

# **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 the 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 COVID-19 Sub Saharan Africa 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 the COVID-19 should be considered developing recovering 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 African 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 explained by variations overtime and not by time invariant factors between countries. Drawing on the observed trends overtime the implications for post COVID-19 sustainable development recovery strategy formulation are presented in this study.

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

## **Introduction**

Policy makers are concerned with the need to formulate post COVID- 19 sustainable development recovery strategy both in developed and less developing countries. In light of the subdued economic development trends what is of major concerns 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 were 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 contribute to these observed long term trend of unstained economic activity. This study seeks to examine the variations that explain the differences in education and economic growth in low income countries with the intention of drawing implications for post COVID-19 sustainable development recovery strategy. Within variations changes within a country over time whilst between variations related to time invariant that takes place across individual and these do not change overtime.

The United Nations (UN) Department of Economic and Social Affairs Economic (2021a) post COVID -19 advises that recovery policies should not only be aimed restoring the economy to its pre-pandemic path, but also driven toward more sustainable and inclusive economy. According to (United Nations (UN), Department of Economic and Social Affairs Economic, 2021a) long before COVID-19 low income countries were facing significant structural barriers to sustainable development and subject to economic vulnerabilities and low human capital. The call for new recovery strategy prevails amidst a high prevalence of disparities in education and economic growth across countries. Since 1970s to date Sub Saharan African region continued to contain the highest number of least developing countries in the world. Since COVID-19 disrupted learning and 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 especially in all countries, particularly in low income countries. COVID-19 further highlighted the level of inequalities and disparities within and across countries and demanding for 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 factors that between and within country 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 strategy. United Nations Conference on Trade and Development UNCTAD (2021) least countries consist of 46 countries and 28 out of which are from Africa and 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 characterised by low income on average of low economic growth and low access to education.

### **Theoretical framework**

This study is based on the capability approach theoretical framework that explain that human development is based on the conditions that are created to enable them to realise these abilities. Sen, (1990) and Nussbaum (1988, 1992, 2020) in the capabilities approach 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 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 and ensuring that education offered has the capacity to stimulate economic growth should be looked at. In his ground seminal work, the capability approach Sen (1990) and 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 as inadequate approach towards promoting development. Education is considered as 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 country depending not only the level of economic development but on insight into the factors underlying to variations in education and economic growth.

### **Literature review**

Numerous studies have examined the relationship between education and economic growth (Valero, 2021). Education economics literature have highlighted that economic growth varies across countries due to differences in education within countries (Hanushek, 2020a). The most used variables in literature to measure economic growth of country is Gross Domestic Product which is defined by the World Bank as the total measure of the value of final goods and services produced with a country during a given period. The human capital theory extending the endogenous economic growth recognises education as input that have significant impact on economic growth (Hanushek, and Woessmann, 2020b). Empirical evidence on establishing the significances relationship between education and economic growth, showing 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

based on findings correlational, significance or non-significant of the 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 has influence on economic growth and education patterns

### **Methodology**

To determine the factors influencing 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) help to establish three important measures namely 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 the time dimension. Economic growth, primary and secondary data that is freely available to the public at the World Bank was collected and analyzed.

### **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 period under investigation. The study 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 period. Interestingly the results show that within country variations, that is variations over given period of time contributes to the observed low economic growth for the period rather than between variations. It can be deduced from these findings that amount of goods 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 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 basis for policy formulation.

Turning to education this study found that there are substantial differences in overall mean score of primary and secondary enrolment as proxies of education in low income countries, indicating significant variations in enrolments these countries. The findings show that primary school enrolment in the majority of the countries is characterised 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 there variations are only minor.

These findings has implication to the Sustainable Development Goals (SDGs) Agenda 2030 in particular SDG4. The SDG4 recognises 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). Cognisance should be given to the fact that all countries including low income countries in SSA were part to Education for All (EFA) for by 2015 which was adopted in by The Dakar Framework in April 2000. The implications to SGD which builds upon the legacy of EFA through the pursuing the overarching goal and strategic of ensuring inclusive and inclusive and equitable quality education at all levels as means to the end goal of achieving inclusive sustainable development. Access to learning opportunities that equip students with skill, knowledge and competences that enable that unlock their productive potential is central to economic growth in any economy. It follows therefore that promoting access to education as reflected by primary and secondary school enrolment is central to promoting the achieving of SDG4, simultaneously achieving sustainable development.

The findings shows that, there are high variations in primary education in all countries. The findings show high margin between the coefficient of the overall means and standard deviation indicating that there are major variations in primary school enrolment. For instances, in Burundi has 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 primary within individual specific country 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? The aforementioned question arises from the fact that increase in primary education appears not contributing to economic growth as expected. Under such drastic variations what should the role of policy makers do in alignment with attaining the 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 show that there are high deviations ranging between mean and standard deviation in secondary school enrollment. For instance, mean and standard deviation were observed as in Sudan, 40.1549 and 3.7544, Sierra Leone 38.4215 and 3.7569, Togo 44.88203 and 6.365838. This trend shows that there is high variability in secondary school enrollment in low income countries. This study also found a wide range in secondary disparities within an individual country during the period as reflected by wide range between minimum estimated and

maximum. For instance, Burkina Faso 10.4225 and 40.7097, Burundi 10.1002 and 49.2544, Mali, 6.1974 and 35.4067, Togo, 32.0314 and 61.8457, Rwanda 11.4137 and 40.8961. This evidence indicate that, the wide range in secondary school enrolment. Similar trends were observed in most if not all the group of countries under investigation. A further analysis reveals that the within variations explains the disparities observed during this period. This suggest 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 policy makers fail to first establish and address condition that existed before and were hindering school enrolment in such low income countries. A further analysis show that the disparities in secondary school enrolment are explained by within 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.

### **Lessons for post COVID- 19 sustainable development recovery strategy in low income countries**

Policy makers 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 that there is need to first consider the evidence of the within variations in education and economic growth. Particularly COVID-19 presents a threats to the attainment of sustainable development goals prompting countries to look for recovery strategies. Based on the findings it is imperative to understand the factors that contribute to variations within countries before designing and implementing policies that 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 UN Economic and Social Council, (2020, 2019) report verified that low income country completion rate for primary school is 34% for children from the poorest 20% 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 is 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 lead this study to exclude 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 approach to as to establish the factors that explain the variations the findings. Although this study has limitations it contributes to existing literature on understanding disparities and inequalities in education and economic growth in low income countries in Sub Saharan Africa region.

### **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 variations overtime contribute the long term observed trends in education and economic growth patterns observed in low income countries in Sub Saharan Africa. Overall, the study recommend that post COVID -19 recovery strategies should take into consideration the implications of the within variations overtime that explain the disparities that have been observed overtime. This study concluded that within variations explain the differences observed in education and economic growth in low income countries in Sub Saharan Africa. The conclusion within variation patterns suggest there long term trends that have been developed overtime and these are not just 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

Appendix A

<b>Table 1 : Panel data Summary statistics</b>						
<b>Country</b>		<b>Mean</b>	<b>Std Dev</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Observation</b>
Burkina Faso –GDP	Overall	5.6515	1.7882	1.8885	8.6619	19
	Between			5.6515	5.6515	1
	Within		1.7882	1.8884	8.6619	19
Primary School enrolment	Overall	71.9251	17.5822	45.0174	96.0904	19
	Between			71.9251	71.9251	1
	Within		17.5822	45.0174	96.0903	19
Secondary School Enrollment	Overall	22.7682	9.5689	10.4225	40.7097	19
	Between			22.7682	22.7682	1
	Within		9.56889	10.4225	40.7097	19
Burundi- GDP	Overall	2.5302	2.6988	-3.9000	5.41381	19
	Between			2.5302	2.5302	1
	Within		2.6988	-3.9000	5.4138	19
Primary School enrolment	Overall	109.3645	30.0000	58.0049	140.8289	19
	Between			109.3645	109.3645	1
	Within		30.0000	58.0049	140.8289	19
Secondary School Enrollment	Overall	26.2291	13.9165	10.1002	49.2544	19
	Between			13.9165	13.9165	1
	Within		13.9165	10.1002	49.2544	19
Chad- GDP	Overall	6.692442	8.9693	-6.2555	33.6294	19
	Between			8.9693	8.9693	1
	Within		8.9693	-6.2555	33.6294	19
Primary School enrolment	Overall	80.5359	11.3377	63.6706	101.5848	19
	Between			11.3377	11.3377	1
	Within		11.3377	63.6706	101.5848	19
Secondary School Enrollment	Overall	19.0677	4.2913	10.7667	24.6757	19
	Between			4.2912	4.2913	1
	Within		4.2913	10.7667	24.6757	19
Ethiopia -GDP	Overall	8.9697	3.8000	-2.1613	13.5726	19
	Between			3.8000	3.8000	1
	Within		3.8000	-2.1613	13.5726	19
Primary School enrolment	Overall	82.1368	13.7924	54.7184	100.9715	19
	Between			13.7924	13.7924	1
	Within		13.7924	54.7184	100.9715	19
Secondary School Enrollment	Overall	27.6874	6.948302	13.5389	37.57714	19
	Between			6.9483	6.9483	1
	Within		6.9483	13.5389	37.5771	19
Guine Bissau -GDP	Overall	3.3522	2.5041	-1.71267	8.08478	19
	Between			2.5041	2.5041	1
	Within		2.5041	-1.7126	8.0848	19
Primary School enrolment	Overall	105.2706	9.7915	75.6167	122.4438	19
	Between			9.7915	9.7915	1
	Within		9.7915	75.6167	122.4438	19
Secondary School Enrollment	Overall	28.0882	2.9090	18.0878	34.1622	19
	Between			2.9089	2.9090	1
	Within		2.9090	18.0878	34.1622	19
Madagascar-GDP	Overall	3.0601	4.6592	-12.4080	9.7849	19
	Between			4.6592	4.6593	1
	Within		4.6592	-12.4080	9.7849	19
Primary School enrolment	Overall	134.5470	15.7328	101.4852	149.3075	19
	Between			15.7328	15.7328	1
	Within		15.7328	101.4852	149.3075	19

Secondary School Enrollment	Overall	33.0029	4.8380	21.4661	38.5120	19
	Between			4.8380	4.8380	1
	Within		4.8381	21.4661	38.5120	19
Malawi-GDP	Overall	4.206934	3.1833	-4.9750	9.6	19
	Between			3.1834	3.18334	1
	Within		3.1833	-4.9750	9.6	19
Primary School enrolment	Overall	139.0646	6.4003	126.5522	147.3958	19
	Between			6.4003	6.4003	1
	Within		6.4003	126.5522	147.3958	19
Secondary School Enrollment	Overall	34.3361	4.3219	28.0420	40.7725	19
	Between			4.3219	4.3219	1
	Within		4.3219	28.0420	40.7725	19
Mali -GDP	Overall	4.8693	3.5075	-8367	15.3762	19
	Between			3.5075	3.5075	1
	Within		3.5075	-8367	15.3762	19
Primary School enrolment	Overall	75.2241	7.2557	57.8547	84.1956	19
	Between			7.25567	7.2557	1
	Within		7.2557	57.8544	84.1956	19
Secondary School Enrollment	Overall	34.4650	7.9120	17.4537	44.0182	19
	Between			7.91201	7.91201	1
	Within		7.9120	17.4537	44.0182	19
Mozambique-GDP	Overall	6.7543	2.4411	1.18031	12.0869	19
	Between			2.4411	2.4411	1
	Within		2.4411	1.1803	12.0869	19
Primary School enrolment	Overall	102.9378	10.8413	76.1576	112.605	19
	Between			10.8413	76.1576	1
	Within		10.8413	76.1576	112.605	19
Secondary School Enrollment	Overall	21.0865	9.1852	6.1974	35.4067	19
	Between			9.1852	9.1852	1
	Within		9.1852	6.1974	35.4067	19
Niger-GDP	Overall	5.01971	2.9702	-1.2085	10.5489	19
	Between			2.9701	2.97020	1
	Within		2.9702	-1.2085	10.5490	19
Primary School enrolment	Overall	56.4271	13.3737	32.356	74.7362	19
	Between			13.3738	13.3738	1
	Within		13.3737	32.3561	74.7362	19
Secondary School Enrollment	Overall	12.9463	5.4135	6.487	24.2536	19
	Between			5.4135	5.4135	1
	Within		5.4135	6.4870	24.2538	19
Rwanda-GDP	Overall	7.6605	2.4945	2.2024	13.19207	19
	Between			2.4946	2.494568	1
	Within		2.4946	2.2024	13.19207	19
Primary School enrolment	Overall	136.0849	13.2406	109.9213	149.2714	19
	Between			13.2406	13.2406	1
	Within					19
Secondary School Enrollment	Overall	26.8539	11.47948	11.4138	40.8960	19
	Between			11.4795	11.4795	1
	Within		11.4794	11.4138	40.89601	19
Sierra Leone-GDP	Overall	6.0000	9.4856	-20.5988	26.4173	19
	Between			9.4856	9.4856	1
	Within		9.4856	-20.5988	26.4173	19
Primary School enrolment	Overall	105.8419	15.3027	59.5533	124.4763	19
	Between			15.3027	15.3027	1
	Within		15.3027	59.5533	124.4763	19

Secondary School Enrollment	Overall	38.4215	3.7569	24.2540	43.9980	19
	Between			3.7569	3.7569	1
	Within		3.7569	24.2540	43.9980	19
Sudan-GDP	Overall	4.6417	3.6936	-2.2900	11.5219	19
	Between			3.6936	3.6936	1
	Within		3.6936	-2.2900	11.5219	19
Primary School enrolment	Overall	68.7472	5.2530	59.7365	76.8161	19
	Between			5.25303	5.2530	1
	Within		5.2530	59.7365	76.8161	19
Secondary School Enrollment	Overall	40.1549	3.7544	34.5672	46.6217	19
	Between			3.7544	3.7544	1
	Within		3.7544	34.5672	46.6212	19
Togo-GDP	Overall	3.5622	3.3239	-4.6663	6.7202	19
	Between			3.32387	3.3239	1
	Within		3.3239	-4.6663	6.7202	19
Primary School enrolment	Overall	121.0717	5.5559	111.0869	128.0440	19
	Between			5.5559	5.5559	1
	Within		5.5559	111.0869	128.044	19
Secondary School Enrollment	Overall	44.8820	6.3658	32.0314	61.8457	19
	Between			6.36584	6.3658	1
	Within		6.3658	32.0314	61.8457	19
Uganda-GDP	Overall	6.2568	2.1426	3.1419	10.7847	19
	Between			2.1426	2.1426	1
	Within		2.1426	3.1419	10.7847	19
Primary School enrolment	Overall	120.9192	10.7552	102.6484	138.2752	19
	Between			10.7552	10.7552	1
	Within		10.7552	102.6484	138.2752	19
Secondary School Enrollment	Overall	22.0055	.87830	19.3706	24.64033	19
	Between			.8783	.8783	1
	Within		.87829	19.3706	24.6403	19

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