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The contribution of human capital to the economic development of Cameroon, 1980-2018

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Abstract. The paper examines the contribution of human capital to the economic development of Cameroon from 1980–2018. To achieve this objective, data were collected from World Bank Development Indicators, for Cameroon, covering the period of 1980–2018. The error correction mechanism model was used to analyse the data using STATA 14 econometric software package. The results show that human capital has a positive and significant relationship with economic development in Cameroon. The findings suggest that gross school enrolment and labour force participation had slowed down economic development in Cameroon. The study recommends that given a significant coefficient of human capital on economic development in Cameroon, the government should create an enabling environment to reinforce the implementation of gross school enrolment, health expenditure and labour force participation policies to accelerate the process of economic development in the country.

Keywords. Asset, Education, Employment, Expenditure, Health.

JEL. D39, H52, I15, I25, J21.

1. Introduction

Human beings are the most valuable assets in the process of economic development in both developed and developing countries ([Hadir & Lahrech, 2015](#)). To achieve economic development, there is the need to use and manage these assets properly. One way through which this can be achieved is investment in human capital, described as the collective skills, knowledge, and intangible assets of individuals that are available for use to create economic value.

Most developing countries, including Cameroon, are lagging behind reaching the maximum spending capacity on human capital to boost their economic growth and development. The inappropriate government spending on human capital in Cameroon has fuelled numerous challenges ranging from low quality of educational delivery which consequently result to poorly equipped graduates to poor infrastructures in health care

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([Grundey & Varnas, 2006](#)). Countries with significantly developed human capital enjoy quite a number of benefits such as reduced level of poverty, increased employment opportunities, improved health care services, equitable income and wealth distribution and gender equality ([Rosenzweig, 1994](#)).

By improving their knowledge, skills, health status and flexibility on human capital, people become more productive and innovative. Thus, investment in human capital has become more and more important as the nature of work has evolved in response to rapid technological change. As highlighted in [Kim et al. \(2019\)](#), the changing nature of work, markets are increasingly demanding workers with higher levels of human capital, especially advanced cognitive and social behavioural skills.

As a developing country and in an attempt to develop her human capital so as to achieve sustainable economic growth and development, Cameroon has put in place some educational programmes in the past. Although these schemes only served as channels to transfer money to the inadequate management of a given sector of the economy, human capital development continues to retain the attention of the Cameroon Government (CG). [Todaro & Smith \(2012\)](#) argue that the enhancement of access to services such as education, health, and work offers high prospects of achieving economic development in developing countries.

According to [Rosenzweig \(1994\)](#), experience (learning by doing) is the most valuable form of human capital under traditional static technology. Consequently, education which enables farmers to acquire knowledge outside such environment provides little or no return. It follows that the elders have the largest amount of human capital and respect resulting in family stability and intergenerational interdependence. The introduction of technical change however, reduces the value of past experience and wear down family ties, which leads to family breakups and instability even though the rate of return from formal schooling may increase. Thus, according to [Rosenzweig \(1996\)](#), technical change can have a destabilising effect on the family by reducing returns from experience. By decreasing the role of risk spreading, arrangements among family members, and by weakening copying mechanism in an uncertain traditional economy environment. Another important policy implication that he draws from this finding is that the significant decline in fertility in growth areas relative to other areas of India was achieved without any direct intervention by the government, indicating that such efforts are unnecessary in an environment of continued technical change and economic growth and development.

In the 1980s, large cross country data sets renewed the debate on theories of economic development with the advent of the “new” or “endogenous” growth theory. As a result of this, new insights on the importance of human capital formation in economic development were revealed. In spite of this, some old problems remained and some new puzzles emerged. At present, the economic development theory is far from been a settled issue and so is the research programme trying to assess the empirical role of human capital

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development for an explanation of international differences in economic development ([Rosenzweig, 1996](#)).

Human capital, as viewed by economists, involves a process of investment that enhances human labour productivity by means of advances in knowledge and its applications. It specifically involves investment expenditure on education, training, health care, nutrition and related factors that increase the productivity of the labour force. Schultz ([1956](#)) was one of the first economists to identify the deficiency of the standard neoclassical production function in neglecting the critical role of human capital development.

Discussing the role of human capital in economic development implies a combination of explicit theory about economic development and empirical evidences based on that theory. A useful theory of economic development predicts the quantitative impact of human capital formation by identifying parameters that can be measured. Applied research then has to show whether the theoretical predictions are more or less matching with empirical evidences. If theoretical expectations agree with practical proofs, the theory may be used as a framework for discussing the role of human capital formation as an engine of economic development ([Rosenzweig, 1994](#)). On the contrary, new investigations become unavoidable.

Despite substantial progress, important gaps in human capital investments are leaving the world poorly prepared for what lies ahead. As detailed in World Bank ([2018](#)), children in many countries are struggling to learn in school. Nearly 25% of children worldwide are rigid in their behaviour, vulnerable to poor cognitive development and hampered in their ability to learn, while 50% of the world's population is not covered by essential health care services, and 80% of poor people in low income countries have insufficient social safety facilities.

Though human capital is a central driver to sustainable development and poverty reduction, policy makers sometimes find it difficult to properly address issues surrounding human capital development in their policies. After all, the benefits of investment in people can take a long time to materialise. Building roads and bridges can generate quick economic as well as political benefits. But investing in the human capital of young children only delivers economic returns when those children grow up and join the workforce. Investment in human capital can be thought of in this context as those activities which primary affect future wellbeing ([Becker, 1962](#)). The inter temporal tradeoff between actions affecting human capital today and the impacts of those actions tomorrow is thrown into further relief by the wealth of recent researches indicating that even indirect disruption of the human capital accumulation process can have very harmful long term impacts, particularly during early childhood ([Almond & Currie, 2011](#)). The set of issues related to human capital investment decisions and their eventual outcomes mirrors the structure of the society on a larger social concern of how to pursue sustainable development for the society must weigh the benefits of development today against the potentially unsustainable costs of

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hunting it tomorrow and individuals must weigh the benefits of investing in human capital today against its eventual future benefits.

Nowadays, the significance of human capital in economic development is no more a taboo. It is proven that the purpose of development is the human beings who are at the same time actors and the beneficiaries of development. As actors of development, human beings offer their human potentials symbolised by the labour force through their employment in economic activities. The concern to capitalise these human potentials in order to make them more efficient invokes the approach towards a sustainable promotion of investment in human beings ([Fongang, 2014](#)).

Human capital is an engine of economic development. In Cameroon, studies that addressed this issue provided mixed results as regards the achievement of the country's economic development. The objective of this study is to examine policies of human capital that may bring economic development in Cameroon. United Nations [UN] ([2020](#)) posits that Cameroon has 46.11% school enrolment rate, owing to socioeconomic crisis which have discouraged and kept number of students at all levels out of school arena. Health expenditure per capita of 37.50% can be justified by the government's reluctant efforts to provide quality health care services to its citizens. The country's labour force participation rate of 81% is in line with the age distribution of the country which is dominated by youths. These statistics point to the fact that in Cameroon, the state, divisional and local government allocate a meager portion of their funds to education, health care, training, skills and other human resource related factors that could help to reduce the persistent challenges of high unemployment rate, inadequate education, poor health status, gender equality that mitigate the process of economic development in the country. In spite of her abundant resources, the country has failed to realise her development potential in terms of sustainable human capital development or people oriented development like many other prosperous economies of the world that have adopted a similar strategy to boost their economy ([Grundey & Varnas, 2006](#)).

Given these socioeconomic challenges, there is the need to examine the contribution of human capital to the economic development in Cameroon. In particular, the focus rests on examining the contribution of education, health and employment as major components of human capital development to Cameroon's economic growth and development. The specific objectives of the paper include:

- To analyse the influence of level of education gross enrolment on economic development,
- To discuss the relationship between health care expenditure and economic development,
- To investigate the influence of labour force participation on economic development, and
- To offer recommendations towards enhancing the contribution of human capital to economic development in Cameroon.

This paper is organised as follows. Section 1 offers an introduction

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where the statement of the problem and objectives of the study are spelt out. Section 2 covers the review of literature review. Section 3 explains the methodology used to capture the objectives of the paper. Section 4 deals with data analysis and discussion of results in line with the specific objectives of the paper, while Section 5 offers the conclusion and recommendations of the paper.

2. Literature review

It was observed that rapid socioeconomic development is a function of the quality of human capital. However, African countries are still lagging behind in this regard partly due to deficiencies in planned efforts towards human capital development through education and training ([Awopegba, 2001](#)) as well as neglect of health care concerns. [Bidirici & Bohur \(2015\)](#) analysed the relation between human capital, economic development, and brain drain in 77 countries using panel data for the period 1990-2001. They observed that migration increases growth in developed countries but generally slows down growth in less developed countries including those in Africa. The result also shows that variables such as education index, adult literacy rate, schooling rate, education investments, per capita income, growth rate and average life expectancy are positively related to human capital in virtually all the 77 countries. However, [Ehrlich \(1958\)](#) suggested that empirical research should take into account other important determinants of human capital such as the quality of education, experience of the worker, and health status of the population.

[Gyimah-Brempong et al. \(2006\)](#) tested the expanded neoclassical growth model with the panel generalised method of moments [GMM] method to investigate the effect of higher education on economic development in African countries for the period 1960-2000. They found that the level of education positively affects economic development. In addition, the growth flexibility of higher education was estimated at 0.09% and it has been determined that this rate is approximately twice higher than the growth flexibility of physical capital investments. This result is interpreted as an indicator of the need for human capital as much as physical capital for economic development in African countries.

[Keller \(2008\)](#) analysed the impact of primary, secondary and tertiary education on economic growth in Asian countries using panel data analysis for the period 1971-2000. The number of primary, secondary and tertiary enrolment rates, share of government expenditures on education in gross domestic product [GDP] and public expenditures per student are determined as independent variables. The results indicate that expenditures, especially on primary education have positive effects on economic growth and development. Moreover, it was found that the rate of secondary school enrolment positively affects economic development.

[Yakisik & Cetin \(2014\)](#) analyse the extended Solow ([1956](#)) model for Turkey using data for the period 1980-2012 with the aid of an autoregressive distributed lag [ARDL] method. Secondary and tertiary education

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enrolment rates were used to represent human capital in the study. Results of the study explained that while no effect of higher education was observed, the rate of secondary school enrolment was found to have important positive effects on economic growth. In addition, the results of a study conducted by Yalcinkaya *et al.* (2018) show that various educational indicators used as human capital positively affect economic growth.

According to Aghion & Howitt (1992), the new growth theory linking the technological change to the production of knowledge emphasises that economic development results from the increasing return for the use of knowledge rather than labour. The theory argues that the higher rate of return as expected is greatly eroded by lower levels of complementing investment in human capital or education, infrastructure, or research and development. Meanwhile, knowledge is different from other economic goods because of its possibility to grow boundlessly. Knowledge or innovation can be reused at zero additional cost. Therefore, investment in knowledge creation can lead to sustainable development. Meier & Stiglitz (2000) posits that the new growth models, therefore, promote the role of government and public policies in complementary investments in human capital formation and the encouragement of foreign private investments in knowledge intensive industries such as computer software and telecommunications.

There exists a strong relationship between education and economic development. As an investment, education increases the total product. In fact, human capital is considered as the whole set of individual potentials that an individual acquires in the form of accumulated general or specific knowledge. According to Becker (1962), it is made up of activities in the form of investment. Conclusions of the model of human capital underscore the fact that well trained workers, or those who have attained a very high level of education are the most productive. From all indications, human capital is an investment. The factors which influence investment in human capital are the age of the individual, health status, cost of education and salary differential between different levels of education.

Drawing from the review of literature, this study places emphasis on the association between human capital and economic development. It neglects to a larger extent the channels through which human capital impacts economic growth for the objective here is to illuminate human capital development policies that can trigger economic development in Cameroon.

3. Methodology

This section focuses on the methodology used to address the objectives of the study. It presents the nature and sources of data used in the study. Furthermore, it specifies the econometric model and methods employed to estimate the model. The study uses the causal research design to investigate the cause and effect relationship between the variables of interest in order to forecast the economic phenomenon under investigation. The data are collected from the 2020 World Development Indicators of the World Bank.

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The vector error correction mechanism [VECM] method of data analysis is used with the help of STATA econometric software package to run the analysis. Before undertaking the proper analysis of the collected data, the following pretests: unit root test and lag length measures are conducted. These are followed by posttests of heteroscedasticity, autocorrelation and multicollinearity to verify the robustness of the results obtained.

Economic development is simply a sustained increase in the national output of an economy accompanied with a structural transformation in the quality of life of its citizens. The most commonly used measurements of economic development include gross domestic product per capita [GDPPC] and human development index [HDI]. The idea that increased exposure to school would increase productivity is at the heart of human capital theory. Elsewhere, it is suggested that the acquisition of more years of schooling provokes more than a mere enhanced consumption for people but leads to increased investment in the development of their cognitive capacities and skills in the form of additional schooling attained, good health status and labour force participation to achieve personal payoff benefits and improve the general wellbeing status of the society. These investments are conceptualised as savings in human capital formation since nowadays human capital is perceived as a universal feature of development ([Schultz, 1963](#)). Hence according to Lucas ([1988](#)), human capital accumulation leads to economic growth and development through a spill over effect.

In this study, HDI is defined as a function of education, health expenditure per capita and labour force participation. Education is captured by three variables – namely gross primary, gross secondary and gross tertiary education enrolments. The expected relationship between the explanatory variables and dependent variable of this function based on the provisions of economic theory is displayed in Table 1.

Table 1. Definition and measurability of variables

Variables	Measurement	Expected signs
Human development index (HDI)	Human development index (HDI)	+
Primary education (PEDU)	Gross PEDU enrolment	-
Secondary education (SEDU)	Gross SEDU enrolment	-
Tertiary education (TEDU)	Gross TEDU enrolment	+
Health (HEALTH)	Health expenditure per capita	+
Labour (LFP)	Labour force participation rate	+

Source: Authors

3.1. Tests

This section deals with the various tests conducted to check the suitability of the data to address the specific objectives of the inquiry. These include the unit root, lag length, heteroscedasticity, autocorrelation, and multicollinearity tests.

3.2.1. Unit root test and lag length test

One of the most important pretest to perform when dealing with time series data is the unit root test. Most economic time series variables are non

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stationary and the use of non stationary time series data leads to apparent but not actually valid regressions which may render the results obtained non reliable and invalid to be used for decision making. A variable is said to be non stationary if the mean, variance and auto covariance of that variable change with time. Hence, the use of such data gives invalid results. To solve this problem (converting non stationary data into stationary data) the differencing at levels is performed. If a time series becomes stationary after differencing once, then it is said to be integrated of order one and denoted by I(1). But if it becomes stationary only after differencing two times, it is said to be integrated of order two and denoted I(2). Similarly, if the time series has to be differenced d times before assuming stationary, then it is said to be integrated of the order d and denoted I(d). If the time series needs no difference to achieve stationary, then it is denoted I(0). Therefore, the stationarity test is carried out to ascertain the level of stationarity of the variables in this study through the Augmented Dickey-Fuller [ADF] of Dickey & Fuller (1979) test to verify the level at which non stationary variables attain stationarity.

In order to determine the appropriate lag order to be used for the Johansen (1988) cointegration test, a lag order selection test is conducted and the results indicate that the appropriate lag for the test was 1 as prescribed by the final predictor error [FPE], Schwarz information criterion [SIC], Hannan-Quinn information criterion [HQIC] as against lag 4 for the likelihood ratio [LLR] and Akaike information criterion [AIC] (Johansen, 1988). The Johansen (1988)'s cointegration test shows that there exists a long run equilibrium relationship among the variables. In fact, results indicate that there are 3 cointegrating equations in the model.

3.2.2. Heteroscedasticity, autocorrelation and multicollinearity tests

Various post estimation tests are run. The heteroscedasticity qualifies series whose variances are not constant. Here the study employs the Breusch-Pagan's test of Breusch & Pagan (1979) to test the null hypothesis of no heteroscedasticity in the variables of the estimated model. Owing to this exercise, the null hypothesis is rejected on the basis that the corresponding Breusch-Pagan's Chi Square probability value of Breusch & Pagan (1979) is greater than the 5% level of significance.

It shall be noted that the presence of autocorrelation invalidates feedback concerning the validation of models or statistical tests. Therefore, due to the fact that serial correlation is a major problem when using error correction model [ECM] technique, the Durbin-Watson (d) test of Durbin & Watson (1951) is run to test the null hypothesis of no autocorrelation in the variables of the estimated model. On the basis of this exercise, a d statistic of $1.98 \approx 2$ is achieved, implying that there is no first order serial correlation, either positive or negative in the estimated model. As a result, it can be deduced that there is no serial autocorrelation in the parameters of the estimated model.

The variance inflation factor [VIF] is used to assess whether or not the model suffers from the problem of multicollinearity. If a variable has a VIF

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value higher than 10 or mean VIF value greater than 2.5, then a serious problem of multicollinearity is detected in the model. It is observed that multicollinearity is not a major concern in the model given that no individual VIF value exceeded 10. Moreover, it is clearly observed that the mean VIF value of the model is far below the critical value of 2.5.

3.3. Model specification

In an attempt to investigate the effect of human capital on economic development in Cameroon, it is necessary to develop a model to justify the existing relationship between the variables. In this regard, an economic development multivariate model is specified to describe this relationship. The econometric model is stated as:

$$HDI_t = \beta_0 + \beta_1 PEDU_t + \beta_2 SEDU_t + \beta_3 TEDU_t + \beta_4 HEALTH_t + \beta_5 LFP_t + \varepsilon_t \quad (1)$$

HDI is human development index proxy for economic development, PEDU is gross primary education enrolment. SEDU is gross secondary education enrolment. TEDU is gross tertiary education enrolment. HEALTH is current health expenditure per capita. LFP is labour force participation rate, while ε_t is the disturbance term which is assumed to follow a normal distribution.

Later on, the logged model is used so as to interpret the coefficients of the estimated model as elasticities. By adding the natural logarithm operator on the variables of the model, Equation (1) translates into Equation (2).

$$\ln HDI_t = \beta_0 - \beta_1 \ln PEDU_t - \beta_2 \ln SEDU_t + \beta_3 \ln TEDU_t + \beta_4 \ln HEALTH_t + \beta_5 \ln LFP_t + \varepsilon_t \quad (2)$$

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ are the parameters or coefficients of PEDU, SEDU, TEDU, HEALTH and LFP, respectively that are giving the percentage change in HDI owing to 1% change in one of the explanatory variables, *ceteris paribus*. β_0 is the constant term considered here as the natural rate of economic development in Cameroon.

4. Data analysis and discussion of results

This section focuses on the presentation and discussion of findings used to address the objectives of the study. It aims at presenting and discussing tools of data analysis used in the study.

4.1. Influence of gross school enrolment on economic development

Table 2 presents the results of the influence of gross school enrolment on economic development in Cameroon. It shows a positive and statistically insignificant relationship between economic development proxied by human development index [HDI] and gross primary education [PEDU] enrolment both in the short run [SR] and long run [LR] as indicated by the coefficients of 0.098 (a 10% increase in PEDU leads to 0.98% increase in HDI

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in SR) and 0.0005 (a 10% increase in PEDU leads to 0.005% increase in HDI in LR). However, a negative and statistically insignificant relationship between HDI and gross secondary education [SEDU] enrolment in LR as indicated by the coefficient of -0.0443 (a 10% increase in SEDU leads to 0.443% decrease in HDI in SR) is observed. Also, the gross tertiary education [TEDU] enrolment is negatively related to HDI both in SR and LR. TEDU is statistically significant at 10% level of significance in SR (a 10% increase in TEDU leads to 1.06% decrease in HDI in SR) and 1% level of significance in LR (a 10% increase in TEDU leads to 1.333% decrease in HDI in LR).

A careful observations of the results of this study reveals that on one hand and particularly at primary level of education, considerable efforts are deployed to procure basic education and training to the younger generations in Cameroon as opposed to the claims of Omolewa (2001) that African countries are lagging behind in educating and training their populations. On the other hand, there is evidence that at secondary and tertiary levels of education, African countries need to improve the status of their systems of education and training in order to compete satisfactorily with the rest of the world as pointed out by Omolewa (2001).

Table 2. Influence of education gross enrolment on economic development in Cameroon

Variable	Short run coefficient	t	p > t	Long run coefficient	t	p > t
InPEDU	0.09791 (0.0987348)	0.99	0.329	0.00049 (0.0760524)	0.01	0.995
InSEDU	0.00763 (0.0528521)	0.14	0.886	-0.04427 (0.0544258)	-0.81	0.442
InTEDU	-0.10558* (0.0581673)	-1.82	0.079	-0.13331** (0.0323944)	-4.11	0.000

Notes: ***: 1% level of significance; **: 5% level of significance; *: 10% level of significance, Figures in brackets are standard errors.

Source: Authors, using STATA 14

4.2. Relationship between health care and economic development

Table 3 displays the relationship between health care expenditure [HEALTH] and HDI in Cameroon. It shows that there is a positive and statistically significant relationship between HEALTH and HDI both in SR (a 10% increase in HEALTH provokes a 0.937% increase in HDI in SR) and LR (a 10% increase in HEALTH provokes a 1.47% decrease in HDI in LR) at 1% level of significance. These results agree with the work of Acemoglu *et al.* (2014) who found that a good physical, mental and social health of the population improves the productivity of people, thus bringing about economic development in an economy.

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Table 3. Relationship between health care expenditure and economic development in Cameroon

Variable	Short run coefficient	t	p > t	Long run coefficient	t	p > t
InHEALTH	0.09368*** (0.03268)	2.87 -	0.007 -	0.14654*** (0.0386616)	3.79 -	0.001 -

Notes: ***: 1% level of significance; **: 5% level of significance; *: 10% level of significance, Figures in brackets are standard errors.

Source: Authors, using STATA 14

4.3. Influence of labour force participation on economic development

Table 4 discusses the influence of labour force participation [LFP] on economic development in Cameroon. It shows that there is a negative relationship between LFP and HDI both in SR (a 10% increase in LFP leads to 9.03% decrease in HDI in SR) and LR (a 10% increase in LFP provokes a 20.006% decrease in HDI in LR). The influence of LFP on HDI is statistically insignificant in SR but statistically significant at 1% level of significance in LR. These results contradict the claim that a larger share of the labour force in Cameroon is made up of unemployed youths who find it difficult to secure a job upon graduation from the university, thus resulting in the high dependency ratio among youths in the country.

Table 4. Labour force participation influence on economic development in Cameroon

Variable	Short run coefficient	t	p > t	Long run coefficient	t	p > t
InLFP	-0.9026 (0.651422)	-0.14 -	0.899 -	-2.0006** (0.582575)	-3.43 -	0.002 -

Notes: ***: 1% level of significance; **: 5% level of significance; *: 10% level of significance, Figures in brackets are standard errors.

Source: Authors, using STATA 14

4.4. Details of the estimated model of economic development for Cameroon

This section explains the estimated model of economic development [$\ln \overline{HDI}$] for Cameroon. It discusses both SR and LR estimated models. Equating all logged variables of Equation (2) to \overline{Y} for the dependent variable and \overline{X}_i for the explanatory variables with $i = 1, 2, 3, 4, 5$, the estimated models can be transformed accordingly. Based on the transformation process, SR model can be rewritten as in Equation (3), while LR model can be expressed as in Equation (4), respectively. It is reminded that \overline{X}_1 represents PEDU, \overline{X}_2 stands for SEDU, \overline{X}_3 corresponds to TEDU, \overline{X}_4 denotes HEALTH, while \overline{X}_5 epitomises LFP.

$\bar{Y} = 0.00083 + 0.098\bar{X}_1 + 0.008\bar{X}_2 - 0.106\bar{X}_3 + 0.0936\bar{X}_4 - 0.903\bar{X}_5$ (3)
Se = (0.0051) (0.0987) (0.0528) (0.0582) (0.0327) (0.6514)
t = (0.16) (0.99) (0.14) (-1.82)* (2.87) *** (-0.14)
R ² = 0.4237 Adj R ² = 0.3122
F (6, 31) = 3.80 Prob > F = 0.006

Notes: ***: 1% level of significance; **: 5% level of significance; *: 10% level of significance

From Equation (3), it can be observed that PEDU and SEDU have a positive relationship with HDI as indicated by their coefficients of 0.09791 and 0.00763 but are statistically insignificant. TEDU has a negative relationship with HDI but is statistically significant at 10% level of significance. HEALTH has a positive relationship with HDI and is statistically significant at 1% level of significance, while LFP has a negative and statistically insignificant relationship with HDI. SR adjusted R square is 0.3122, meaning that 31.22% of the variations in HDI are explained by the variables in the model. The value of F-statistic is 3.80, which is greater than the probability value of 0.006 (p-value < 5%). As a result of this, the null hypothesis is rejected, implying that there exists a significant statistical relationship between human capital and HDI in SR in Cameroon.

$\bar{Y} = 9.1338 + 0.0005\bar{X}_1 - 0.0443\bar{X}_2 - 0.1333\bar{X}_3 + 0.1466\bar{X}_4 - 2.0006\bar{X}_5$ (4)
Se = (2.7815) (0.0760) (0.0544) (0.0324) (0.0387) (0.5826)
t = (3.28) (0.01) (-0.81) (-4.11) *** (3.79) *** (-3.43) ***
R ² = 0.6902 Adj R ² = 0.6433
F (5, 33) = 14.71 Prob > F = 0.0000

Notes: ***: 1% level of significance; **: 5% level of significance; *: 10% level of significance

However in LR, it is observed as displayed in Equation (4) that PEDU has a positive relationship with HDI as indicated by the coefficient of 0.0005 though statistically insignificant, whereas SEDU has a negative relationship with HDI as indicated by the coefficient of -0.0443 still statistically insignificant. TEDU equally has a negative relationship with HDI as shown by the coefficient of -0.1333 at 1% level of statistical significance. HEALTH is positively related to HDI at 1% level of statistical significance. LFP is also positively associated with HDI at 1% level of statistical significance. LR adjusted R square is 0.6433, meaning that 64.33% of the variations in HDI are caused by the variables in the model. The value of F-statistic is 14.71, which is greater than the probability value of 0.0000 (p-value < 5%). Thus, the null hypothesis is rejected, implying that there exists a significant statistical relationship between human capital and HDI in LR in Cameroon.

5. Conclusion and recommendations

Human capital plays a vital role in inducing economic development in Cameroon. A pre knowledge on how to tackle gross primary education enrolment, gross secondary education enrolment, gross tertiary education enrolment, current health expenditure per capita, and labour force

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participation rate enables the Cameroon Government (CG) to move towards the direction of economic development.

Based on the findings of the study, the following recommendations can be drawn. One, CG should pay more attention to the education, health and labour force participation sectors of her economy. With respect to education, there is the need for a systematic government check of gross enrolments of learners at all levels of education to guarantee quality training and development. In the health sector, CG needs to provide an enabling environment for well trained health personnel. This may enhance life expectancy in the economy and boost economic development of the economy. Also, if the labour force is active and productive, this may contribute to economic development in the country. Two, an enabling environment should be created for the efficient operation of both the physical and human capital so as to augment the productivity of the economy that can in turn sustain its economic growth and development in the long run. Finally, the study recommends the putting in place of a social insurance scheme by policy makers, the training and recruitment of more human resources personnel to reduce the magnitude of inadequate management of the available human resources in the economy.

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References

- Acemoglu, D., Gallego, F. A. & Robinson, J.A. (2014). Institutions, human capital, and development, *Annual Revised Economics*, 6(1), 875-912. [10.1146/annurev-economics-080213-041119](https://doi.org/10.1146/annurev-economics-080213-041119)
- Aghion, P. & Howitt, P. (1992). A model of growth through, *Analyses Economiques*, 3(2), 1-3. [10.3386/w3223](https://doi.org/10.3386/w3223)
- Almond, D. & Currie, J. (2011). Human capital development before age five. Chap. 15: 1315-1486. In *Handbook of Labor Economics*, 4, Part B. [10.1016/S0169-7218\(11\)02413-0](https://doi.org/10.1016/S0169-7218(11)02413-0)
- Awopegba, P.O. (2001). Human capital development in Nigeria: A socio-economic analysis, *Nigerian Journal of Clinical and Counselling Psychology*, 7(1), 157-167. doi. [10.4314/njccp.v7i1.23910](https://doi.org/10.4314/njccp.v7i1.23910)
- Becker, G.S. (1962). Investment in human capital: A theoretical analysis, *Journal of Political Economy*, 70(5), 9-49. [10.1086/258724](https://doi.org/10.1086/258724)
- Bidirici, M. & Bohur, E. (2015). Design and economic growth: Panel cointegration and causality analysis, *Procedia-Social and Behavioral Sciences*, 210, 193-202. [10.1016/j.sbspro.2015.11.359](https://doi.org/10.1016/j.sbspro.2015.11.359)
- Breusch, T.S. & Pagan, A.R. (1979). A simple test for heteroscedasticity and random coefficient variation, *Econometrica*, 47(5), 1287-1294. [0012-9682\(197909\)47:5<1287:ASTFHA>2.0.CO;2-9](https://doi.org/0012-9682(197909)47:5<1287:ASTFHA>2.0.CO;2-9)
- Dickey, D.A. & Fuller, W.A. (1979). Distribution of the estimators for autoregressive time series with a unit root, *Journal of the American Statistical Association*, 74(366), 427-431. doi. [10.2307/2286348](https://doi.org/10.2307/2286348)
- Durbin, J. & Watson G.S. (1951). Testing for serial correlation in least-squares regression II, *Biometrika*, 38, 1/2: 159-171. [10.2307/2332325](https://doi.org/10.2307/2332325)
- Ehrlich, O.H. (1958). Book review of Gerald M. Meier and Robert E. Baldwin (1957). *Economic development: Theory, history, policy*. New York: John Wiley & Sons, Inc., Pp.xx, 588, *The Journal of Economic History*, 18(1), 74. doi. [10.1017/S0022050700088860](https://doi.org/10.1017/S0022050700088860)
- Fongang, F.F. (2014). Promotion and development of tourism in Cameroon, Unpublished Bachelor of Hospitality Management Thesis, Laurea University of Applied Sciences, Laurea, Kerava. [Retrieved from].
- Godfrey, L.G. (1978). Testing against general autoregressive and moving average error models when the regressor includes lagged dependent variables, *Econometrica*, 46, 1293-1302. doi. [10.2307/1913829](https://doi.org/10.2307/1913829)
- Grundey, D. & Varnas, D. (2006). Human capital creation, accumulation and management in Lithuania: The case of national and foreign capital enterprises, *Transformations in Business & Economics*, 5(2), 81-105.
- Gyimah-Brempong, K., Paddison, O. & Mitiku, W. (2006). Higher education and economic growth in Africa, *Journal of Development Studies*, 42(3), 509-529. doi. [10.1080/00220380600576490](https://doi.org/10.1080/00220380600576490)
- Hadir, M.A. & Lahrech, A. (2015). Human capital development and economic growth in Morocco, *International Journal of Education and Human Development*, 1(1), 49-73.
- Johansen, S. (1988). Statistical Analysis of cointegration vectors, *Journal of Economic Dynamics and Control*, 12(2-3), 231-254. doi. [10.1016/0165-1889\(88\)90041-3](https://doi.org/10.1016/0165-1889(88)90041-3)
- Keller, K.R.I. (2008). Investment in primary, secondary, and higher education and the effects on economic growth, *Contemporary Economic Policy*, 24(1), 18-34. doi. [10.1093/cep/byj012](https://doi.org/10.1093/cep/byj012)
- Kim D., Izadi S., Hilliges, O., Butler, D.A., Hodges, S., Olivier, P.L., Chen, J. & Oikonomidis, I. (2019). Wearable sensor for tracking articulated body-parts U.S. Patent No.10234941. Washington, DC: U.S. Patent and Trademark Office. [Retrieved from].
- Lucas, R.E. (1988). On the mechanics of economic development, *Journal of Monetary Economics*, 22(1), 3-42. doi. [10.1016/0304-3932\(88\)90168-7](https://doi.org/10.1016/0304-3932(88)90168-7)
- Meier, G.M. & Stiglitz, J.E. (2000). *Frontiers of development economics: The future in perspective*. New York: World Bank and Oxford University Press.
- Omolewa, M. (2001). *The challenge of education in Nigeria*, Ibadan: University of Ibadan.
- Rosenzweig, M.R. (1994). Human capital accumulation, the family, and economic development, Chap.4: 63-90. In S. Asefa & W. Huang (eds.). *Human capital and economic*

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- development, Kalamazoo, MI: W.E. Upjohn Institute for Employment Research. doi. [10.17848/9780880995689.ch4](https://doi.org/10.17848/9780880995689.ch4)
- Rosenzweig, M.R. (1996). Aspects of the search for neural mechanisms of memory, *Annual Review of Psychology*, 47, 1-32. doi. [10.1146/annurev.psych.47.1.1](https://doi.org/10.1146/annurev.psych.47.1.1)
- Schultz, T.W. (1956). Reflections on agricultural production, output and supply, *American Journal of Agricultural Economics*, 38(3), 748-762. doi. [10.2307/1234459](https://doi.org/10.2307/1234459)
- Schultz, T.W. (1963). *The economic value of education*, 63. New York: Columbia University Press.
- Solow, R.M (1956). A contribution to the theory of economic growth, *The Quarterly Journal of Economics*, 70(1), 65-94. doi. [10.2307/1884513](https://doi.org/10.2307/1884513)
- Todaro, M. P. & Smith, S. C. (2012). *Economic development*, 11e, New York: Addison-Wesley.
- United Nations [UN] (2020). *World economic situation and prospects*, New York: UN. [Retrieved from].
- World Bank, (2018). *Learning to realize education's promise*, World development report 2018, Washington, DC: WB. doi: [10.1596/978-1-4648-1096-1](https://doi.org/10.1596/978-1-4648-1096-1)
- WB (2021). Digital technologies in education, [Retrieved from].
- Yakisik H. & Cetin, A. (2014). The impacts of education, health and level of technology on economic growth: ARDL bound test approach, *Socio-economics*, 21(1), 169-186. doi. [10.18074/ekuiibfd.484019](https://doi.org/10.18074/ekuiibfd.484019)
- Yalcinkaya O., Dastan M. & Karabulut, K. (2018). The effects of international tourism receipts on economic growth: Evidence from the first 20 highest income earning countries from tourism in the world (1996-2016), *Montenegrin Journal of Economics*, 14(3), 55-71. doi. [10.14254/1800-5845/2018.14-3.4](https://doi.org/10.14254/1800-5845/2018.14-3.4)



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