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# GDP and Years in School

## 1. Introduction

A country's gross domestic product (GDP) is assumed to depend on several factors, including the number of years that the population is in school. This is a rational assumption, seeing as the years of education that are obtained by individuals can impact a country quite significantly in many aspects, such as economic, political, social, and more. Alongside years in school, many other factors, such as average trade share, revolutions and/or coups, and the number of assassinations, impact a nation's GDP. However, education plays a vital role in determining the strength and potential of a country and therefore is the focus of this report. This paper will further explore a country's GDP and the number of years in school to examine whether there truly is a relationship between these variables. While the analysis conducted for this report indicates that there is not a strong correlation between these variables, a positive relationship can still be observed based on additional factors, which will be explained in the report.

## 2. Data and Methods

The data observed in this report is obtained from Professor Ross Levine at Brown University and was used in his collaborative paper with Thorsten Beck and Norman Loayza: "Finance and the Sources of Growth." His paper has been published in the Journal of Financial Economics, which is a "peer-reviewed academic journal covering theoretical and empirical topics in financial economics." [1] A comprehensive and detailed list of all variables and their definitions, along with the units they are measured in, are shown in Table 1. The variables used in this paper are the name of the country (*Country_name)* and the number of years of school that individuals in a specific country obtain (*yearsschool*).

**Table 1: Variables and their definitions.**

| Variables | Definition |
|---|---|
| *Country_name* | Name of country |
| *growth* | Average annual percentage growth of real Gross Domestic Product (GDP)* from 1960 to 1995 |
| *rgdp60* | The value of GDP* per capita in 1960, converted to 1960 US dollars |
| *tradeshare* | The average share of trade in the economy from 1960 to 1995, measured as the sum of exports plus imports, divided by GDP; that is, the average value of *(X + M)/GDP* from 1960 to 1995, where *X* = exports and *M* = imports (both *X* and *M* are positive) |
| *yearsschool* | Average number of years of schooling of adult residents in that country in 1960 |
| *rev_coups* | Average annual number of revolutions, insurrections (successful or not), and coup d'etats in that country from 1960 to 1995 |
| *assassinations* | Average annual number of political assassinations from 1960 to 1995 (per million population) |
| *oil* | = 1 if oil accounted for at least half of exports in 1960<br>= 0 otherwise |

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Table 2 shows the summary statistics of all variables within the data set, including the mean, standard deviation, minimum, and maximum values. This quantitative information is in relation to the list of 65 countries provided in the data set.

**Table 2: Summary Statistics of Data**

| | Observations | Mean | Std. Deviation | Min | Max |
|---|---|---|---|---|---|
| *growth* | 65 | 1.942715 | 1.89712 | -2.811944 | 7.156855 |
| *rgdp60* | 65 | 3103.785 | 2512.657 | 366.9999 | 9895.004 |
| *tradeshare* | 65 | 0.564703 | 0.28927 | 0.140502 | 1.992616 |
| *yearsschool* | 65 | 3.985077 | 2.542 | 0.20 | 10.07 |
| *rev_coups* | 65 | 0.16745 | 0.22468 | 0 | 0.97037 |
| *assassinations* | 65 | 0.277564 | 0.491528 | 0 | 2.466667 |
| *oil* | 65 | 0 | 0 | 0 | 0 |

## 3. Result

The objective is to analyze the regression of a specific country on the years in school. Table 3 shows the regression statistics based on these variables.

**Table 3: Regression of Country on Years in School**

| Multiple R | R Square | Adjusted R Square | Standard Error | Observations |
|---|---|---|---|---|
| 0.330998609 | **0.109560079** | *0.095426112* | 1.80433333 | 65 |

## 4. Conclusion

As observed in Table 3, the R Square value in the regression model exhibits a very weak correlation, with the value being approximately 0.11. This further proves that the number of years in school does not strongly impact a country's GDP. However, on the contrary, many external sources claim otherwise. For example, according to Education Next, a journal on education policy, the higher the average number of years in school attained, the stronger the boost in the economy [2]. Additionally, “across the 50 countries, each additional year of average schooling in a country increased the average 40-year growth rate in GDP by about 0.37 percentage points.” [3] In conclusion, although the data and regression analysis suggests a significantly weak correlation between a country’s GDP and the number of years in school attained, external sources suggest that a high number of years in school is vital in boosting a country’s GDP, thus exhibiting a positive relationship.

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## 5. References

[1] Journal of Financial Economics. https://www.jfinec.com/

[2] Hanushek, Eric A., et al. Education and Economic Growth. *Education Next*. 2008. https://www.educationnext.org/education-and-economic-growth/

[3] Hanushek, Eric A., et al. Education and Economic Growth. *Education Next*. 2008. https://www.educationnext.org/education-and-economic-growth/