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**Autor correspondiente:**

Cristopher Jordy Delgado Samaniego  
[cdelgado4@utmachala.edu.ec](mailto:cdelgado4@utmachala.edu.ec)

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## Investment in education and its impact on the socioeconomic performance of the inhabitants of Ecuador in the period 2013 – 2023

Inversión en educación y su impacto en el rendimiento socioeconómico de los habitantes del Ecuador en el periodo 2013 – 2023

**Cristopher Jordy Delgado Samaniego**

Universidad Técnica de Machala, Ecuador

[cdelgado4@utmachala.edu.ec](mailto:cdelgado4@utmachala.edu.ec)

<https://orcid.org/0009-0001-2763-667X>

**Ricardo David Granda Cabrera**

Universidad Técnica de Machala, Ecuador

[rgranda2@utmachala.edu.ec](mailto:rgranda2@utmachala.edu.ec)

<https://orcid.org/0009-0000-3750-7444>

**Bernard Cesar Macías Sares**

Universidad Técnica de Machala, Ecuador

[bmacias@utmachala.edu.ec](mailto:bmacias@utmachala.edu.ec)

<https://orcid.org/0000-0002-0018-1943>

### Resumen

En el presente estudio se analizó la relación entre la inversión en educación y el rendimiento socioeconómico del Ecuador durante el periodo 2013-2023. Para ello, se aplicó un modelo de regresión múltiple que evaluó el impacto del gasto público en educación y de los años promedio de escolaridad sobre el Producto Interno Bruto (PIB). Los resultados evidencian que un incremento del 1% en el gasto educativo produce un aumento del 0.78% en el PIB, mientras que un 1% adicional en la escolaridad promedio eleva el PIB en un 1.68%, lo que demuestra que la acumulación de capital humano tiene un efecto más fuerte que el gasto por sí solo. El modelo utilizado explica el 67% de la variación del PIB, lo cual confirma que la educación constituye un factor determinante para el crecimiento económico del país. Asimismo, el análisis teórico y estadístico sugiere que los mayores beneficios provienen de la educación superior y de la formación técnica, áreas donde se generan mayores niveles de productividad. Sin embargo, persisten desigualdades territoriales que limitan el impacto de la inversión, especialmente en zonas periféricas con menor acceso a infraestructura educativa y tecnológica. Por ello, se recomienda fortalecer la inversión en educación superior, cerrar brechas regionales y promover políticas que mejoren la calidad y equidad del sistema educativo nacional.

**Palabras claves:** Inversión en educación, escolaridad, inclusión educativa, calidad docente, desigualdad territorial, STATA

### Abstract

This study analyzed the relationship between investment in education and Ecuador's socioeconomic performance during the period 2013-2023. A multiple regression model was applied to evaluate the impact of public spending on education and the average years of schooling on the Gross Domestic Product (GDP). The results show that a 1% increase in educational spending leads to a 0.78% rise in GDP, while an additional 1% in average schooling increases GDP by 1.68%, demonstrating that the accumulation of human capital has a stronger effect than spending alone. The model explains 67% of the variation in GDP, confirming that education is a key factor in the country's economic growth. Furthermore, the theoretical and statistical analysis suggests that the greatest benefits come from higher education and technical training, areas that generate higher levels of productivity. However, territorial inequalities persist, limiting the investment impact, especially in peripheral regions with reduced access to educational and technological infrastructure. Therefore, it is recommended to strengthen investment in higher education, close regional gaps, and promote policies that improve the quality and equity of the national educational system.

**Keywords:** Investment in education, schooling, educational inclusion, teacher quality, territorial inequality, STATA

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## Introduction

Currently, education is a determining factor in economic development. As Batista (2006) states, education is recognized as an essential factor for the economic and social development of any nation, as it drives both economic growth and collective well-being. This is because it directly impacts the formation of human capital, which is a key element for facing the challenges of the modern world. Along the same lines, Cruz and Maldonado (2017) highlight that there is a positive relationship between individuals' educational level and their economic conditions. In turn, investment in education is a key strategy for boosting economic growth, since it not only allows individuals to improve their quality of life, but also opens up opportunities in various areas, improving their income levels.

In recent years, Ecuador has undergone significant transformations within its education system. As Ruiz et al. (2019) mention, since 2007 the country has allocated significantly more resources to the education sector compared to previous governments, strengthening access to free, quality education at all levels. This has allowed low-income populations to pursue or complete their studies, fostering intellectual growth and expanding opportunities at the higher education level.

This research focuses on the study of investment in the education sector and its impact on the socioeconomic performance of Ecuadorians during the period 2013-2023. This period is particularly relevant due to changes in public policies implemented in the country, characterized by strong state intervention in education.

The rationale for this study is to understand the relationship between educational investment and the socioeconomic performance of citizens, measured by Gross Domestic Product (GDP). Based on the proposed analysis, projections are developed to guide public decision-making more effectively.

The main objective of this research was to analyze investment in education and its impact on the socioeconomic performance of Ecuador's inhabitants during the period 2013-2023, with the aim of demonstrating how these indicators affect Gross Domestic Product (GDP) and evaluating the relevance of educational investment to national economic development.

This research adopts a quantitative approach, with a non-experimental and descriptive design, as it seeks to evaluate the behavior of the explanatory variables in

relation to the variable of interest. This will allow for an objective interpretation of the results and the generation of well-founded projections. For data analysis, a multiple regression econometric model was applied using the statistical software STATA 14, employing inductive, analytical, and synthetic methods.

## Public Policies in Ecuador related to SDG 8

The relationship between education and economic growth has been a subject of study for many years. Ren and Castro (2024) mention that during the 1960s and 1970s, significant progress was made in implementing policies that directly linked the promotion of economic growth with education. In this context, authors such as Romer (1990) and Acemoglu (1997) highlighted the association between human capital and national development. Schultz (1961), for his part, associated human capital with national development and emphasized the relationship between education and economic progress, noting that a higher level of education leads to greater productive efficiency (cited in Aguirre, 2020). This approach has been reinforced by various studies in Ecuador, which confirm that education and human capital are key determinants of long-term economic growth (Guamán and Pauta, 2023).

In previous research, Alvarado et al. (2019) point out that Schultz, in developing the foundations of human capital, fostered the idea of its validity and productivity. He indicates that investing in education generates positive variations in years of schooling, influencing employment opportunities and improving income levels for the population. Furthermore, the relationship between education and the economy has had an impact on both industrialized and developing countries. A proven reality is the evidence in South American countries, which, by investing in education, see its long-term effect on productivity levels (GDP, GDP per capita). These studies show a positive correlation: the higher the level of education, the higher the income level of the population. Similarly, empirical studies in Ecuador show that the accumulation of human capital has had a direct impact on the country's development, since academic training improves labor market integration and income (Machado, 2023).

As Grijalva and Hermida (2015) argue, John Maynard Keynes stated that economics is a way of thinking, and this understanding of economics allows us to bridge the gap between economics and education. In the 1960s, the questioning of productivity intensified due to the correlation between workers' educational level and their positive outcomes in the labor market.

Furthermore, Landázuri (2013) mentions that, according to UNESCO, an additional year of education generates a 10% increase in wage income. Additionally, education protects workers from labor exploitation by formalizing legal contracts. This is complemented by the findings of Guijarro et al. (2022), who demonstrate that investment in education in Ecuador generates positive economic returns, although they caution that the efficiency of public spending remains a challenge.

In this context, Barro and Sala-i-Martin (1991) argue that the average rate of economic growth can be explained by macroeconomic variables. The first of these considers the initial conditions of so-called state variables, which include, among other aspects, the levels of accumulated physical and human capital; and the second considers the actions of private agents and the government, such as government consumption as a percentage of GDP and domestic investment as a percentage of GDP.

### Overview of Investment in Education in Ecuador

Education is one of the pillars of a country's development, as it promotes effective learning and strengthens the continuous improvement of personal, social, moral, and economic well-being. In developed nations, the education sector is highly valued, with significant resources allocated, resulting in a skilled population with employment opportunities in technological fields. In Ecuador, promoting education is crucial due to the changes in the production matrix in recent years, which require a skilled workforce to underpin development (Rueda et al., 2019).

Starting in 2008, as Torres Gómez et al. (2023) point out, various educational models were implemented that required students to adapt to the school—that is, to the curriculum, objectives, and institutional values—without considering their context, situation, or background. Thus, integration depended solely on the student's ability to adapt to the institution's demands. Unfortunately, this approach ended up widening the gap in access to education for students with special educational needs (SEN) and those in "regular" education, in addition to fostering discriminatory and exclusionary practices stemming from fear of difference or diversity.

Along these lines, Rodríguez et al. (2023) mention that investment in Ecuador remains less than 4% of the total annual budget, which jeopardizes the sustainability of economic growth projects if public spending in this sector is not increased. Over the years, Ecuador has

implemented several reforms to its education system, transforming it and influencing the understanding and expectations of key social actors, such as teachers and parents. However, studies like those by Guijarro et al. (2022) indicate that, although educational spending in Ecuador has improved school enrollment levels, better mechanisms for efficiency and sustainability still need to be ensured.

The policies generated by programs and projects were financed by external debt loans, which in turn led to various changes in established regulations and fostered competition with the private sector. However, quality education was not achieved, prompting the need to evaluate this process and identify corresponding improvements (Isch, 2011).

In 2006, through a popular referendum, the Ministry of Education (2013) approved the Ten-Year Education Plan with over 66% of the vote and implemented seven policies with an inclusive approach to guarantee the right to education for all people, regardless of their personal, cultural, ethnic, social, or disability circumstances. According to Cuesta and Chamorro (2022), the most important policies implemented in Ecuador arose from a situation that led social work in the educational field to develop three national consultations. These consultations resulted in agreements that gave rise to seven policies aimed at advancing the education system, which are detailed below:

1. Universalization of early childhood education from zero to five years.
2. Universalization of basic general education from first to tenth grade.
3. Increased enrollment in high school, reaching 75% of the population of the corresponding age.
4. Elimination of illiteracy and strengthening of continuing education for adults.
5. Improvements in the physical infrastructure and resources of educational institutions.
6. Improvements in the quality and equity of education and implementation of a national system for the evaluation and social accountability of the education system.
7. Revaluation of the teaching profession and improvements in initial teacher training, ongoing professional development, quality of life, and working environments.

As Cuesta and Chamorro (2022) further mention, the proposed educational policies focused primarily on universalizing the education system at all levels.

This has been the country's goal for decades, aiming to guarantee equal opportunities for all citizens, despite the economic, social, and cultural diversity that characterizes the nation.

With this new approach, it is established that educational institutions must modify their culture, practices, and policies to ensure the learning and participation of all students, leveraging the significant progress of Inclusive Education to serve as a foundation for its proper implementation and consolidation. The Ministry of Education (2013) states that the following legal frameworks in the country were studied in the "Legislation for Special and Inclusive Education."

#### **Constitution of the Republic 2008.**

Art. 26.- Education is a right of all persons throughout their lives and an unavoidable and inexcusable duty of the State. It constitutes a priority area of public policy and state investment, a guarantee of equality and social inclusion, and an essential condition for well-being. Individuals, families, and society have the right and the responsibility to participate in the educational process (Constitution of the Republic of Ecuador, 2008, p. 16).

#### **Children and Adolescents Code 2015.**

Art. 37.- Right to Education. - Children and adolescents have the right to a quality education. This right requires an educational system that: Guarantees that children and adolescents have access to adequate teachers, teaching materials, laboratories, facilities, and resources, and enjoys a favorable learning environment. This right includes effective access to early childhood education from zero to five years of age, and therefore flexible and open programs and projects will be developed, adapted to the cultural needs of the students (Organic Code of Childhood and Adolescence, 2015, p. 11).

#### **The Organic Law on Disabilities 2012**

Art. 27.- Right to education. - The State shall ensure that persons with disabilities can access, remain in, and complete their studies within the National Education System and the Higher Education System, in order to obtain education, training, and/or skills development, by attending classes in a specialized educational institution or in a regular school, as the case may be (Organic Law on Disabilities, 2012, p. 13).

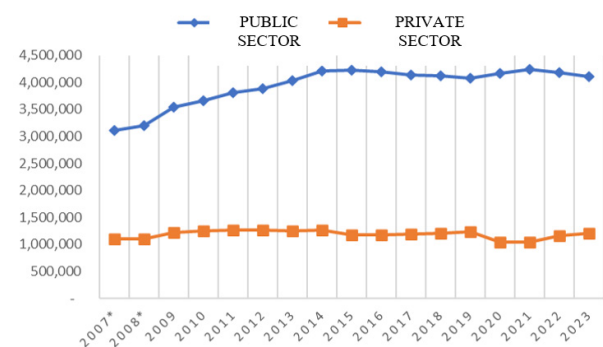
It is important to note that, despite the guidelines of the education plan, the government of former President

Rafael Correa faced significant challenges regarding infrastructure, a problem that had accumulated during several previous administrations.

In 2013, a higher level of investment was achieved in educational infrastructure, as well as in support equipment aimed at improving the efficiency of the education system. The most benefited institutions were the Millennium Educational Units. In the city of Guayaquil, the allocated budget was US\$1.3 billion, as 298 educational units were built and 112 were upgraded (Paladines, 2015). A study by Ramírez (2014) highlighted that in subsequent years, a budget of US\$1.1 billion was allocated, a figure that exceeded US\$2.8 billion in later years. This investment was reflected in infrastructure, which was implemented in rural institutions throughout the country, significantly boosting student enrollment in both the public and private sectors.

**Figure 1**

*Total number of students by public and private sector in the period 2007-2023*



**Source:** INEC (National Institute of Statistics and Censuses)

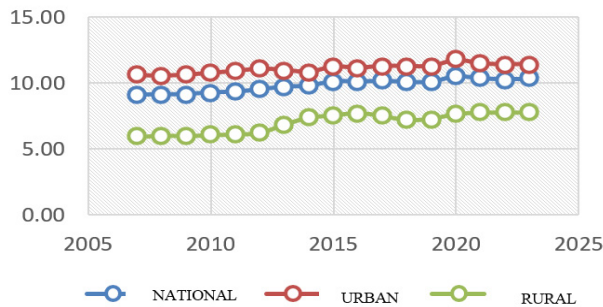
Figure 1 shows the total number of students by public and private sector during the period 2007-2023. According to data provided by the National Institute of Statistics and Censuses (INEC), a comparative graph is shown for a period determined by the researchers, illustrating the number of students by sector, both public and private, and combined. From 2007 onward, it is evident that the public sector concentrates the majority of the student population, a trend that has persisted throughout the analyzed period. This behavior is related to policies aimed at change. Similarly, a slight increase in the number of students across all sectors is revealed, representing positive progress in terms of educational access and the development of human capital for the country's future. As Valdés Pasaron et al. (2018) argue, to understand the economic growth model in these studies, educational



variables are measured based on the average years of schooling at the beginning of the period, considering the different levels of education (primary, secondary, and higher) and also distinguishing by gender and sector.

**Figure 2**

*Años promedio de escolaridad a nivel nacional en el periodo 2007-2023*



**Note:** Prepared by the authors using data from the INEC (National Institute of Statistics and Censuses)

The literacy rate in the country has decreased, while the level of schooling has increased compared to some neighboring countries. As Díaz and Fernández (2017) point out, 3% of rural youth in Colombia are illiterate, compared to the urban population. In Ecuador, illiteracy affects 2.2% of rural youth and 1.3% of urban youth, demonstrating significant progress in access to education, especially in rural areas of the country.

Previous research suggests that levels of education attained are determinants of growth levels. Following this theory, Mankiw et al. (1992) present a neoclassical model that adopts a broader conception of capital, incorporating human capital as part of the total stock. The model considers both the knowledge workers acquire through formal education and the learning process they develop through experience. These elements generate skills and resources that directly influence productivity and economic performance.

As Valdés Pasarón et al. (2018) mention, to understand the impact of human capital on increased production or economic growth, the Cobb-Douglas production function can also be used, which incorporates factors of production such as labor, physical capital, and human capital. Analyzing educational periods, Benhabib and Spiegel (2005), in their empirical estimations for the period 1965–1985, found that the level of education—understood as a measure of available human capital—has a significant relationship with economic growth.

To understand the relationship between education expenditure and socioeconomic performance, an econometric model will be used to explain the variables under study. In this case, GDP will be the dependent variable, and education expenditure and years of schooling will be the independent variables, analyzed through regression using the statistical software STATA. 14.

### Methodology

The research adopted a quantitative approach because it was based on the collection and analysis of numerical data. The results obtained allowed for a decision to be made regarding the economic problem, a decision that could be generalized or applied to the population. The research was descriptive, focusing on analyzing investment in the education sector and its effect on the socioeconomic performance of the population at the national level. As Hernández and Fernández (2014) mention, descriptive approaches are suitable for studying economic variables, which is fundamental because these studies are appropriate when the aim is to detail the characteristics of social phenomena without manipulating variables.

The analytical and inductive methods were applied. The analytical method facilitated the decomposition of the phenomenon by studying the variables for their understanding, and the inductive method allowed conclusions to be drawn from facts accepted as valid. These methodological approaches are recommended for research seeking to explain complex phenomena. Furthermore, econometric analysis was used as a technique to quantify the degree of association and the impact of the variables studied. This methodology allowed for the estimation of models that evaluate how investment in education and years of schooling affect GDP, offering more precise and statistically supported results. A multiple regression econometric model was applied using the statistical software STATA 14, which allowed for determining the degree of impact of the explanatory variables on GDP. The use of the natural logarithm was justified to standardize the units of measurement and facilitate the interpretation of the coefficients (Gujarati and Porter, 2009).

The research project employed a non-experimental design, utilizing official Ecuadorian data sources to identify key and precise aspects of investment in education and human capital, which were then used to develop the corresponding econometric model. The study's scope was longitudinal, allowing for the analysis of this phenomenon over time, observing how variables change over the years and thus examining their relationships.

This study made it possible to identify the most significant moments of transformation in public policies implemented in the country between 2013 and 2023, a decade characterized by a particularly active role of the State in the education sector.

For data collection, secondary sources from official agencies such as the National Institute of Statistics and Censuses (INEC) and the Central Bank of Ecuador were used, ensuring the reliability and validity of the information. Time series data on public investment in education and economic growth were also employed. The population for this research comprises the entire population of Ecuador during the period 2013–2023, considered in aggregate through macroeconomic and social indicators. This delimitation is justified because the study focuses on analyzing the impact of public investment in education on national socioeconomic performance, represented by Gross Domestic Product (GDP). As this is a quantitative, descriptive, non-experimental study based on secondary data series, the population is not addressed at the individual level, but rather as a whole represented by national statistical variables. This allows for the evaluation of general trends and the establishment of causal relationships between educational spending and the country's economic performance.

The research sample comprises annual data from the period 2013–2023. This sample was selected using a non-probabilistic and convenience sampling method, utilizing data available from official secondary sources such as the National Institute of Statistics and Censuses (INEC) and the Central Bank of Ecuador. This period was chosen due to significant transformations in public

policies related to education, as well as the strengthening of the State's role in the education sector during those years.

## Results

A multiple regression econometric model was applied using Stata 14 statistical software, which allowed us to determine the degree of impact of the explanatory variables on GDP. The use of the natural logarithm was justified to standardize the units of measurement and facilitate the interpretation of the coefficients. As Gujarati and Porter (2009) point out, econometric analysis in social studies allows for more robust and reliable inferences about the relationships between variables.

The dependent variable, which we wish to explain, is Gross Domestic Product (GDP). A database for the period 2013–2023 was obtained, and we want to know if it is related to or determined by the explanatory variables. The explanatory variables selected by the authors are average years of schooling and education expenditure. The objective of this regression is to estimate how changes in schooling and education expenditure impact economic growth (measured by GDP).

For each variable, two hypotheses were formulated: the null and the alternative. The null hypothesis ( $H_0$ ) states that the chosen variables do not influence GDP, and the alternative hypothesis ( $H_1$ ) states that the variables do have an impact on GDP. The results will be tested using the model's significance levels to determine the most appropriate hypothesis.

**Table 1**

*Calculation in STATA 14.*

<b>reg ln_y ln_x3 ln_x4</b>						
Source	SS	df	MS	Number of obs	=	11
Model	.033626348	2	.016813174	F(2, 8)	=	8.29
Residual	.016231378	8	.002028922	Prob > F	=	0.0112
				R-squared	=	0.6744
				Adj R-squared	=	0.5931
Total	.049857725	10	.004985773	Root MSE	=	.04504

ln_y	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ln_x3	.7791569	.2256989	3.45	0.009	.2586943	1.29962
ln_x4	1.676242	.6289586	2.67	0.029	.2258607	3.126623
_cons	2.244445	4.063555	0.55	0.596	-7.12613	11.61502

**Note:** Prepared by the authors using STATA 14.

$$Y = B_0 + B_1 X_3 + B_2 X_4$$

For each variable, two hypotheses were formulated: the null hypothesis and the alternative hypothesis. The null hypothesis ( $H_0$ ) states that the chosen variables do not influence GDP, while the alternative hypothesis ( $H_1$ ) states that the variables do have an impact on GDP. The results will be tested using the model's significance levels to determine which hypothesis is most appropriate.

To properly detail the model, the natural logarithm was first used, since GDP and the other variables are in different units of measurement. Applying this logarithmic transformation brings all variables to the same scale, allowing for a more accurate interpretation of the model's coefficients.

The model's goodness of fit, also called explanatory power or degree of dependence, is measured by the  $R^2$  value, which was 0.6744. This means that GDP is dependent on, or explained by, the explanatory variables (years of schooling and investment in education) by 64.44%.

Furthermore, the significance or F-test of the model yielded a result of  $F(2,8) = 8.29$ ,  $\text{Prob} > F = 0.0112$ , which explains that the model as a whole is significant according to the hypotheses. We reject  $H_0$  (that the two variables are irrelevant) and accept  $H_1$  (that the model as a whole has sufficient statistical evidence to demonstrate that the explanatory variables do influence GDP).

With this result, although the model applied with the variables under study (investment in education and years of schooling) positively impacts GDP, there are factors not considered, such as technological innovation, adequate infrastructure, and institutional quality, which influence the positive return of the project undertaken to invest in education (Ren & Castro, 2024). From an econometric perspective, we analyze how these variables influence GDP, considered as a measure of the socioeconomic performance of the explanatory variables  $\ln\_x3$  and  $\ln\_x4$ . The model indicates that both variables have a positive impact on GDP.

In the interpretation of coefficients:

Education expenditure ( $\ln\_x3$ ): If the percentage of education expenditure increases by 1%, GDP will grow by 0.78%, which has statistical evidence ( $F < 0.009$ ), and we accept  $H_1$ .

Years of schooling ( $\ln\_x4$ ): If the average years of schooling increase by 1%, GDP increases on average by 1.68%, which has statistical evidence  $F < 0.029$  and we accept  $H_1$ .

In short, both factors positively influence economic growth, but years of study have a greater effect. Given the coefficient results, we need to determine if the results are reliable and if the interpretation of the coefficients can truly be trusted to make a decision.

At this point, we enter the realm of statistical significance, which is based on two hypotheses to determine if there is sufficient evidence to support these variables.

$H_0$ :  $P\text{-value} < 0.05$  There is statistical evidence to determine that these explanatory variables do influence Y.

$H_1$ :  $P\text{-value} > 0.05$  There is no statistical evidence to determine that the explanatory variables do influence Y.

Therefore, we have that education expenditure has a p-value of 0.009, and years of schooling of 0.029 (ideally less than 0.05), thus accepting the null hypothesis that these explanatory variables do influence GDP.

Finally, the model explains 67% of what happens with GDP (as seen in the R-squared value of 0.6744). It is not perfect, but it is sufficient to say that the chosen variables have a strong impact on GDP output.

## Discussion

During Guillermo Lasso's term (2021-2023), the Opportunity Creation Plan deepened its focus on the digitalization of employment, attracting foreign direct investment, and strengthening the sector. The classic consensus positions education as the engine of growth through human capital. Schultz (1961) argued that investing in education increases individual productivity and, therefore, the potential for aggregate growth, framing education as a form of investment comparable to physical capital. This line of analysis has inspired numerous studies on the private and social returns to education, such as those highlighting its impact on wages and labor mobility. However, endogenous growth theory broadened this framework. Landázuri (2013) emphasized that for each additional year of education, there is a 10% increase in labor income, which justifies the coefficient found for years of education in this study. Furthermore, Romer (1990) introduced the idea that knowledge and technological innovation are the result of investment decisions, showing that the accumulation of human capital and knowledge generates increasing returns and scale effects on growth.

The implementation of educational policies in Ecuador, as described by Cuesta and Chamorro (2022), reflects a strategy of universalizing education at all levels,

accompanied by complementary infrastructure improvements. This strategy aligns with the vision of Cardona et al. (2007), who argue that general education, structured into levels, constitutes a comprehensive qualification that enables individuals to enter the labor market according to their educational attainment. Recent empirical evidence supports the notion that completing high school and technical education increases employability in Ecuador, although challenges remain regarding quality and territorial coverage. It is noteworthy that the location of various institutions positively influences the development and potential of education (Zambrano Morán et al., 2025).

Acemoglu and Angrist (2000) offer an institutional and technological perspective. In their initial study, they demonstrated that the social returns to education can be lower than expected, while subsequent analyses indicated that technological change tends to favor more highly skilled workers, increasing wage inequality if institutions fail to balance the distribution. In this context, comparative studies suggest that simply accumulating years of schooling may not be sufficient; the quality and relevance of the education system are critical factors. A review of the relationship between human capital and growth shows that the average years of schooling are losing predictive power, and that more robust indices are needed (Cerquera Losada et al., 2022).

One possible explanation is that, in Ecuador, despite the increase in the budget allocated to education and educational quality in recent years, Cuesta and Chamorro (2022) consider it essential to continue strengthening these aspects so that education contributes significantly to social and economic development.

Finally, the study has some limitations. The data do not capture those unobservable individual effects that have a more positive impact, and as Díaz and Fernández (2017) state, negative literacy and schooling gaps still exist. Future research should incorporate indicators that investigate educational quality, which would allow for a more efficient analysis of the relationship between education and economic development in Ecuador.

### Conclusion

The analysis conducted throughout this study fulfilled its objective, which was to examine investment in education and its impact on the socioeconomic performance of Ecuador's inhabitants during the period 2013-2023, in order to demonstrate how these indicators affect Gross Domestic Product (GDP) and to evaluate the relevance of educational investment in national economic

development. The results obtained show that both the increase in public spending on education and the improvement in average years of schooling have contributed positively to the country's economic growth, reflected in greater productivity and improved well-being for the population. These findings are consistent with the postulates of human capital theory and with international literature, which highlights education as a fundamental driver of sustainable development.

Furthermore, the contrast of theoretical perspectives revealed that higher education has a particularly significant effect on the economy, given that basic education levels provide more limited benefits compared to technical and university training. However, other authors point out that the quality of learning and the relevance of curricula depend heavily on the geographical location of the institutions, demonstrating a center-periphery structure that shapes the educational and employment opportunities of young people.

Despite the positive results, the study also reveals significant limitations that restrict the true reach of educational investment. Regional disparities persist in access to technology, infrastructure gaps remain, teacher quality is unequal, and there is a marked concentration of high-level institutions in the country's major cities. These asymmetries limit the impact of current public policies and demonstrate that educational progress is still not distributed equitably across the country.

In this sense, education must be understood not only as an economic indicator, but as a strategic investment capable of transforming social well-being. To move toward more inclusive development, it is essential that future public policies strengthen the technological progress of institutions, reduce the center-periphery gap, and guarantee educational quality standards at all levels. Only in this way can investment in education consolidate itself as a sustainable pillar of economic growth and the comprehensive development of Ecuador.



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