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HUMAN CAPITAL AND INDUSTRIAL GROWTH IN ECOWAS

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Abstract

The study examined the impact of Human capital on Industrial development in ECOWAS. A total number of thirteen countries were covered in the economic bloc namely, Benin Republic, Burkina Faso, Cote d'Ivoir, Gambia, Ghana, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Serria Leon and Togo.

Panel and time series data analysis were engaged to achieve the set objective. The relationship that exists between human capital and industrial growth in the ECOWAS was investigated within the framework of panel data regression analysis. The model specification expressed industrial growth as a function of human capital and exchange rate. Human capital was measured with gross secondary school enrollment and average life span of individual country. Annual data of all the variables were sourced from 1980 to 2022. Real industrial growth rate was sourced from IMF (World Economic Outlook) and Human capital from Mundi Index, 2020.

The results from the analysis show that the industrial growth in ECOWAS States has been unstable and in most of the countries, it followed a downward trend movement. The study recommends that the countries within ECOWAS States need to invest more in human capital. This study's contribution to existing knowledge is in its use of the most recent development in human capital index computation, Mundi index. This index was used to measure human capital and has been applied successfully in many recent studies but not in ECOWAS. Furthermore, this research work is novel as there's no any empirical work on human capital and industrial growth in ECOWAS.

Key words: Human capital, Industrial growth.

Introduction

For an economy to thrive and remain stable, the industrial sector is essential. Compared to ECOWAS nations, the "Asian Tigers"—Hong Kong, Singapore, South Korea, and Taiwan—have had enormous industrial progress in the past forty years (Keijiro & Tetsushi 2011). The industrial performance of the ECOWAS states has been awful. The industrial sector contributed only 7.36 percent of the area GDP, according to Traore (2016). This is unacceptably poor and inadequate.

The governments of the ECOWAS nations have implemented a number of different policies, including import substitution strategies, privatization of public businesses, industrial base

diversification to support export industries, etc. All of these initiatives are intended to strengthen the industrial sector, but it is clear that they have not had a significant impact.

The development of the industrial sector in low-income nations has been credited, in large part, to human capital. Human capability has been said to increase labor productivity, boost capital returns, speed up technical innovation, and promote sustainable growth. From a macroeconomic perspective, human capital is essential to the manufacturing process. From a microeconomic point of view, education of the labor force increases the likelihood of finding work and raises wage levels. Human capital is consequently defined at this micro level as the component of education that increases an individual's overall productivity of output and earnings while playing a crucial role in the production of a corporation (Adejumo, Olomola & Oluwabunmi, 2013)

According to modern growth theories like Arrow (1962), Romer (1990), and Lucas (1988), accumulating human capital is crucial to any economy's chances of experiencing economic growth. According to Lucas (1988), education and training are significant factors in this context because human capital is frequently considered as a possible growth engine. According to the human capital idea, education and training are investments in one's abilities (Schultz, 1961). A highly educated and trained workforce, according to Nelson and Phelps (1966), will make it simpler for a company to use new technology, hence enhancing the benefits of education and training.

Low human capital accumulation is one of the many explanations put out by academics for the differences in industrial progress between high-income and low-income countries (Mankiw, Romer & Weil, 1992). The development of human capital will be greatly aided by investments in education, health, worker training, and information dissemination. A key part of human capital is education. It is regarded as the primary method for enhancing the workforce's knowledge and skills, and as a result, it is an effective indicator of the caliber of the labor force. Another key component of human capital is health. Its impact on productivity just cannot be overstated. Worker health has a significant impact on productivity. A worker will be more active and productive the healthier he is. People who are healthy can live full lives and reach their potential. Therefore, given that health is a crucial component of wellbeing, it follows that it is man's greatest asset and has inherent value. Therefore, investing in the health sector will have a significant impact on raising human capital.

The ECOWAS has recently been experiencing a decline in the trend of industrial growth. The sector's growth appears to be slowing down (AFDB, 2016). This is the justification for the study since it is necessary to determine why the sub region’s industrial output growth has recently been declining.

Literature Review

Human capital was described by the Organization for Economic Cooperation and Development (OECD) as the knowledge, skills, competencies, and other qualities that people or groups of people possess and employ to produce commodities, services, or ideas under market conditions. However, the absence of the human capital's health component renders this concept incomplete. It is impossible to overstate the significance of health for human capital. The labor force, employers, and the country at large benefit from good health.

It was the classical school of thought that first conceived the concept of human capital (Fitzsimons, 1999). Becker (1964), who popularized the idea, defined human capital as the pool of knowledge, habits, social, and personality traits, including creativity, that are embodied in the capacity to perform labor and generate economic value. The fundamental human capital idea was amended by him.

According to Becker, the human capital theory really sees education and training as a way to invest in one's abilities and competencies. He held the opinion that an individual's level of education and skill development determines how much they may expect to make in the job market.

The development of the industrial sector in low-income nations has been credited in large part to human capital. Human capability has been said to increase labor productivity, boost capital returns, speed up technical innovation, and promote sustainable growth. From a macroeconomic perspective, human capital is essential to the manufacturing process. From a microeconomic point of view, education of the labor force increases the likelihood of finding work and raises wage levels. Human capital is thus defined at this micro level as the component of education that increases an individual's overall productivity of output and profits while playing a crucial role in the production of a corporation.

Modern growth theory holds that human capital has a role in economic progress. The development of human capital equips the labor force with the necessary knowledge and skills to contribute effectively to the manufacturing process. Romer (1990) claimed that increasing one's knowledge and abilities is an investment in human capital that will have an effect on productivity. It is crucial that the government allocate the funds necessary to increase human capability. The development of human capital will be greatly aided by investments in education and health, as well as worker training and retraining, as well as proper information dissemination.

The three conventional methods of evaluating human capital are output-based approach, cost-based approach, and income-based approach.

The industrial sector is essential to the growth of a country's economy. If the industrial sector is ignored, no nation can have economic growth. Job creation is one of the roles of industrialization. Statistics, for instance, indicate that at one point in Nigeria's history, the textile industry was the country's biggest employer. The industrial sector has also greatly benefited the agricultural sector. By fostering an atmosphere that encourages investment and providing the necessary training, it is possible to establish a sustainable industrial expansion.

Over the years, the GDP contribution from African industries has decreased. In terms of industrial value added, Africa's countries varied significantly in 2017. (MVA). The MVA of the majority of African nations, according to the World Bank (2017), is less than $200 annually. This suggests a low level of industrial output per capita. Even while the MVA of nations like Nigeria, Namibia, Botswana, Cameroon, Benin, Kenya, Senegal, Zimbabwe, and Gabon is higher than $200, it is still considerably lower than that of their peers in Asia and the industrialized economies. The manufacturing sector's proportion of GDP in Nigeria and Burundi was 18.3% and 16%, respectively, in terms of manufacturing's percentage contribution to GDP in 2017. This is less than the 23.53 percent average for Latin America and the Caribbean.

There is no question about the value of human capital in the process of industrialization. For instance, a well-developed human capital will permit full use of contemporary technologies. Additionally, when skills and competency improve, labor productivity will also rise.

Empirical review

In an empirical study conducted by Adejumo, Olomola, and Adejumo (2013) in Nigeria, the impact of human capital on industrial growth was investigated. Time series data from1980 to 2010 were used in the study along with the proper econometric methodology. It was discovered that human capital had a significant impact on industry value added but not on industrial output.

Using an empirical econometric model to assess the effects of health and education on economic growth in Ethiopia, Borojo and Yushi's (2015) discovered that government expenditure on health and education significantly impacted on economic growth.

In their study titled "Human Capital Development and Economic Growth in Nigeria," Anyanwu, Adam, Obi and Yelwa (2015) employed the autoregressive distributed lag (ARDL) framework, and the bounds testing analysis revealed the existence of cointegration between the indicators of economic growth and human capital development. The results also demonstrate that indicators of human capital development had a favorable impact on economic growth in Nigeria during the examined years, but these effects were generally statistically insignificant.

According to a study by Ying (2016), there is evidence to back up the claim that improving human capital will stimulate economic growth. The study used a panel data model to examine the relationship between human capital and economic growth utilizing education data from 55 nations that cuts across developing, and underdeveloped countries, including the United States, France, Germany, Canada, etc. The findings indicated that higher education had a favorable and considerable impact on these countries' economic growth.

A study was carried out by Pelinescu (2015) on the impact of human capital on economic growth in the European Union (EU) countries using a panel data technique, the study revealed that human capital plays a positive role in sustainable development of the EU countries. In a similar study, Ying (2016) used a panel data model to examine how human capital affects economic growth, and the findings indicated that higher education had a positive and significant impact on the research area's economic growth.

Mudassaar and Rehman (2019) examined the relationship between human capital and economic growth in both industrialized and developing economies using dynamic panel data (DPD) and the generalized method of moments (GMM). According to the research findings, human capital contributes to economic growth.

Ajana, Chidubem and Nwamaka (2019) examined the impact of human capital development on economic growth in Nigeria using OLS technique of analysis. The result shows a positive relationship between human capital and economic growth.

Methodology

The theory underpinnings this study is drawn from the Lucas-popularized human capital endogenous growth model (1988). According to Lucas, the growth of an organization or an

economy depends on human capital. Lucas described a growth model in which the production function below is used to produce output;

/ $Y = AK^{\alpha}(£hL)^{1-\alpha}$ ……(i)

Where £ represents the fraction of labor time expended in working, and h as the stock of "human capital," and where Y, A, and K are output, technical Coefficient, and physical input, respectively with the assumption that α is greater than 0 and less than 1 *(i.e.,* $0 < \alpha < 1$).

The production function can be represented as

$y = Ak^{\alpha}(£h)^{1-\alpha}$…… (ii)

which is a constant returns to scale production function in k and $£h$. Y_i is expressed in real terms, making it the real growth rate of ECOWAS's industrial sector. The model used in this study is as follows:

$y_{i,t} = f(k_{i,t}. h_{i,t}. e_{i,t})$……..…… (iii)

The linear form of the equation is presented in equation iv below:

$logy_{i,t} = log\delta + \theta logk_{i,t} + \varphi logh_{i,t} + \beta loge_{i,t} + \varepsilon$…… (iv)

In equation (iv), $y_{i,t}$ is the real growth rate of the industrial sector of country i at period t, $k_{i,t}$ is the physical capital (gross capital formation) of country i at period t, $h_{i,t}$ is the human capital (Secondary school enrolment and average life span) of country i at period t, and lastly, $e_{i,t}$ are other control variables that are very germane to the development of the ECOWAS Countries. In this study the variables to be included are commodity price index and exchange rate.

Estimation Technique

The study used panel data regression analysis to examine the link between industrial growth and human capital. Since it's crucial that every variable in the panel model be stationary, the panel data approach begins with the panel unit root test.

Descriptive analysis for the ECOWAS

Descriptive analysis was first carried out to demonstrate the statistical distribution features of the variables. The descriptive statistics area of emphasis is the human capital index and industrial sector growth.

The trend analysis of industrial growth and human capital is presented below. It begins with the summary of statistics

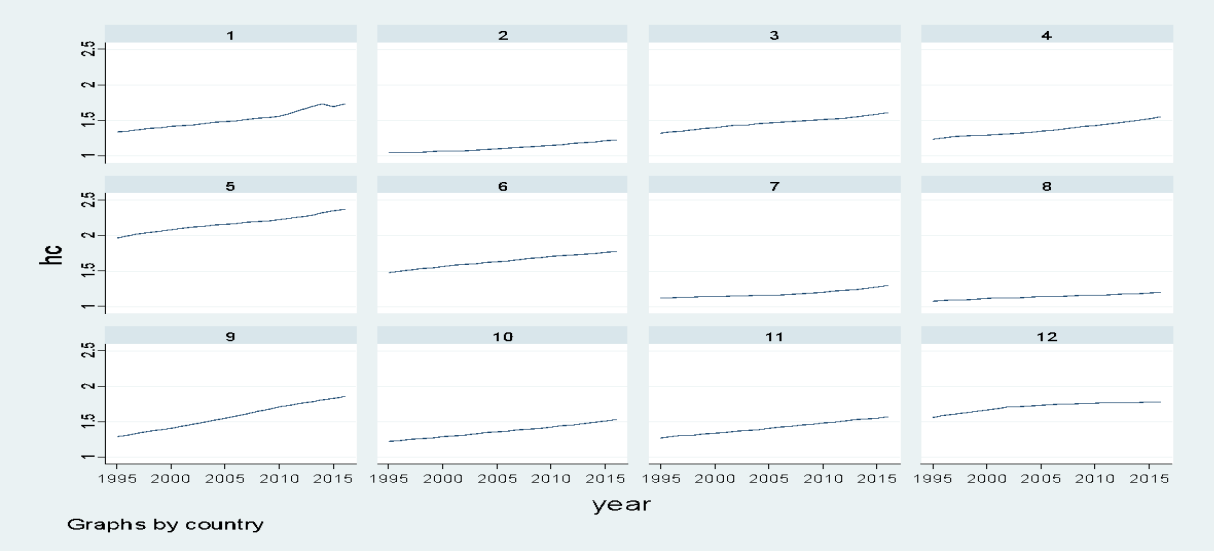
Table 1: Summary of statistics for the ECOWAS

	EXR	HC	INDGR	INF	K
Mean	570.7195	1.467867	19.16711	5.235606	18.85844
Median	494.4150	1.433002	19.83549	3.200000	19.45454
Maximum	4524.158	2.374476	37.44548	46.60000	42.03716
Minimum	0.064871	1.041401	3.243096	-3.100000	-2.424358
Std. Dev.	810.9915	0.294493	6.563693	6.392137	8.017716
Observations	264	264	264	264	264

Source: Author's Computation, 2022

The Human capital mean is 1.467867. Despite being positive, the figure is closer to the minimum than the maximum. Positive growth is also seen in the industrial sector throughout the time under consideration. A trend analysis of the countries was conducted for each of the variables in order to examine where specific ECOWAS nations fall within this distribution. The result is presented in the following figures.

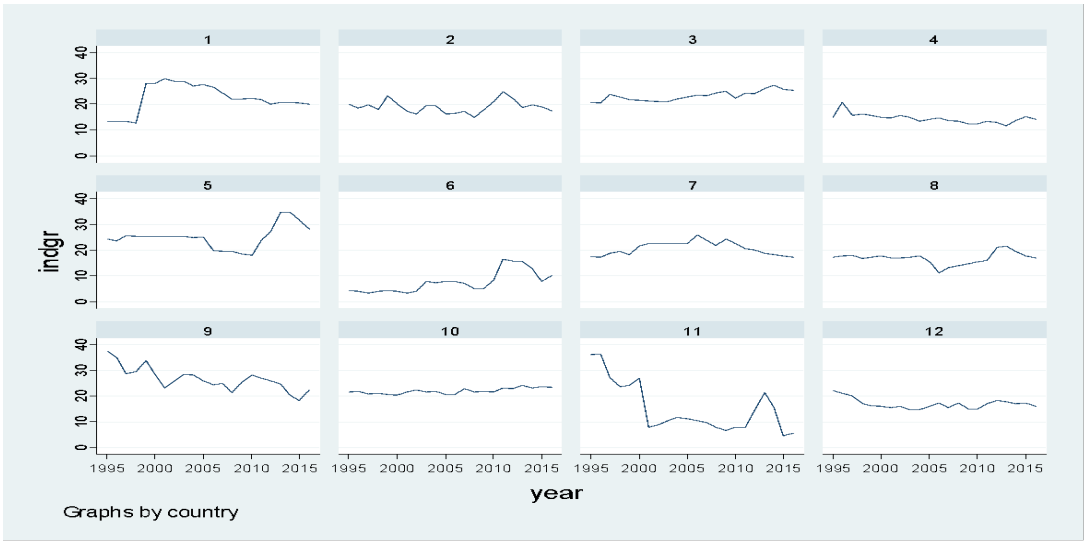
Figure 1 **Trends of Human capital index in the ECOWAS States**



Source: Author's Computation, 2022

The trend of the human capital index in ECOWAS nations is depicted in Figure 1. Based on the data that were available, twelve of the fifteen member countries were studied, accounting for nearly 98.5 percent of the ECOWAS region's total GDP. The human capital index scale ranges from 1 to 5, with 1 representing the lowest level and 5 representing the highest (World Bank, 2017). With the exception of Ghana, every member of the ECOWAS bloc has trends that are below 2 points, which indicates that the human capital index for the area is low. With values below 1.5, Mali and the Niger Republic have the lowest human capital indices. Ghana is the only ECOWAS member with a point value more than 2, making it the country in the sub-region with the highest level of the human capital index.

Figure 2 Trends of Industrial growth in the ECOWAS States



Key: Country 1-Benin, Country 2- Burkina Faso, Country 3-Ivory Coast, Country 4-Gambia, Country 5-Ghana, Country 6-Liberia, Country 7-Mali,

Source: Author's Computation, 2022

The industrial growth in the ECOWAS States has been unsteady, and in the majority of the countries, it has been moving in a downward trend, as shown by Figure 2 above. In nations like Togo, Sierra Leone, and Nigeria, the declines are more pronounced. Despite this, some nations also had positive trends during the studied period. These nations include Ghana and the Ivory Coast, but what unites them all is that they have all lately experienced a decline in the growth of their industrial sectors.

Table 1: Panel data estimation for ECOWAS

Variables	**ECOWAS**
LHC	.586287 (.5070764)
LCORR	-.0055427 (.3334231)
LGOVEF	.35307 (.3420118)
LGDPGR	-.0616707 (.0481097)
LEXR	-.0366509 (.0635238)
LINF	-.0071605 (.0432314)
LK	-.0458056 (.0785024)
HAUSMAN test	0.000
R square	0.3681
Cross-sectional dependence test probability	Pr = 0.9977

Source: Authors Computation, 2022

The findings demonstrate that ECOWAS's human capital, with a coefficient of.586287, considerably performs poorly in supporting the expansion of the industrial sector. The other macroeconomic factors included in the model, such as the inflation rate, capital stock, and exchange rates, had little or no effect on the industrial sector.

When taking the R square into account, the outcome reveals that ECOWAS has a low R square that is not up to 20%. This finding further demonstrates that human capital and other control factors in the model do not significantly predict the industrial sector in the ECOWAS. The findings demonstrate that ECOWAS's human capital, with a coefficient of .586287, considerably performs poorly in supporting the expansion of the industrial sector. The other macroeconomic factors included in the model, such as the inflation rate, capital stock, and exchange rates, had little or no effect on the industrial sector.

Discussions of findings and inferences

Ghana was found to have the best human capital index among the ECOWAS nations, since it was the only nation with an index close to two points. The ECOWAS countries with the lowest human capital indices are Niger and Mali, but for all of them, the future is promising as their human capital indices are all rising.

The developments in the ECOWAS countries differ from one another in terms of industrial growth. Results indicate that, in contrast to Ghana and Ivory Coast, the industrial growth trends in Nigeria, Togo, and Serra Lone are declining. The majority of the remaining nations are neutral. This result implies that Nigeria, the largest economy in ECOWAS, did not experience particularly strong industrial growth throughout the research period. Given that Nigeria's GDP makes up roughly 68 percent of the whole GDP of ECOWAS, this may also be the reason why the industrial growth for the entire ECOWAS has not been very outstanding. This result is also consistent with the IMF's 2017 analysis, which found that Nigeria has a significant influence on the ECOWAS region's business environment.

CONCLUSION

Some significant implications regarding the connection between human capital and industrial progress in ECOWAS may be drawn from the study's findings and outcomes.

The study has demonstrated that the underdevelopment of the industrial sector in ECOWAS is due to a lack of human capital. This is line with the empirical submission of Adejumo, Olomola, and Adejumo (2013) whose study investigated the impact of human capital on industrial growth in Nigeria. The study found out that Human capital was found to have a considerable impact on industry value added but not on industrial output. This concludes that the sub-region's industrial growth propensity is not particularly remarkable.

The inability of human capital to support industrial growth in the sub region explains the reason for huge import bills on importation of manufactured goods in ECOWAS states.

Recommendations

Following the findings of this study, the following suggestions are given to enhance human capital for better performance in order to increase the impact on the industrial sector.

The study has demonstrated that the ECOWAS has low-quality human capital. School enrollment, return on investment in education, and health indicators are the major variables used to calculate human capital. This demonstrates that for ECOWAS to have a more outstanding human capital index that will fuel their industrial growth, improvements in the education and health sectors are required. The governments of the sub-region should invest a good proportion of their revenue to finance education and the health sector.

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