



The Impact of Education on Economic Growth in Developing Countries: Static Panel Data Analysis

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Abstract :

The aim of this research is to study the relationship between education as measured by Enrollment ratios in secondary and higher education and economic growth as measured by the GDP growth rate in a sample of 40 developing countries during the period from 2002 to 2016, using the static panel data methodology.

The results of estimating the fixed effects model with Robust option revealed that the ratios of those enrolled in higher education had a negative and significant effect on economic growth, while the ratios of enrolments in secondary education had no effect on economic growth.

Key Words: education; economic growth; panel data; fixed effects model; developing countries.

JEL Classification: I21, H52, C33.

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Introduction :

Education is an important pillar of development as it is considered the basis for acquiring modern knowledge, so its weakness is an obstacle to achieving economic growth in any country. Education, being the most important form of investment in human capital, directly helps to create a generation with the qualifications and skills required by the information and technology age And in which the need for the intellectual workforce has become much greater than the physical effort, especially with the widespread use of advanced machines that require a high level of training and knowledge more than just manual labor.

There is a strong belief that education is a driving force for economic growth, as the relationship between them appeared long ago. If we go back to the stages of economic development thought, we notice different views regarding the importance of education in economics, so that their beginnings go back to the writings of classical economists such as: A. Smith, Maltus, Marshall, ...

But with the real beginning of this science, i.e. the science of economics of education, many researches appeared that tried to highlight the contributions of education to increasing national income, such as the Schultz study, the Denison study, ... and others, which made it clear that increasing economic growth in the



future depends to a large extent on education, This is mainly due to its effect on improving the quality of work and increasing its productivity.

In view of the strong positive relationship between the advancement of education, improving its levels and obtaining a higher level of economic growth, developing countries have undertaken a set of challenges to upgrade their educational sector and this by improving its quality and efficiency despite the huge number of problems they encounter, so we will try through this research paper to measure The impact of education on economic growth in the economies of these countries and thus checking the effectiveness of their educational systems.

Research problematic: Through the above, the following Problematic can be formulated: Does education positively affect economic growth in developing countries?

Research hypotheses: To answer the above question, we formulate the following hypothesis:

- Education weakly affects economic growth in developing countries.

Research objectives: This research aims to the following:

- To highlight the relationship between education and economic growth in developing countries.
- To Highlight the most important problems facing the education sector in developing countries.

Research Methodology: This study builds on the use of the descriptive approach in addressing the most important issues facing the education sector in developing countries, but in the practical part we have adopted the econometric approach by estimating static panel models, in addition to the analytical approach by interpreting the results of this study.

I. Problems of Learning in Developing Countries:

Despite the measures taken by developing countries to improve their educational system, either by adopting the systems of the leading countries in the field of education or by taking several different measures, they still suffer from several problems hindering the development of education, which can be summarized as follows:

1. Political problems:

They include the following:

1.1. Political instability:

Political instability is a broad concept that can refer to riots, revolutions and other forms of violence, as well as the potential for major changes in government such as those resulting from re-elections (GRECHYNA, 2017, p. 04).

On the other hand, Alesina et al (1996), Siermann (1998), Focu (2001) and Miljkovic et Rimal (2008) consider the change of government as a sign of political instability. They define it as a change in the executive power, whether through legal forms (Constitutional) or politically motivated (unconstitutional) violence (KOBIA & EGGH, p. 02).



Less developed countries tend to be more corrupt and politically unstable compared to developed countries. Therefore, when there is no stability in the political situation, this will negatively affect the educational system of the country, as the government plays a major role in financing education, setting educational goals, National Curriculum Development, ...

1.2. Wars and conflicts:

Wars and conflicts impede education in both quantitative and qualitative terms by destroying educational institutions, reducing funding for education, reducing the number of faculty members so that many employees stop attending due to the risks arising from conflicts, in addition to that education may be indirectly affected by conflicts. And wars, given that the latter leads to an increase in poverty and food insecurity, making poor families less able to finance their children's education (OMOEVA, HATCH, & MOUSSA, 2016, p. 03.04).

Wars and conflicts are often considered one of the most important factors causing the deterioration of education. According to the UNESCO report for the year 2015, it was indicated that there are 34 million children and adolescents out of school living in countries affected by wars and conflicts (M.Al.Ansi, July 2017, p. 350).

According to Oxfam Education, two-thirds of African countries affected by conflict have enrollment rates below 50% (Klaus, 2004, p. 24).

Also, among the seventeen countries in sub-Saharan Africa, where school enrollment rates have decreased in the past decade, six have been affected by a major armed conflict (Unesco 2003) (Klaus, 2004, p. 24).

Also, what the Syrian Arab Republic is going through is the biggest example of how the conflict affects educational attainment, according to data from the UNESCO Institute for Statistics, the enrollment rate for the primary stage decreased with the outbreak of the civil war from 98.9% in 2009 to below 71% in 2013, with an increase. The number of children of primary school age who have left school from 21,000 to 563,000 children (UNESCO, 2016, p. 104).

In Iraq, 85% of schools were damaged or destroyed by fighting during the conflict of 2003–2004. Between 2009 and 2015 and attacks in north-eastern Nigeria destroyed more than 910 schools and forced at least 1,500 to close (UNESCO, 2016, p. 105).

2. Economic problems:

2.1. Poverty:

The World Bank defines poverty as the inability to attain a minimal standard of living (MAHEMBE & ODHIAMBO, 2018, p. 20).

Many developing countries suffer from high rates of poverty, which negatively affects the education sector, despite the decline in the latter (i.e. poverty rates) in all developing countries from about 54.7% in 1981 to 13% in 2013 and then to 11.9% in 2015, however, the disparities between them and developed countries are still vast (MAHEMBE & ODHIAMBO, 2018, p. 21).



2.2. The cost of education:

In many developing countries, education costs are high compared to the income of students or even the income of their families, and the percentages of families' contribution to the total education expenditures in these countries tend to be high, as shown in Tab.01. Also, according to an analysis of about 50 countries in 2015, the Global Monitoring Report showed that the proportion of household spending out of total education spending reached 18% in high-income countries, 34% in middle-income countries and 49% in low-income countries.

Table 1: Education financing in a group of developing countries between 2013 and 2018

Education spending financing (%)	Peru	Lebanon	Cambodia	Uganda	Nepal	Togo	Chad	Mexico	VetNam	Benin
Governments	56%	48%	30%	41%	53%	62%	66%	79%	71%	46%
Households	44%	52%	70%	59%	47%	38%	34%	21%	29%	54%

Source: UNESCO, Inclusion and education: all means all, Global education monitoring report, 2020, p.334.

2.3. Lack of funding:

The lack of financial resources for education in developing countries is evidenced by the following: lack of schools and other facilities, insufficient classrooms, insufficiently trained teachers, lack of administrators, poor quality of textbooks and other educational resources, lack of attention to quality assurance standards and other deficiencies Which constitute a barrier to the education sector in these countries (M.Al.Ansi, July 2017, p. 351).

2.4. Child labor:

Child labor can be defined as all children under the age of 18 who participate in dangerous occupations or activities in the labor market or with their families (Ravinder, 2009, p. 01).

Child labor negatively affects school performance. Children who miss school frequently will naturally miss important lessons, which will create a burden not only on the child but on the entire education system, For example, in Yemen, the working children who have to repeat classes probably leads to more than 300,000 additional pupils in the primary school alone (Ravinder, 2009, p. 06).

2.5. Lack of infrastructure:

The limited availability of schools in remote or poor areas of developing countries often keeps marginalized children out of school (Winthrop & S. Smith, 2012, p. 09) and the quality of basic educational infrastructure has affected the quality of education in most parts of these countries.



3. Socio-cultural problems:

They include the following:

3.1. Language:

International learning outcomes assessments show that there is a strong negative impact on children's educational achievement if their mother tongue is not used for teaching or learning.

In some developing countries, colonial language like French and English remains the only language of learning, and almost all children who go to school every year do not understand this language.

Education based on an unfamiliar language for the child, especially in the pre-primary and elementary levels, is difficult for him, especially if he faces other obstacles that prevent education such as poverty, distance, hunger, It is also estimated that more than half of the out-of-school children in the world live in areas where their languages are not used in school (Pinnock, 2009, p. 25).

3.2. Religion:

In some developing countries, religion is not only a part of the school curriculum, but it is studied more than the teaching of other sciences, and it participates in every practice and behavior inside and outside the school (M.Al.Ansi, July 2017, p. 352).

In addition, it is worth noting also some restrictions related to religious ideas in these countries, such as standing against female education, as many of them suffer from inequalities due to misunderstanding of religious beliefs (ODOMORE, 2015, p. 10).

3.3. Ethnic diversity:

Ethnic diversity is among the main causes of civil wars, and this was confirmed by a recent study based on data from 100 countries over 50 years, finding that countries with high levels of inequality in education due to ethnic and religious differences were more vulnerable to conflict (M.Al.Ansi, July 2017, p. 352).

4. Educational problems:

4.1. Lack of qualified teachers:

In some developing countries, the teacher suffers from several problems such as lack of knowledge, the inability to use information and communication technology, and accordingly, the proportions of trained and qualified teachers in this category of countries decrease, as shown in the following table:



Table 2: Percentage of trained and qualified teachers by income groups in 2017

Category	Pre-primary education		Primary education		secondary education	
	Percentage of trained teachers	Percentage of qualified teachers	Percentage of trained teachers	Percentage of qualified teachers	Percentage of trained teachers	Percentage of qualified teachers
the world	84	95	92	99	87	96
Low-income countries	47	69	80	95	66	84
Middle-income countries	90	94	95	99	93	96
Lower middle income countries	93	96	94	96	93	92
Upper middle income countries	88	94	97	100	89	97
High income countries	-	-	-	-	-	-

Source: UNESCO, Migration, displacement and education: building bridges, not walls, global education monitoring report, 2019, p.334.

4.2. Lack of educational materials:

Many developing countries suffer from the problem of lack of educational resources in schools, especially the lack of modern technologies, which formed a gap between education of students in developing countries and education of students in developed countries, so a study conducted in 1994 by the Software Publishers Association confirmed that educational technology has a positive impact on outcomes in all subject areas (Aleed, 2016, p. 04).



II. Empirical Review:

Among the most important previous studies, we mention the following:

- Ying Wang, Shasha Liu, Education, human capital and economic growth : empirical research on 55 countries and regions(1960-2009):
This article examines the relationship between human capital and economic growth in a sample of 55 countries from 1960 to 2009 using panel data analysis. The results showed that the effect of higher education was positive and significant, the primary and secondary education did not have a positive significant effect on economic growth, while life expectancy and per capita GDP growth had a positive and significant effect.
- Elbousairi Abdessadek, Eddassi Mohammed, Education et croissance économique : une analyse sur données de panel par un échantillon de pays a revenu intermédiaire:
This research aims to study the relationship between education and economic growth for a sample of 28 middle-income countries during the period from 1970 to 2014 using the Panel methodology. The results of the study confirmed the existence of a positive and significant effect of quantitative and quality indicators of education on economic growth.
- M.Afzal, M.Shafiq, N.Ahmad, H.M.Qasim, K.Sarwar, Education, Poverty and economic growth in South Asian : a Panel data analysis:
This research paper aimed to study the relationship between education, poverty and economic growth in a sample that included 4 selected South Asian countries during the period from 1995/1996 to 2012/2013 using the panel data analysis. The results of the study revealed a positive relationship between education and economic growth, while the relationship was inverse between poverty and economic growth.
- Rezine Okacha, Capital humain, éducation et croissance économique: une approche économétrique:
This research is based on the study of the relationship between human capital (education) and economic growth in a group of 31 African countries during the period from 1965 to 2010. Three models have been estimated in this study, the first is the Solow model without introducing human capital, The second model is represented by the Solow model with the introduction of human capital, while the third model takes into account the quality of the educational system. It has been concluded through estimating the Solow model with the introduction of human capital that the number of students in secondary and higher education greatly affects the rate of economic growth, but by estimating the third model, it was concluded that improving the relationship between education and growth is primarily due to the quality of the educational system in these countries, which increases the contribution of higher education to the GDP per capita.



III. Data, model and methodology:

1. Data:

We have used in this study a balanced panel data set comprising of forty developing countries are: Burkina Faso, Chile, El Salvador, Moldova, Rwanda, Bulgaria, Indonesia, Malaysia, Thailand, Iran, Senegal, Nepal, Romania, India, Albania, Tunisia, Colombia, Mexico, Cameroon, Poland, Croatia, Algeria, Lebanon, Jamaica, Hungary, Bangladesh, Uruguay, Northern Macedonia, Cape Verde, Saint Lucia, Serbia, Pakistan, Panama, Sudan, Jordan, Brazil, Niger, Mauritius, Cuba and Burundi over the period 2002–2016 based on data availability and which are obtained from the World Bank database.

2. Model:

To estimate the relationship between economic growth and education, we used in this study a set of explanatory variables based on economic theory and on several previous studies. Consequently, the study model can be written as follows:

$$GDP_{it} = \alpha_i + \beta_1 SEC_{it} + \beta_2 HIG_{it} + \beta_3 K_{it} + \beta_4 L_{it} + \beta_5 G_{it} + \beta_6 INF_{it} + \varepsilon_{it} \dots (1)$$

$$\text{Or: } GDP_{it} = \alpha_i + \beta X_{it} + \varepsilon_{it} \dots (2)$$

where:

GDP_{it} : Real GDP growth rate (%) in a country i and the period t .

SEC_{it} : Enrollment ratios in secondary education in a country i and the period t .

HIG_{it} : Enrollment ratios in higher education in a country i and the period t .

K_{it} : Gross fixed capital formation growth rate (%) in a country i and the period t .

L_{it} : Labor growth rate in a country i and the period t .

G_{it} : General government final consumption expenditure (% growth) in a country i and the period t .

INF_{it} : Inflation rate in a country i and the period t .

ε_{it} : the value of the error term in the country i and in the period t .

α and β : estimated coefficients.

3. Methodology:

Panel data refers to data sets consisting of multiple observations on each sampling unit. This could be generated by pooling time-series observations across a variety of cross-sectional units including countries, states, regions, firms, or randomly sampled individuals or households (Giles & Aman Vilah, 1998, p. 291).

Panel data are most useful when we suspect that the outcome variable depends on explanatory variables which are not observable but correlated with the observed explanatory variables. If such omitted variables are constant over time, panel data estimators allow to consistently estimate the effect of the observed explanatory variables (Kurt, 2019, p. 01).

One of the advantages of using panel data is to increase the number of observations for the analysis. This is especially true for the pooled OLS model. Technically speaking, by having observations repeating over time, we have lower standard errors compared with those estimated by cross-sectional data analysis. This implies that larger number of observation due to the stacking up cross-sectional data increase the efficiency of estimation, and thereby we have higher



possibility of statistically significant estimates (Ho Eom, hwan lee, & Xu, 2007, p. 574).

Another important motivation for panel data analysis is to reduce the omitted variable bias.

3.1. Static Panel Models:

It includes three basic models:

a. The Constant Coefficients (Pooled Regression) Model :

This model is considered one of the simplest models for long data, in which all parameters (constant and slope coefficients) are constant over time and across units (Vijayamohan, 2016, p. 14), The pooled regression model is shown with the following formula:

$$Y_{it} = \beta_0 + \sum_{j=1}^K \beta_j X_{j(it)} + \varepsilon_{it} \dots (3)$$

$$i = 1, 2, \dots, N$$

$$t = 1, 2, \dots, T$$

b. Fixed Effects Model :

Baltagi (2008), Gujarati (2003) and Wooldridge (2002) indicate that these models, known as FEM models allows the intercept to differ across cases, but not over time (time invariant). FEM assume that the slope coefficients are constant while the intercept varies across cross-sectional units (GIL-GARCÍA & PURON-CID, 2014, p. 207). Accordingly, this model will be in the following form:

$$Y_{it} = a_{0i} + a' X_{it} + \varepsilon_{it} \dots (4)$$

$$i = 1, 2, \dots, N$$

$$t = 1, 2, \dots, T$$

c. Random effects model:

REM or error components models (ECM) are based on the idea that the intercept (a_{0i}) is a random variable with a mean value of a (without subscript i) and the error term (v_i) with mean value of zero and variance of σ_v^2 expressing the following (GIL-GARCÍA & PURON-CID, 2014, p. 208):

$$a_{0i} = a + v_i \dots (5)$$

$$i = 1, 2, \dots, N$$

v_i : that refers to the individual-specific error (cross-section).

By substituting (5) on (4):

$$Y_{it} = a + a' X_{it} + \omega_{it} \dots (6)$$

in which:

$$\omega_{it} = v_i + \varepsilon_{it} \dots (7)$$

ω_{it} : the composite error term.

IV. Results and discussion:

1. Estimation of Static panel models:

With the aim of highlighting the effect of education on economic growth and thus explaining the nature of the relationship between them, the static panel models of its three types were estimated: the pooled regression model, the fixed effects model and the random effects model as shown in the following table:



Table 3: Results of estimating static panel models

Dependent variable: real GDP growth rate				
Period: (2002-2016)		T=15	N=40	Number of observations : 40*15=600
explanatory variables	Pooled regression model(PRM)	Fixed effects model(FEM)	Random effects model(REM)	
Constant	4.2135 [10.23]***	4.4246 [4.85]***	4.1776 [7.33]***	
SEC	0.0227- [-3.83]***	0.0083- [-0.65]	0.0132- [-1.62]	
K	0.1619 [17.70]***	0.1551 [17.47]***	0.1577 [18.07]***	
L	0.0765 [1.36]	0.0895 [1.31]	0.0761 [1.22]	
G	0.0309 [1.90]*	0.0418 [2.68]***	0.0381 [2.47]**	
INF	0.0128- [-0.67]	0.0597- [-2.40]**	0.0406- [-1.83]*	
HIG	0.0101 [1.39]	0.0231- [-2.09]**	0.0064- [-0.71]	
R-Squared	0.3987	0.5315	0.3911	
Adjusted R-Squared	0.3926	0.4935	0.3850	
F-statistic	65.52	60.14	63.50	
Prob(F-statistic)	0.0000	0.0000	0.0000	

Source: Prepared by researchers based on STATA program 2014.

[.]: t-statistic

***: indicate significance at the level 1%.

** : indicate significance at the level 5%.

*: indicate significance at the level 10%.

2. Choosing the appropriate static panel model for the study:

To select the most appropriate model, there are several tests that can be done, such as :

2.1. F test:

To choose between the pooled regression model and the fixed effects model we will use the F test which takes the following formula:

$$F = \frac{(R_{FEM}^2 - R_{PRM}^2) / (N - 1)}{(1 - R_{FEM}^2) / ((N * T) - N - K)}$$

in which:

R^2 : Correlation coefficient

And therefore:



$$F = \frac{(0.5315 - 0.3987) / (40 - 1)}{(1 - 0.5315) / ((40 * 15) - 40 - 6)}$$

$$F = 4.0265$$

Where we compare the calculated value of Fisher with the tabulated value:

$$F(\alpha, N - 1, ((N * T) - N - K) = F(0.05, 39, 554) = 1.42$$

Since the calculated Fisher value is greater than the tabular Fisher value ($4.0265 > 1.42$), then we reject the null hypothesis and accept the alternative hypothesis, so the fixed effect model is better than the pooled OLS.

2.2. Hausman Test for Comparing Fixed and Random Effects:

The test results were as shown in the following table:

Table 4: Hausman test results

Type of test	chi-squared statistic	P-value
Hausman test	14.09	0.0286

Source: Prepared by researchers based on STATA program 2014.

Hausman test result showed that the p-value is close to 0, it means that the model chosen is FEM. Therefore, the Fisher and Hausman test showed that the appropriate model for this study is the FEM model.

3. Diagnostic tests for the appropriate model for this study:

3.1. Multicollinearity test:

Table 5: Results of Multicollinearity test

Variables	VIF	$\frac{1}{VIF}$
SEC	2.55	0.391810
HIG	2.48	0.403567
L	1.20	0.833325
G	1.12	0.889314
INF	1.03	0.971603
K	1.03	0.973940

Source: Prepared by researchers based on STATA program 2014.

Multicollinearity test results showed that FEM did not have multicollinearity problems with Variance Inflation Factor (VIF) values less than 10.

3.2. Autocorrelation test :

Table 6: results of autocorrelation test

Autocorrelation test		
Type of test	Statistical value	P-value
Wooldridge test	0.758	0.3891

Source: Prepared by researchers based on STATA program 2014.

From the above table, it is clear that the probability value of the Wooldridge statistic is greater than 5%, and therefore we accept the null hypothesis that there is no autocorrelation problem in the model.

3.3. Heteroscedasticity test:

To reveal the problem of Heteroscedasticity, we will use the Modified Wald test, and with the help of Stata14 program, the results are as follows:

**Table 7: results of the Heteroscedasticity test**

Heteroscedasticity test		
Type of test	Statistical value	P-value
Modified wald	1197.87	0.0000

Source: Prepared by researchers based on STATA program 2014.

Through the previous table, it is clear to us that the probability value is less than 5%, and therefore the alternative hypothesis is accepted, which states that the model is formed having heteroscedasticity problems.

4. Estimation of Fixed Effects Model with robust option:

Through the previous tests of the validity of the most appropriate model for this study, which is the fixed effects model, it is clear to us that the latter suffers from the problem of heteroscedasticity, so the model will be re-estimated using the fixed effects model with robust option, as this method gives the same estimates of the fixed effects model but is modified in the level of confidence and in the statistical significance of coefficients, while maintaining the same coefficients of the variables, the following table shows the results of the estimation of this model:

Table 8: the results of estimating the fixed effects model using Robust option

Dependent variable: real GDP growth rate	
Period: (2002-2016)	T=15 N=40 Number of observations : 40*15=600
explanatory variables	Fixed effect model with robust option
constant	4.4246 [5.02]***
SEC	0.0083- [-0.62]
K	0.1551 [11.26]***
L	0.0895 [1.19]
G	0.0418 [2.52]**
INF	0.0597- [-1.71]*
HIG	0.0231- [-1.70]*
R-Squared	0.5315
Adjusted R-Squared	0.4935
F-statistic	29.69
Prob(F-statistic)	0.0000

Source: Prepared by researchers based on STATA program 2014.

[.]: t-statistic

***: indicate significance at the level 1%.

**: indicate significance at the level 5%.

*: indicate significance at the level 10%.



5. Results interpretation:

The results of the Fixed effect model with robust option estimation showed that the coefficient of Enrollment ratios in secondary education was negative and not significant, and this is not surprising, but it is a logical consequence that this category is a consuming category, so that the majority of students in this educational stage prefer to continue the study than integrate into the labor market, and this result is consistent with many previous studies such as (Cokhan Umut, 2015) and Abugameo Gaber (2017).

As for the Gross fixed capital formation growth rate, it appeared positive and significant at the level of 1%, which indicates the positive relationship between it and the rate of economic growth, so that an increase in this indicator by 1% leads to an increase in the economic growth rates by 0.1551%, which is a result consistent with economic theory and many previous studies, and this is explained by the fact that investment rates are considered one of the basic elements for increasing production, which is reflected in an increase in economic growth rates.

While The Labor growth rate coefficient appeared positive and not significant, which indicates that the labor force does not contribute to economic growth in the sample of the developing countries studied, since the labor force in developing countries lacks competence and experience.

As for the coefficient of the general government final consumption expenditure, it appeared positive and significant at the level of 5%, but this effect was slight (as increasing this indicator by 1% leads to an increase in economic growth by 0.0418%), this is due to weak government spending in stimulating final demand and thus increased economic growth.

The inflation growth coefficient also appeared negative and significant at the level of 10% and this result is consistent with economic theory and most economic studies, so that an increase in inflation rates by 1% leads to a decrease in economic growth rates by 0.0597%, as high inflation rates are considered one of the most important factors of economic instability that Weakening economic growth. The rise in the general level of prices reduces the purchasing power of individuals and reduces the investment capacity of businessmen, which leads to lower rates of economic growth.

As for The coefficient of enrollment ratios in higher education, it also appeared negative and significant at the level of 10%, which indicates its negative impact on economic growth, which is the opposite of what is stipulated in economic theory, but this effect was slight so that an increase of this indicator by 1% led To a decrease in economic growth rates by 0.0231%, and this can be explained economically for many reasons, perhaps the most important of which are:

- The low quality of higher education in developing countries, which among its indicators is the low educational attainment of students and the weakness of their analytical and innovative capabilities, which led to a decrease in productivity.
- The weak link of higher education to the requirements of the labor market in these countries.



- The spread of the phenomenon of brain drain in developing countries.

Conclusion :

Through this research, we tried to present an econometric study to research the nature of the relationship between education and economic growth in a sample of developing countries during the period (2002-2016) based on static panels models. In the first part, we discussed the most important problems that the education sector suffers from in developing countries. As for the next part, we defined the methodology used in the study and presented the static panel models, and then we defined the variables used in estimating these models, depending on both economic theory and a set of previous studies.

At the end of this research, we found the absence of the effect of those enrolled in secondary education on the economic growth, while the percentages of those enrolled in higher education had a negative and significant effect.

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