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RESEARCH ARTICLE

INVESTMENT IN EDUCATION AND DEVELOPMENT PROCESS IN CONGO

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ABSTRACT

The development process, despite the increase in primary and secondary enrollment, is slow to take off in the Congo. Successive educational policies, which have relied on a change in public spending on education at an annual average rate of less than 1%, have not improved the quality of education (demand for skilled labor limited). From the results obtained, it is noted that the gross domestic product per capita, with a probability equal to 0.0348 lower than 5%, causes the number of primary school pupils, while the opposite is not true. From these results we also note that gross fixed capital formation causes the number of primary school pupils, and not the opposite. This situation shows that progress in the development of schooling has had little impact on growth.

Key words: Investment in education, human capital, gross domestic product per capita, gross fixed capital formation, educational policy.

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INTRODUCTION

Nobel Laureate 1979, Schultz TW (1972), emphasized that "there is little doubt that investment, which improves people's capabilities, creates differences in economic growth and satisfaction with the consumption. We now know that the neglect of human capital skews the analysis of economic growth. Several works have been inspired by the contribution of Schultz, who understood that progress in the fields of health and education are key variables in explaining economic developments during the 20th century. Those works have aroused great interest; judging by the number of Nobel prizes among the leading authors. However, the theory of human capital takes up an idea of Karl Marx, who explained the remuneration of skilled workers by the cost - especially in working time - of their training. While several works have been inspired by the contribution of Schultz, but according to Aghion P. and Cohen E. (2004), the assumption of a real wage equal to the marginal productivity of labor underlies the first studies on the education and growth based on the neo-classical growth model (Solow, 1956), especially the pioneering article by Mankiw, Romer and Weil (1992). The basic idea in this approach is that human capital plays the same role in production as physical capital, and that accumulating years of education amounts to multiplying the work force, in other words to increasing its efficiency. Productive with constant technology; this increased efficiency makes it possible to offset diminishing returns on capital and, consequently, to support growth in the long term. The growth rate of GDP per capita over a given period is therefore proportional to the rate of

growth of the level of education during the same period, the proportionality factor being the macroeconomic performance of education. It is accepted that investment in education allows each individual to accumulate his human capital constituted by his knowledge, his know-how and his experience (see Guerrien B. (1996) and Bialès *et al.* (1999)). For several years, the Congo has progressively evolved towards increased investments in education. Between 2008 and 2014, total expenditure on education grew at an annual average rate of 12.5%, rising from 109407 million CFA francs in 2008 to 222245 million CFA francs in 2014. It is estimated that the initial stock of education is of paramount importance in long-term growth. Ten years after Congo's independence, there has been a significant increase in the number of primary and secondary students. In 1972, the number of primary and secondary students increased by 8.7% and 22.8% respectively. Similarly, in 1971 and 1972, the continuation of studies to grade 5 and the end of the primary cycle as a percentage of the cohort was respectively 56.3%; 48.0% and 48.6; 42.9%¹. However, while the pupil / teacher ratio at the secondary level was acceptable (33.0 and 35.3), at the primary level, the ratio was very high (61.9 and 64.2). Thus, in 1971 and 1972, for a teacher, there were 61.9 and 64.2 pupils in primary school. These numbers have not improved over more than 25 years. From 1971 to 2012, data from the World Bank show us that the average pupil / teacher ratios at the primary and secondary levels were 62.1 and 33.6, respectively. All this can hide problems of educational quality (limited skilled labor demand) and thus of the impact of the development of schooling on long-term economic growth, that is, on the development process. It appears that poverty and weak development of education are linked and that this connection is two-way. Poor

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¹See World data bank.

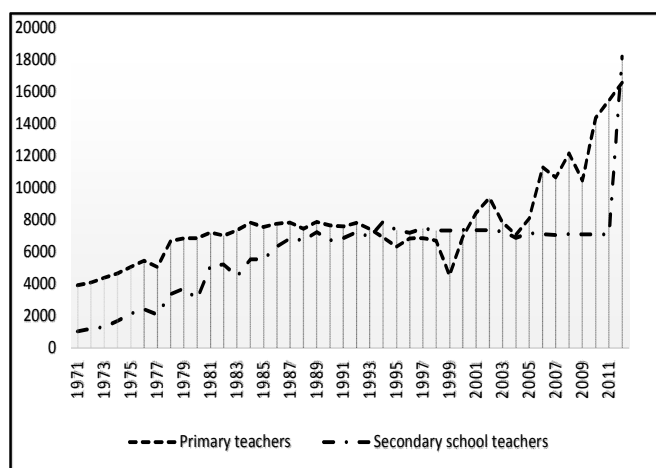
countries, especially African countries, would thus be locked in a vicious circle (Caucutt and Kumar, 2004). However, the case of South-East Asian countries is frequently referred to, as opposed to that of sub-Saharan African countries, as an example of what political will can, even in poor countries, and results that can be achieved through the development of education (Nolwen, 2006). Also, our study tries to see the impact of schooling on the process of economic development of the Congo

Therefore, it is important to answer the following question: does investment in education have a significant impact on Congo's economic development process?

This study is structured in three essential points namely: the figures on education and economic development (I), the literature on education and development (II) and finally the econometric analysis (III).

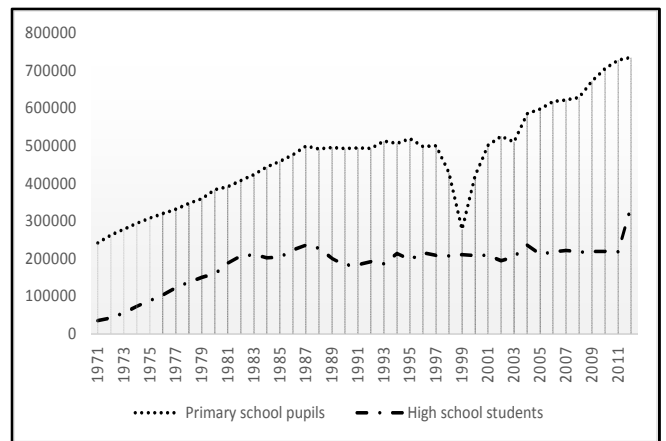
Figures on Education and Economic Development

According to Barro (2002), human capital can have a two-way effect on growth: it facilitates the uptake of more sophisticated technologies from developed countries and favors the upward adjustment of physical capital. Thus, education, as it improves the quality of the workforce and thus the creation of resources through learning and imitation processes, is an essential part of the economic development process. In fact, the challenge of education, in this case, makes it possible to bridge the development gap, and thus make the economy of a country dynamic. According to Aghion and Cohen (2004), an education system focusing on primary and secondary education, appears to be adapted to the case of a catch-up economy. Psacharopoulos (1994) points out that the returns to education are decreasing from one education cycle to another, and it is in primary education that they are the highest. This conclusion is repeated by Psacharopoulos G. and Patrinos H.A. (2002) who state that "the traditional pattern of declining returns to education by level of development and level of education is maintained". Graphs 1 and 2 show that the trend in the number of pupils and teachers in primary and secondary education increases over the period 1971-2012. Similarly, we note that spending on education (Chart 3) increases steadily between 2008 and 2014. However, the observation of Chart 4, tells us that primary classes are overcrowded with more than 50 students by class.



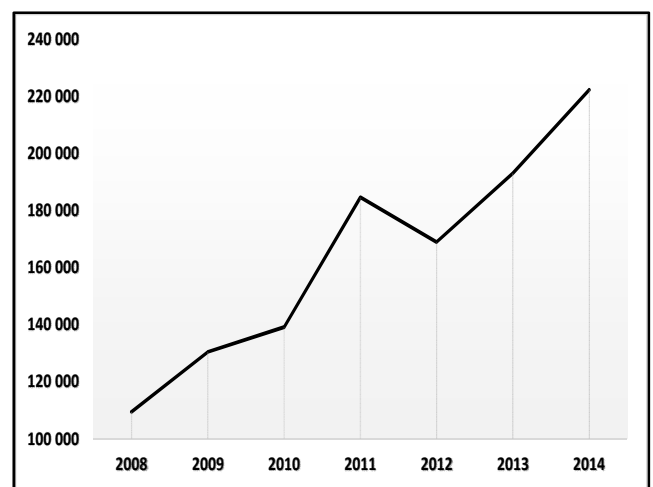
World Bank data

Graph 1. Evolution of the number of primary and secondary teachers

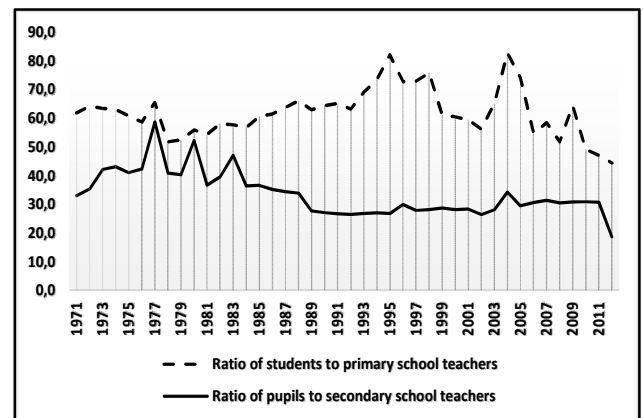


World Bank data

Graph 2. Evolution of the number of primary and secondary students



Graph 3. Evolution of education expenditure



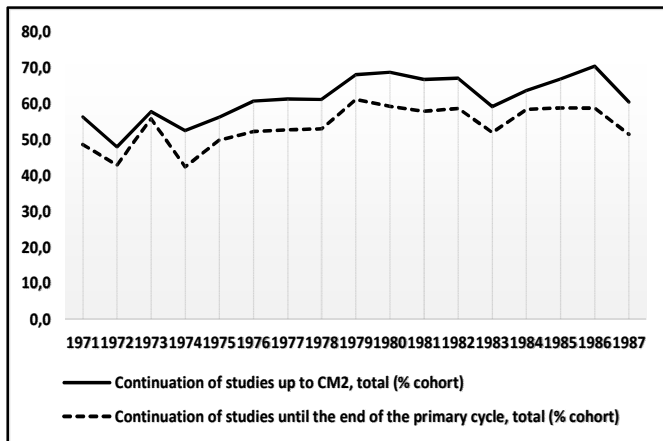
Graph 4. Evolution of pupil ratios by primary and secondary school teachers

The various education policies have devoted little expenditure to education. The analysis in Table 1 shows that, from 1970 to 2010, expenditure on higher education could not reach 30% of public expenditure on education. These expenditures have evolved at an annual average rate of 0.4%. Although the share of public expenditure devoted to primary education as a percentage of public expenditure on public education reached 50.0% in 1995, it nevertheless increased at an annual average rate of -1.1%. Public expenditure on secondary education has evolved at an annual average rate of 0.9%, but has experienced significant reductions during the period of the structural adjustment programs with an increase of -59.9% in 1995.

Table 1. Expenditure on Education

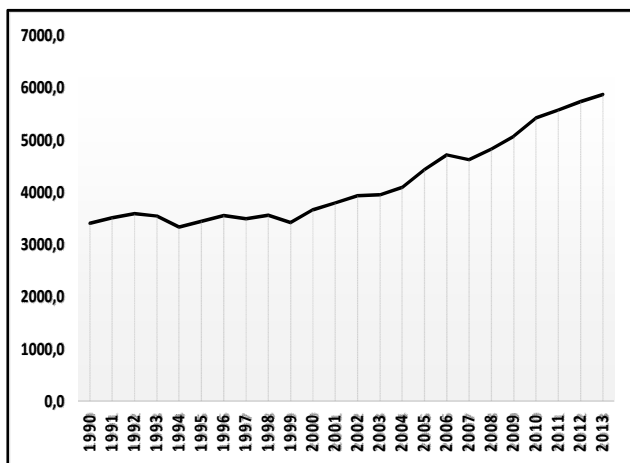
	1970	1975	1980	1995	2005	2010
Expenditures on higher education (% public expenditures on education)	9,3	27,4	25,6	27,5	25,9	10,9
Part of public expenditures on primary education (% of public expenditures on education)	48,0	28,7	33,9	50,0	27,3	31,0
Part of public expenditures on secondary education (% of public expenditures on education)	37,8	39,7	30,2	12,1	41,2	53,3

Graph 5 builds on the number of students reaching CM2 and those completing the primary cycle. It is noted that more than 20% of students fail to complete the primary cycle. The plethora of primary classes (Figure 4) may be the cause of this situation since it has a negative effect on student training. Also, a regular increase in education expenditure does not make it possible to fill the problems of school infrastructures as well as that of the lack of primary school teachers.



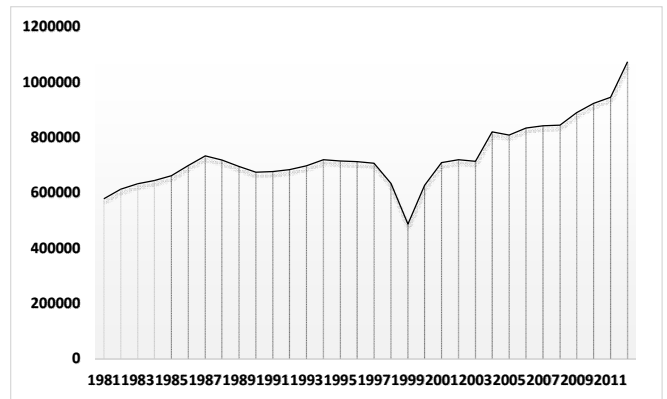
Graph 5. Evolution of the number of primary pupils who reach the CM2 and the end of the primary cycle

It has been noted above that the rate of growth of GDP per capita over a given period is proportional to the rate of growth of the level of education during the same period and that the proportionality factor is the macroeconomic performance of education.

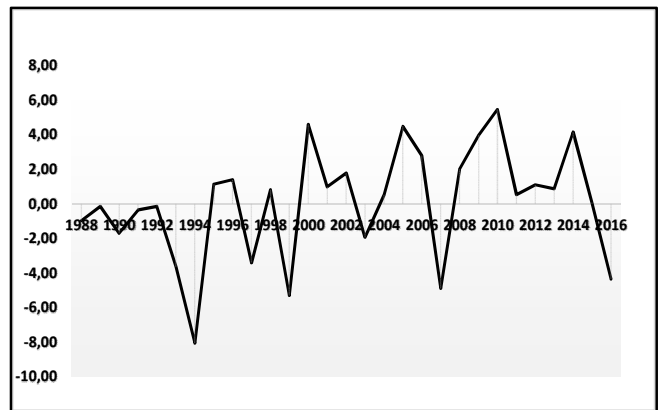


Graph 6. GDP per capita from 1990 to 2013

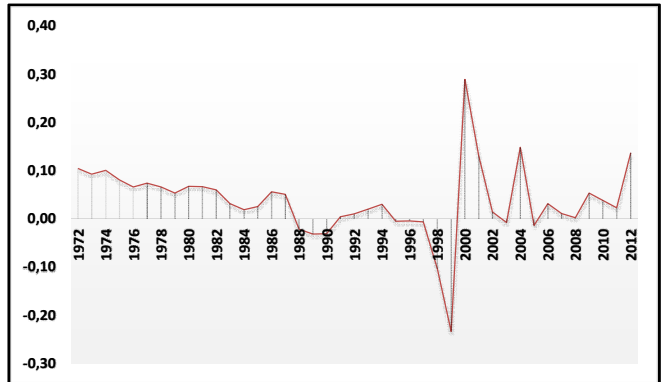
Reading Graphs 6, 7, 8 and 9 indicates that the growth rate of GDP per capita over a given period is proportional to the rate of growth of the level of education. However, these graphs do not allow to affirm these remarks. However, since Congo is an underdeveloped country, the evolution of the different curves seems to confirm the approach of Mankiw, Romer and Weil (1992).



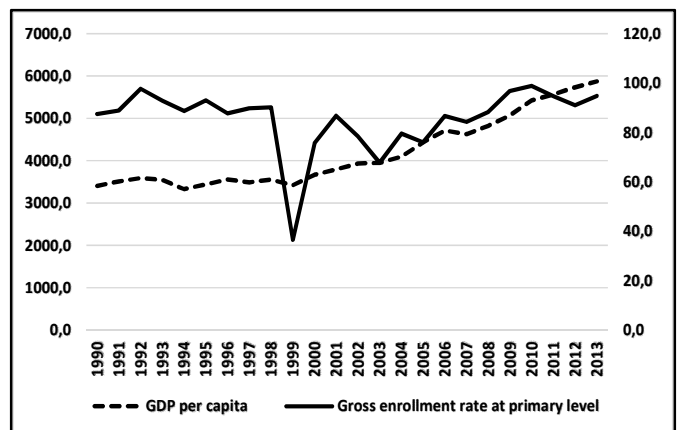
Graph 7. Evolution of all primary and secondary school pupils



Graph 8. Evolution of GDP growth rate per capita



Graph 9. Growth rate of all elementary and secondary students from 1972 to 2012



Graph 10. GDP per capita and primary enrollment rate from 1990 to 2013

Per capita GDP growth in current purchasing power parity was not accompanied by a proportional change in the gross enrollment rate at primary level (Graph 10). This evolution, according to Nolwen H. (2006), is analyzed in terms of insufficient commitment on the part of the government.

The literature on education and development

With the renewal of the theories of growth following the Harrod-Domar and Solow models, the role of education, training and, today, knowledge seems indispensable to the growth process. The knowledge economy, which translates the growing share of intangible in the production of wealth, was formed in the 1990s as a specialty from a double phenomenon: on one hand, the growth of resources devoted to the production and transmission of knowledge (education, training, R & D), on the other hand, the advent of NICTs (Vérez, 2008). The theoretical model of Azariadis and Drazen (1990) has clearly shown that a low level of development of education can block an economy in a situation of underdevelopment. And Pritchett L. (1999) points out that progress in the development of schooling has had little effect on the growth of the least developed countries, and that the cause may lie in the institutional environment (problems of quality of education). Education, limited skilled work demand ...). For Lucas (1990) and Romer (1994), growth is a cumulative phenomenon in which the State has a role to play. Thus, public investment, especially in infrastructure, education, research and development (R & D) and, more broadly, technical progress are major drivers of growth and, if only because they generate significant externalities, they must partly be controlled by the State.

The theorists of endogenous growth consider growth to be an economic phenomenon resulting from investments made by agents motivated by gain. These theories are consistent with most ancient theories to attribute to technical progress a leading role in growth. They integrate technical progress as a result of paid work and the level of which is endogenous. The neo-classical conception, although challenged by several authors, among others, Benhabib and Spiegel (1994) who believe that the accumulation of human capital, in the long term, does not have an effect on growth, has seen its robustness put forward by Krueger and Lindhal (2001). Indeed, the latter authors highlight a significant effect of the accumulation and initial level of human capital on growth. These findings were verified by Aghion P. and Cohen (2004) in a study on education and growth. The new theories of growth teach us that the differences observed, both in terms of GDP per capita and the rate of productivity growth (in the short and medium terms) from one country to another, are largely due to differences in research and development (R & D) systems and policies; and differences in educational systems as these systems condition the supply of skilled labor capable of generating technical progress (Aghion P. and Cohen E., 2004). A study by the Unesco Institute for Statistics and the OECD (2002) concludes that "there is now evidence that human capital is a key factor in economic growth, and new data indicate it is also associated with a range of non-economic benefits such as improving health and well-being." Guellec and Ralle (2001) emphasize that for a model to be able to generate self-sustaining growth, it is sufficient that the marginal return of human capital in the formation of human capital is constant. If it is decreasing, there will be no growth in the long run. If it is growing, there will be explosive growth.

The ways in which education, in the broadest sense, influences economic growth are numerous and fairly well identified (see Christian de Boissieu, 2004)². Van Elkan (1996)³ emphasizes the importance of imitating technologies in the convergence process. His analysis treats innovation as a joint production of human capital accumulation and incorporates a fundamental element: through imitation, developing countries can acquire new technologies, and at least close their gap in terms of growth, even if the absolute gap is maintained. Countries far from the technological frontier should prefer imitation and catch-up, concentrating efforts and financial means on primary and secondary education (Aghion P. and Cohen E., 2004). The competitive advantage of a country therefore comes from the creation of resources and knowledge built through learning processes. If knowledge becomes the fundamental resource, learning is the most important process of this new economy. The challenge of education, in this case, is to allow this imitation to bridge the development gap, and thus make the economy of a country dynamic. An illustrative example of the role of education and research in technological diffusion is that of the "green revolution"; based on a fundamental innovation in the field of plant seed hybridization, the developing countries (developing countries) best endowed with highly qualified workers, research facilities and universities, were the best able to produce new qualities of rice, wheat, adapted to local conditions (Aghion P. and Cohen E., 2004). Bravo-Ortega and Gregorio (2007) argue that it is not the abundance of resources that determines growth opportunities, but rather the human capital pool of a resource-rich country. The higher the human capital, the more the marginal effect of natural resources on growth will be positive. Lederman and Maloney (2008) find that rich countries that have successfully advanced their level of development through their natural resources - such as Australia and Norway - have achieved this by strengthening their human capital⁴. This brief review of the literature shows that there is a sense of causality between education and development because it allows countries far from the technological frontier (such as the Congo) to create resources through imitation. From there, education gains the status of an instrument in the policies of growth, development, and exit from poverty. Whatever the indicators selected, Congo is in a particularly unfavorable situation. This country is average or worse off than the group of least developed countries. This is particularly the case for education development indicators. However, education must develop, despite poverty, to get out of poverty. The case of Southeast Asian countries is an example. The action of the state appears as the essential factor, so even for a poor country results can be achieved through the development of education.

Econometric analysis

Our econometric approach is an extension of the analysis presented in our brief review of the literature. An economy with two production sectors is assumed, that of physical capital and that of human capital. This economy produces goods with Cobb-Douglas production technology:

$$F(K_t, H_t) = AK_t^\alpha H_t^{1-\alpha}$$

²See the report on Education and growth by Philippe Aghion and Elie Cohen, Documentation française, Paris, 2004.

³See Olivier Basdevant (2002), "Growth, R & D and training a review of the literature", Economic Problems No. 2776, 18 September.

⁴Gelb Alan and Grasmann Sina (2009), "Unraveling the Oil Curse", Contemporary Africa, No. 229, pages 87-135.

With K_t the physical capital and H_t the global human capital, $A > 0$ and $0 < \alpha < 1$. As far as the development process is concerned, GDP per capita is an essential variable. As human capital, according to Barro (2002), can have a two-way effect on growth: it facilitates the uptake of more sophisticated technologies from developed countries and favors the upward adjustment of physical capital. We will analyze two situations, the one where there is no technical progress and the one with technical progress insofar as we admit that educational systems condition the supply of skilled labor capable of generating technical progress (see Aghion P. and Cohen E., 2004). We agree with Paul Krugman (2000) who points out that governments do not necessarily act in the national interest, especially when it comes to microeconomic interventions. Indeed, in developing countries in general and in the Congo in particular, public funds are diverted from economic channels. Public life is a market for Public Choice theory, so a small group can derive public action for its benefit. This situation can create dysfunctions in the execution of investment expenditure for an executive who does not advocate good budget governance. Also, physical capital in our regression is assumed to constitute only half of gross fixed capital formation (50% GFCF). We have noted above the argument of the authors Aghion P. and Cohen E., (2004) that countries far from the technological frontier (the Congo, for example) should prefer imitation and catch-up, concentrating their efforts and financial means on primary and secondary education. Also, we are interested here in primary school students, relying on the argument of Krueger and Lindhal (2001) that highlight a significant effect of the accumulation and the initial level of human capital on growth.

It is a question of analyzing the impact of the pupils of the primary cycle and the rest of the population on the GDP per capita. The rest of the population consists of the difference between the total population and the number of primary students.

The models to estimate are:

The production function without technical progress (model 1)

$$\text{Log}(PIBH_t) = c(1) + c(2) * \text{Log}(EP_t) + c(3) * \text{Log}(MFBCF_t) + c(4) * \text{Log}(POP_EPt) + E_t(1)$$

The production function without technical progress (model 2)

$$\text{Log}(PIBH_t) = c(1) + c(2) * \text{Log}(EP_t) + c(3) * \text{Log}(MFBCF_t) + C(4) * \text{Log}(POP_EPt) + C(5) * \text{Tendance} + E_t(2)$$

The normality test shows that the variables selected follow normal and normal log laws over the period 1990-2012.

The probability associated with gross domestic product per capita (GDPH), for example, is 0,201373. In other words, if we reject the normality assumption of the GDPH variable, there is a 20,1% chance of making a wrong decision. The same is true for Log (GDPH), where we have a 25,7% chance.

Results of the estimation of the model 1

The estimation of Model 1 by the Ordinary Least Squares method gives the following results:

Table 2. Distribution characteristics of the series

	PIBH	LOG(PIBH)	EP	LOG(EP)	MFBCF	LOG(MFBCF)	POP_ES	LOG(POP_ES)
Mean	4115.187	8.306979	545943.1	13.18988	6.25E+08	20.03361	3187769.	14.95444
Median	3793.686	8.241094	512060.0	13.14620	4.03E+08	19.81436	3107747.	14.94941
Maximum	5732.628	8.653929	734493.0	13.50694	1.81E+09	21.31491	4295060.	15.27298
Minimum	3329.973	8.110720	276451.0	12.52979	2.37E+08	19.28450	2258478.	14.63020
Std. Dev.	768.0538	0.176496	107496.3	0.213255	4.70E+08	0.644874	659251.3	0.206479
Skewness	0.856905	0.702405	-0.150522	-1.008572	1.398747	0.682502	0.289805	0.061005
Kurtosis	2.361718	2.072640	3.245747	5.180237	3.891362	2.182473	1.836298	1.767084
Jarque-Bera	3.205193	2.715426	0.144727	8.454707	8.261306	2.426105	1.619728	1.471011
Probability	0.201373	0.257248	0.930193	0.014591	0.016072	0.297288	0.444918	0.479263
Sum	94649.30	191.0605	12556692	303.3673	1.44E+10	460.7731	73318697	343.9522
Sum Sq. Dev.	12977945	0.685316	2.54E+11	1.000507	4.86E+18	9.148961	9.56E+12	0.937943
Observations	23	23	23	23	23	23	23	23

Table 3. Results of the model 1

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-2.206096	1.091618	-2.020942	0.0576
C(2)	0.185341	0.063592	2.914554	0.0089
C(3)	0.093097	0.035846	2.597104	0.0177
C(4)	0.414819	0.091433	4.536875	0.0002
R-squared	0.958501	Mean dependent var		8.306979
Adjusted R-squared	0.951949	S.D. dependent var		0.176496
S.E. of regression	0.038689	Akaike info criterion		-3.509762
Sum squared resid	0.028440	Schwarz criterion		-3.312285
Log likelihood	44.36227	Hannan-Quinn criter.		-3.460097
F-statistic	146.2822	Durbin-Watson stat		0.964085
Prob(F-statistic)	0.000000			

The model estimated by ordinary least squares is as follows:

$$\text{Log (PIBH)} = -2.206096 + 0,185341 \text{ Log(EP)} + 0,093097 \text{ Log (MFBCF)} + 0,414819 \text{ Log(POP_EP)}$$

With a coefficient of determination $R^2 = 0.958501$, it can be seen that more than 95% of gross domestic product per capita is explained by the number of primary school pupils (EP), the 50% of gross fixed capital formation (MFBCF) and by the rest of the population (POP_EP).

and initial level of human capital on growth. However, these results do not allow us to show the causal relationships between the variables in order to have elements of reflections conducive to a better understanding of the impact of investment in education on the development process.

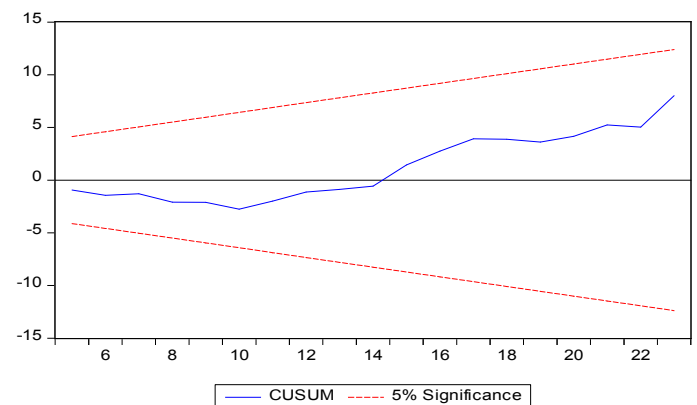
For this cointegration detects the long-term relationship between two or more time series. However, we must first check the stationarity of the series. The tests on the level and difference variables are as follows:

Table 4. Augmented Dickey-Fuller Unit Root Test on Log(PIBH), D(Log(PIBH)), Log (EP) and D(Log(EP))

Null Hypothesis: LOG(PIBH) has a unit root			Null Hypothesis: LOG(EP) has a unit root		
Exogenous: Constant, Linear Trend			Exogenous: Constant, Linear Trend		
Lag Length: 1 (Fixed)			Lag Length: 1 (Fixed)		
	t-Statistic	Prob.*		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-1.543509	0.7805	Augmented Dickey-Fuller test statistic	-2.176418	0.4773
Test critical values:	1% level -4.467895		Test critical values:	1% level -4.467895	
	5% level -3.644963			5% level -3.644963	
	10% level -3.261452			10% level -3.261452	
*MacKinnon (1996) one-sided p-values.			*MacKinnon (1996) one-sided p-values.		
Null Hypothesis: D(LOG(PIBH)) has a unit root			Null Hypothesis: D(LOG(EP)) has a unit root		
Exogenous: Constant, Linear Trend			Exogenous: Constant, Linear Trend		
Lag Length: 1 (Fixed)			Lag Length: 1 (Fixed)		
	t-Statistic	Prob.*		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.860076	0.0049	Augmented Dickey-Fuller test statistic	-4.035248	0.0246
Test critical values:	1% level -4.498307		Test critical values:	1% level -4.498307	
	5% level -3.658446			5% level -3.658446	
	10% level -3.268973			10% level -3.268973	
*MacKinnon (1996) one-sided p-values.			*MacKinnon (1996) one-sided p-values.		

When variables are taken individually, all variables have a significant influence on GDPH. With R^2 and the probability of F obtained, we can say that the fit of the model is of good quality. However, the good quality of the adjustment can be tainted if the model is not structurally stable. So, we did the Cusum test to detect point instabilities. The observation of the graph indicates that the curve does not cut the corridor. The model is therefore structurally stable.

Interpreting the results of model 1: The analysis of the results shows that with a probability less than 5% or a t of Student (t-statistic), in absolute value, higher than 1,96 the variables primary school pupils (EP), gross formation of fixed capital (MFBCF) and the rest of the population (POP_EP) positively impact per capita gross domestic product (GDPG). When the primary school (EP) variable increases by 1%, per capita gross domestic product increases by 1,9%. Similarly, a 1% increase in gross fixed capital formation (MFBCF) and the rest of the population (POP_EP) leads to an increase of 0,9%, and 4,1% of GDP per capita. These results allow us to highlight a relationship between the different variables. They seem to confirm the contribution of Krueger and Lindhal (2001) who highlight a significant effect of the accumulation



Graph 11. Structure of the model 1

These results indicate that only the PIBH and EP variables are stationary. Dickey-Fuller augmented tests on the first difference variables D (log (PIBH)) and D (log (EP)) allow us to consider the study of cointegration because they constitute the two series that are integrated. Indeed, the cointegration between series supposes the existence of one or more long-term equilibrium relations between them, which relations can be

combined with the short-term dynamics of these series in a model (vector) with correction of errors. Although the cointegration test by Johansen (1988, 1991) requires that all series or variables be integrated in the same order, which is not always the case in practice, but it nevertheless makes it possible to verify the cointegration on more than two series. It has been designed for multi-varied cases and is a cure for the limits of the Engle and Granger test (1987).

Table 5. The causal relationships of model 1

Sample (adjusted): 3 23				
Included observations: 21 after adjustments				
Trend assumption: No deterministic trend				
Series: LOG(PIBH) LOG(EP)				
Lags interval (in first differences): 1 to 1				
Hypothesized		Trace	5 Percent	1 Percent
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Critical Value
None *	0.369152	12.60704	12.53	16.31
At most 1	0.130333	2.932531	3.84	6.51

Trace test indicates 1 cointegrating equation(s) at the 5% level
 Trace test indicates no cointegration at the 1% level
 *(**) denotes rejection of the hypothesis at the 5%(1%) level

The observation in Table 5 indicates that the log (PIBH) and log (EP) variables are cointegrated at the 5% threshold. This causal relationship confirms the contribution of Pritchett L. (1999) who points out that progress in the development of schooling has had little effect on the growth of the least developed countries, and that the cause may lie in the institutional environment (problems of quality of education, limited qualified work demand ...). Indeed, quality education problems can arise when incentives to invest in the future do not exist, as Easterly William (2001) points out, because for the latter, trying on education does not exist not worth much in this case. From these causal relationships we also note that gross fixed capital formation causes the number of primary school pupils. On the other hand, the opposite is not true. This confirms the idea of Aghion P. and Cohen E. (2004), according to which countries far from the technological frontier must for their part prefer imitation and catch-up, concentrating the efforts and the financial means on the However, if gross domestic product per capita causes gross fixed capital formation and not the other way around, we are in a state of a cash-flow economy where most of the capital that impacts the gross domestic product The inhabitant is made up of foreign contributions, so we are in the case of Bravo-Ortega and Gregorio (2007) who argue that it is not the abundance of resources that in itself determines the growth opportunities, but rather the pool human capital of a resource-rich country.

Model 2 estimation results: This is to consider the technical progress represented by the trend which takes values ranging from 1 to 23 over the period. The model estimated by ordinary least squares is as follows:

$Log(PIBH) = -28,83653 + 0,170190 Log(EP) + 0,0820317 Log(MFBCF) + 2,26808474 Log(POP_EP) - 0,055216 Tendance$
 With R^2 (0,965663) and the probability of F obtained the fit of model 2 is of good quality. And this model is structurally stable, because the Cusum test allowed us to show that the curve does not cut the corridor.

Interpreting the results of model 1

With a probability greater than 5% (0,0685), the trend is the only variable that is not significant. When primary (Ep) gross fixed capital formation (MFBCF) and remaining population (POP_EP) variables increase by 1% respectively, per capita gross domestic product (GDP) increases by 1,7%; 0,8% and 2,3%. As for Model 1, Johansen's cointegration test confirms the same causalities.

Conclusion

This work on education investment and the development process, based on gross domestic product (GDP) per capita, tried to give an idea of the contribution of primary school students and other variables. Johansen's cointegration test, based on ordinary least squares estimates, approved some studies that showed the effect of the development of schooling on growth (Pritchett L., 1999) as well as those that analyzed the impact of efforts and financial means on education (Aghion P. and Cohen E., 2004). In the same way this work adhered to the analysis of Bravo-Ortega and Gregorio (2007). If education quality problems can arise when incentives to invest in the future do not exist, as pointed out by Easterly William (2001), the causality of per capita gross domestic product (GDP) on the number of pupils at the primary level is it not the expression of a gap between the official discourse, notably the World Declaration on Education for All, adopted at the Congo Jorntien Conference in 1990, and the acts done. Indeed, the application of the World Declaration on Education in the Congo has led to making access to universal education thus equating it with a problem of knowing how to read and count.

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