

An analysis of relationship between education and inequality across countries: Evaluating indicators using data from the United Nations Development Program

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Received: April.29.2021

Accepted: February.7.2022

DoI: [10.52547/irphe.28.3.173](https://doi.org/10.52547/irphe.28.3.173)

Abstract

The purpose of this article was to investigate the relationship between education and inequality in countries. Only the relationship between these two variables were considered and the mechanism and its effects was not studied. This research was based on quantitative comparative method between countries. United Nations Development Program data in 2015 related to 5 education indicators including adult literacy rate, expected years of education, average years of education, population with at least secondary education, and inequality in education, and 3 inequality indices including income inequality, gender inequality and human inequality were analyzed. A total of 173 countries were examined. Cluster analysis categorized countries in five education indicators including four profiles of poor, medium, good, and very good education. It also clustered them into three inequality indicators such as four profiles of high, medium, low, and very low inequality. The regression analysis also showed that five education indicators explain 9% of the variance of income inequality, 77% of the variance of gender inequality, and 79% of the variance of human inequality.

Keywords: education, inequality, cluster analysis, United Nations Development Program.



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Introduction

Inequality is one of the general and permanent aspects of human societies. Individual distinctions such as the inherent abilities, motivations and various tendencies of individuals and social differences, including different lifestyles, rights, opportunities, rewards, and privileges that society assigns to individuals and become institutionalized, cause inequality. Social inequality is one of the most important topics and concepts that has been the concern of the general public and thinkers, philosophers and social reformers for the past ages. Social inequality has been investigated from different angles and perspectives and in relation to other variables (both as a dependent variable and as an independent variable) by sociologists in recent years.

The current research aims to investigate the relationship between education and inequality in different countries of the world based on the available data for different indicators of these two concepts. It should be noted that investigating the causal mechanism of this relationship is not the goal of this research for several reasons. First, the two concepts of education and inequality are concepts with a high level of abstraction and have a wide range of concepts. Second, the investigation of the causal mechanism between these two concepts of different theoretical levels, different theories and viewpoints require a deeper theoretical investigation which are beyond the scope of this research. The present research paid less attention to the subject and the main approach of this research. The third and most important reason is that considering that the unit of analysis of this research is based on countries, it is slightly difficult to access data for the analysis of other variables and complete data for them is not available.

Methodology

This research has tried to answer the research questions by analyzing the data of the United Nations Development Program in 2015 (analysis of pre-existing data). The unit of analysis and the unit of observation are countries and the research design is also cross-sectional. After identifying and checking the indicators, the data related to each indicator was extracted in 2015. The data was related to 193 countries of the world in 10 indicators relevant to education and inequality were entered into the Excel file. The data of each index are in one of four forms: percentage, ratio, year and coefficient from zero to one. One of the problems and issues of these data was related to missing data. For example, data related to some countries was not available in some indicators. In order to reduce the bias resulting from the missing data in the research, the cases (countries) that only had data on 3 (or less) indicators under investigation were excluded from the analysis. Ten countries were removed

in this process and the number of countries was reduced to 183 and the desired analysis were performed by using these data.

Findings

The profile of poor education includes 14 countries. This profile has the worst conditions in all education indicators. Indicators of adult literacy rate, expected years of education, average years of education, average years of education for women, average years of education for men, the population with a minimum of secondary education has the lowest average and the inequality index in education is the highest. It has the rate compared to the other three clusters.

The profile of secondary education includes 28 countries. In all education indicators, this profile has a better situation than the profile of poor education and a worse situation than the two profiles of good education and very good education. Indicators included adult literacy rate, expected years of education, average years of education, average years of education for women, average years of education for men, population with a minimum of secondary education above the profile averages. Poor education is lower than the averages of the two profiles of good education and very good education. Also, the index of inequality in education in this profile is lower than the profile of poor education and higher than the profiles of good education and very good education. The profile of good education includes 73 countries. In all education indicators, this profile has a better situation than the profiles of poor education and average education, and a worse situation than the profile of very good education. Indicators included adult literacy rate, expected years of education, average years of education, average years of education for women, average years of education for men, population with a minimum of secondary education above the average of two halves. The profile of poor education and average education is lower than the averages of the profile of very good education. Also, the index of inequality in education in this profile is lower than the profile of poor education and average education and higher than the profile of very good education.

The profile of very good education includes 68 countries. This profile has the best conditions in all education indicators. Indicators of adult literacy rate, expected years of education, average years of education, average years of education for women, average years of education for men, population with a minimum of secondary education, the highest averages and inequality index in education have the lowest level compared to the other three clusters.

The results of the regression analysis of income inequality showed that the correlation of income inequality with the variables of adult literacy, expected years of education, average years of education, population with a minimum of

secondary education, and inequality in education is equal to 0.302 (R: 0.302). On the other hand, the R square is 0.09 (R²: 0.09); This means that the variables of adult literacy rate, expected years of education, average years of education, population with a minimum of secondary education, and inequality in education account for 9% of the variance of income inequality variable. The results of the regression analysis of gender inequality show that the degree of correlation between gender inequality and the variables of adult literacy, expected years of education, average years of education, population with a minimum of secondary education, and the inequality in education are equal to 0.878 (R: 0.878). On the other hand, the R square is 0.771 (R²: 0.771). This means that the variables of adult literacy rate, expected years of education, average years of education, population with a minimum of secondary education, and inequality in education account for 77% of the variance of the gender inequality variable, which is a significant amount. The results of human inequality regression analysis show that the correlation between human inequality and the variables of adult literacy rate, expected years of education, average years of education, population with a minimum of secondary education, and inequality in education is equal to 0.89 (R: 0.89). On the other hand, the amount of R square is 0.79 (R²: 0.79). This means that the variables of adult literacy rate, expected years of education, average years of education, population with a minimum of secondary education, and inequality in education account for 79% of the variance of the human inequality variable, which is a considerable amount.

Conclusion

Considering the different approaches in examining the relationship between education and social inequality, the present research was conducted with the approach of paying attention to the relationship between the quality of education and social inequality in the countries of the world. Today, the right to education is the concept of having an education that has a desirable quality, and everyone's equal enjoyment of education is considered to mean that everyone has an equal opportunity and possibility of success within the educational system.

The results of cluster analysis and regression of the United Nations Development Program data showed that the relationship between education and social inequality is quite evident. Examining the indicators related to the educational quality of a country is an important reference for understanding the level of social inequality in that country. These findings were in line with the results of other researches such as Durkheim's, et al and these theories have the power to explain this relationship.

