	1
	Within		2.50	2.20	13.19	19
Primary School enrolment	Overall	136.08	13.24	109.92	149.27	19
	Between			13.24	13.24	1
	Within					19
Secondary School Enrollment	Overall	26.8539	11.48	11.41	40.90	19
	Between			11.48	11.48	1
	Within		11.48	11.41	40.90	19
Sierra Leone-GDP	Overall	6.00	9.49	-20.60	26.41	19
	Between			9.49	9.49	1
	Within		9.49	-20.60	26.42	19
Primary School enrolment	Overall	105.84	15.30	59.55	124.48	19
	Between			15.30	15.30	1
	Within		15.30	59.55	124.48	19
Secondary School Enrollment	Overall	38.42	3.76	24.25	44.00	19
	Between			3.76	3.76	1
	Within		3.76	24.25	44.00	19
Sudan-GDP	Overall	4.64	3.69	-2.29	11.52	19
	Between			3.69	3.69	1
	Within		3.69	-2.29	11.52	19
Primary School enrolment	Overall	68.75	5.25	59.74	76.82	19
	Between			5.25	5.25	1
	Within		5.25	59.74	76.82	19
Secondary School Enrollment	Overall	40.16	3.75	34.57	46.62	19
	Between			3.75	3.75	1
	Within		3.75	34.57	46.62	19
Togo-GDP	Overall	3.56	3.32	-4.67	6.72	19
	Between			3.32	3.32	1
	Within		3.32	-4.67	6.72	19
Primary School enrolment	Overall	121.0717	5.56	111.09	128.04	19
	Between			5.56	5.56	1
	Within		5.56	111.09	128.04	19
Secondary School Enrollment	Overall	44.88	6.37	32.03	61.85	19
	Between			6.37	6.37	1
	Within		6.37	32.03	61.85	19
Uganda-GDP	Overall	6.26	2.14	3.14	10.79	19
	Between			2.14	2.14	1

Primary School enrolment	Within		2.14	3.14	10.79	19
	Overall	120.92	10.76	102.65	138.28	19
	Between			10.76	10.76	1
	Within		10.76	102.65	138.28	19
Secondary School Enrollment	Overall	22.01	.88	19.37	24.64	19
	Between			.88	.88	1
	Within		.878	19.37	24.64	19