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## The Effectiveness Analysis of Public Education and Health Expenditures

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**Abstract.** This study examines the links between public education and health expenditures, and education and health outcomes- measured by the school life expectancy and rate of child (under five) mortality, life expectancy at birth. It also investigates the role of governance on the effectiveness of public education and health expenditures. The effectiveness of public education and health expenditures is examined within education and health production function by using 2002- 2012 data. Empirical results show that effects of socioeconomic and environmental factors and demographic structure on education and health outcomes are similar to those in previous studies. The results indicate two important findings. First, public education and health expenditures remain incapable to explain outcomes when compared to other socioeconomic variables. Second, increase in public education and health expenditures is associated with improved outcomes just in countries where regulatory quality and control of corruption is high. With a general expression, public education and health expenditures become more effective in countries with high governance level.

**Keywords.** Public education expenditures, Public health expenditures, Child mortality rate, Life expectancy at birth, School life expectancy.

**JEL.** I18, I28, H51, H52.

### Highlights

- \* This study aims to examine the contribution of public education and health spending to the improvement of the education and health outcomes.
- \* Existing literature on public spending have many empirical studies based on cross sectional data sets. But this study uses relatively large panel data sets for both education and health models.
- \* Previous empirical studies explain the differences in the effectiveness of public spending between countries with *income level*. But this study investigates the probable causes of differences between countries by including *governance* into the models.

### Summary

Public spending on education and health which are basic components of human capital is very important in economics literature. In the provision of the health and education services, externalities occur. If left to market forces, these services will be underprovided and some individual who can not contribute to their financing will be excluded from the benefits of these services. In this situation, state's intervention in education and health becomes necessary. After the 1950s, the states started to increase their spending on education and health. At this point, an important question arises: Does spending more on education and

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health improve education and health outcomes? Because, if adequate improvement is not provided, the main economic reasons behind the state intervention in the economy will be questioned. Empirical studies on this subject have yielded controversial results. The diversity in the findings of empirical studies and the lack of studies that are based on large panel data sets are the starting points of this study. It aims to investigate the contribution of public spending on education and health to the achievement of the targeted outcomes. Also it aims to investigate the probable causes of differences between countries using a relatively large sample and different variables. Although the actual research question is about the effect of public health and education spending on outcome indicators, in such a study which is related with public performance, there is a need for detailed definitions and explanations of major concepts. The performance of the state in the provision of education and health services can be explained in terms of many criteria. The interchangeable use of performance criteria such as effectiveness, efficiency, and efficiency reveals the necessity of figuring out the differences between them both conceptually and technically.

In this context, this study deals with the following questions: (1) How is effectiveness defined, what are the differences between effectiveness and other performance criteria and why this study use effectiveness analysis? (2) Does increase in the public spending on education and health improve the outcome indicators? (3) What are the reasons for differences between countries in the effectiveness of public spending on education and health, and can governance strengthen the link between public spending and outcome indicators?

The results in the literature differ according to the sample structure, time interval and the variables used. It means that for this kind of subject, analysis based on large samples and high number of observation is needed. Unlike cross-sectional studies, this study, using a wider panel data sets for both health and education models. Empirical findings for all health models show that effects of per capita income, expected schooling years, income inequality, environmental health, access to clean water, urban- rural population distribution are similar to those in previous studies. But the effect of public health spending varies according to models and sample structure. Also the impact of institutional structure, where less attention has been given in the literature has also been examined in explaining inter-country differences. To test the assumption that the impact of public health spending varies depends on institutional capacities of countries, the regulatory quality index, which reflects the performance of the state intervention, is included as an interaction term in the health model. Although this term has a lower effect than other variables, it has been found effective in reducing child mortality rates. Although these findings are limited by selected sample and time interval, they show that public spending on health will be more effective in countries where the state's regulatory quality is high.

Although there are common health outcomes in the literature, there is no consensus on the use of educational outcome indicator. The differences in quality and quantity of education systems are the biggest obstacles to education-related analysis. But in this study, school life expectancy for the primary level of education, in which a certain standard has been captured around the world, has been selected as an educational outcome indicator. As a result of the analysis, it is found that the public education expenditure at the primary school level is not effective by itself. Because, the standard maintained in the areas of development and welfare in developed countries allows the education to progress as planned, independent from the expenditure on pre-tertiary levels. When the interaction term is included to the model to see the effect of governance in increasing the effectiveness of public education spending, it is found that public education spending is effective only in countries where high-level corruption control.

### Conclusion

All results, both for education and health models, may be inadequate to make inferences about the effectiveness of education and health spending alone, but may constitute a basis for major policy recommendations. One of the suggestions that can be made in the direction of all these findings is the need to increase corruption control, transparency and regulatory quality, especially in underdeveloped and developing countries, in order to increase the effectiveness of public spending. In countries with a public financing system, such as the United Kingdom, where the state's regulatory regime and corruption control are higher, the relationship between public spending and outcome indicators are stronger. Especially in countries with a high share of private financing, since market is profit-oriented, spending artificially increase without improving outcome indicators. At this point, supervisory mechanisms for private sector spending need to be established / strengthened. In addition, the marginal impact of shifting the spending to primary health care and primary education will be higher especially in underdeveloped and developing countries.

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