THE IMPACT OF PUBLIC INVESTMENTS FOR EDUCATION ON THE PERFORMANCE OF STUDENTS IN ROMANIA

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Abstract: *Through this research we aim to make a brief analysis of how the value of educational investments influences the performance of students in Romania. In order to achieve the proposed goal, it is necessary to analyze some specific indicators to education and compare them with similar data from other countries.* To carry out this research, both qualitative and quantitative research methods were applied. Education is an essential factor in economic growth and social development. The educational process has a significant role both in the growth of each individual and of society as a whole, being indispensable for personal development and well-being. Investments in education deliver long-term benefits to citizens, publicly funded institutions and the knowledge-based economy as a whole. Research over the last few decades has shown that investments in education and health are associated with the highest rate of return. *It is essential to prioritize public investments with the aim of ensuring the performance standards of educational institutions in Romania, in conditions of security and quality. For this, it is necessary for the school infrastructure to function properly, the constructions to be consolidated, the maintenance costs to be cost-effective and to ensure the efficiency of the use of space and resources in order to allow the activities of the users to be carried out in optimal conditions of comfort, health and productivity. Also, human capital is quantitatively analyzed as the first economic resource from the perspective of population evolution. In project evaluation, investment efficiency refers to the most effective, economical and rational way of using the investment resources made available to achieve the expected results.*

Keywords: *public investments; public spending on education; efficiency of education system; graduation rate; performance; management responsibilities in education;*

JEL classification: I21; I22; I28;

1. Introduction

Public investments must be rigorously analyzed because, at present, the needs are greater than the availabilities. Thus, their prioritization must take into account several aspects, such as: correlation with existing priorities at European/national level; orientation towards projects that generate greater economic benefits; applicability in the shortest possible term; obtaining project financing from grant funds.

The investment proposals, as well as all other expenses necessary for their realization, are included in the annual investment programs, provided that they comply with the technical-economic documentation, respectively the substantiation note that reveals the need and opportunity for the realization of the expenses regarding the investments, to be issued and approved in accordance with legal regulations.

In the European Union, spending on education and training financing exceeds 5% of GDP with the aim of developing human capital. Qualified professionals are the main pawn of economic development, work efficiency and international competitiveness.

In addition to public resources, the involvement of the private sector is also necessary, which can invest additional resources for education and help improve the material base of educational institutions.

2. Literature review

The specialized literature mentions the need for specific investments in order to achieve notable achievements in the educational field (Carey, 2002).

The investments made in the field of education produce direct effects (of a social nature such as increasing the quality of education, which are difficult to quantify or of an economic nature, evaluated through a various of incomes and savings, as well as the reduction of time that requires better identification) and indirect effects (propagated, very complex, which are considered to be the economic effects, evaluated according to the growth of the gross and net domestic product, the reduction of material expenses and the increase of profit for economic agents).

In the context of globalization, it is essential to unify the learning processes to the requirements of the world labor market, simultaneously with the adaptation of educational, socio-economic, cultural, political policies to the permanent changes of the environment that influence the whole society at the macro level, but also the staff didactic, which have the role of disseminating information in turn, at the micro level (Kitchen et al., 2017).

According to Busemeyer (2008), the educational process can be compared to economic processes in companies, schools being seen as an environment in which educational resources (teachers, books, buildings, equipment, students) interact with each other, the objective being the performance of students usually expressed in the form of test scores or future salaries of graduates.

The ability to accumulate income or capital varies, especially under the influence of investments made in the formation of human capital through educational processes or continuous training and specialization (Campan et al., 2022).

The main condition for sustaining economic competitiveness is investment in human capital (Ziberi, 2022). The educational system in Romania still requires massive investments to generate competitive resources for the labor market. However, there is uncertainty regarding the effectiveness of the educational system, because the real costs to obtain approved skills on the labor market are much higher than those borne by the national budget, which involves private investments.

Efficiency emphasizes the result in the exchange of financial resources and time, which the investment project entails, and when completed, fulfill for the advantages that are foreseen and the probability of the success of the investment product during its useful life. Also, efficiency expresses how convenient, profitable, this exchange is for the investor (Lockheed, 1994).

In the "investment costs and time resources - expected advantages - efficiency" connection, the necessary financial and time resources are the means of action, the driving force for the generation of advantages, and the costs and advantages associated with the projects are the determining factors for the formation of investment efficiency (Lafortune, 2018).

The investment in human capital recovers over time and is reflected in the efficiency of production. Qualified personnel in the field in which they carry out their activity are much more efficient than personnel who have another specialization or who have not improved.

Specialists have different opinions about the fact that education is a non-productive field, and the efficiency of the investments made in this field follow three main elements (Isac, 2020):

- the investment effort necessary to fulfill the intended purpose;
- the effort to maintain and capitalize on their operation;
- the effects achieved following the execution of these objectives.

3. Data and methodology

The most used methods for determining the effectiveness of the education system are the determination of the number of graduates in relation to the number of students entering education, the analysis of exam results and the counting of students who achieve higher education compared to the average of high school graduates. These measures show a very vague review of a school (Polcyn, 2016). They completely ignore the socio-economic context of the analyzed environment, the financial expenses incurred for the educational processes and the associated effects, as well as the educational level of the students at the entrance (Fartușnic, 2014).

The creation and implementation of a system of indicators in the educational field was based on the need for international analyzes and specific examinations, even with regard to national systems, because over time more and more emphasis was placed on standards of superior quality of learning, but also on an increase in competitiveness.

The use of indicators is the result of a combination of interests, such as:

• the need for public accountability, based on clear methods for quantifying progress; since educational systems have and use more and more resources, public authorities must periodically report accurate data, expressed through indicators;

• the need for data comparability, having common reference systems, within the framework of the standardization of activities and globalization (the European educational space, objective of the Lisbon Strategy);

• decentralization of educational units and quality assurance by using accurate methods of monitoring and representing common indicators;

• treating education from a perspective harmonized with continuous professional training and social inclusion that meets the requirements for the development of human resources;

• the integration of lifelong learning as the foundation of educational policies, helping to develop and branch analysis systems, to be able to include learning processes from all educational fields.

4. Result and discussion

Considering the development of the field of information technology, the most important that indicators represent the necessary tools to be able to define, apply and monitor educational policies are:

- *Public spending on education as a percentage of GDP*

From 2010 to 2019, education funding has fluctuated within 3% of GDP, with a low of 2.80% in 2013 and 2017, a slight increase to 3.60% in 2019 and 3.70% in 2020, but with a decrease to 3.20% in 2021, which highlights the underfinancing within the activity sector.

Romania's public spending on education is lower than the EU average or compared to international standards.

According to statistics, the average budget allocations for education in the EU had the highest value in 2020, to compensate for the effects of the COVID-19 pandemic, in the years 2011-2014 of 4.90% of GDP, and in the following years it had a constant involution, with an average of less than 5% of GDP: 4.70% in 2017, 2018 and 2019 according to data provided by EUROSTAT.

In 2019, public spending on education in Romania had the most significant increase in the EU, well above the average of 1.90% of the member states. The main determining factor was the increase in personnel expenses from 2019, but also in other categories of expenses, such as goods and services, development and maintenance of the material base of the educational system.

Although this increase was significant for Romania, overall, the allocation of 3.6% was much lower than the EU average of 4.7% of GDP.

However, comparing to the total public expenditure, the percentage was slightly above the EU average (10.10%, compared to the EU average of 10%), which demonstrates a rather low level of public allocations for education.

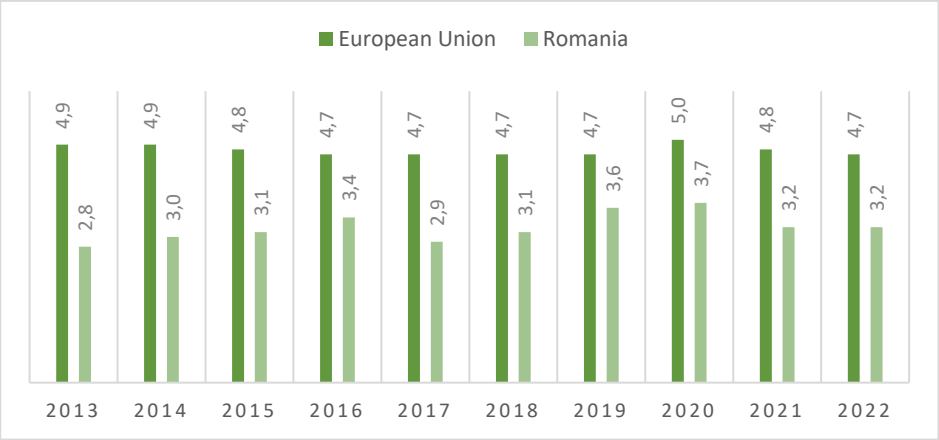

Figure 1: Public expenditure on education as a % of GDP in Romania versus EU average
Source: made by the author based on Eurostat data

- *Students per teaching staff*

In recent years, the number of students per teacher has decreased slightly, following the measures taken to restructure the activities in the educational system.
Compared to 2020/2021, in the 2021/2022 school year the ratio of students per teacher is approximately constant at each level of education, the average being 14 students per teacher.
The residence environment remains an important factor differentiating the values of this indicator. In recent years, in the case of early school education, the number of children per teacher is significantly higher in rural areas, in comparison with the urban environment (17 children, respectively 14 children per teacher). In primary education and secondary school, the ratio reverses, the value of the indicator being higher in urban areas.

Table 1: Student per teacher ratio in pre-university education

Education level	2012/ 2013	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022
Early school education	16	16	16	15	15	15	15	15	14	14
Primary	18	19	19	19	19	19	19	19	19	18
Secundary	11	11	11	11	10	11	10	10	10	10
High school, professional, post-secondary	16	15	15	15	14	15	14	14	14	14

Source: made by the author based on INS data

- *Secondary education graduation rate*

It represents the percentage of 8th grade graduates in relation to the total number of the population with the appropriate age to complete the lower secondary cycle (14 years). In the

2012-2019 period, indicator values of over 80% were obtained, with slight fluctuations from one school year to the next. There is a significant decrease in the value of this rate in the 2020/2021 school year, to 66%, a possible factor being the legislative change of the schooling age to 6 years and the appearance of the preparatory class.
A much higher success rate is observed in the urban environment, compared to the extra-urban environment. The causes would be, first of all, school dropout, often found in rural areas, but also the tendency to move from rural schools to cities, towards the end of the secondary school cycle (to have better chances to continue studies in high schools).

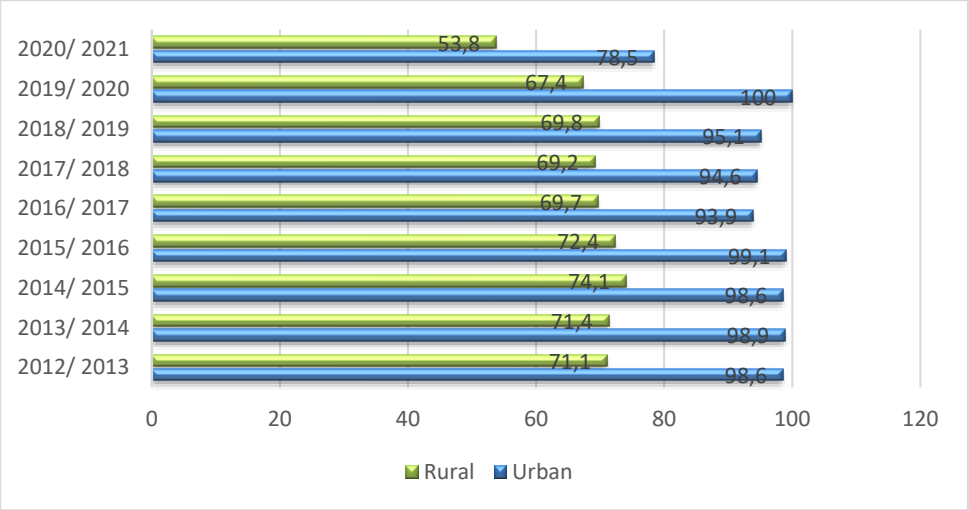

Figure 2: Secondary school graduation rate, depending on the area of residence
Source: made by the author based on INS data

- *High school graduation rate*

It is determined as a ratio between the number of those who graduated from high school and the total number of students of the age corresponding to the completion of high school studies. The specifics of high school forms and streams with different durations must be taken into account, which is why not all students finish high school studies at the age of 18. Moreover, graduating from high school does not automatically imply enrolling or passing the graduate exam upon completion of the twelfth grade.

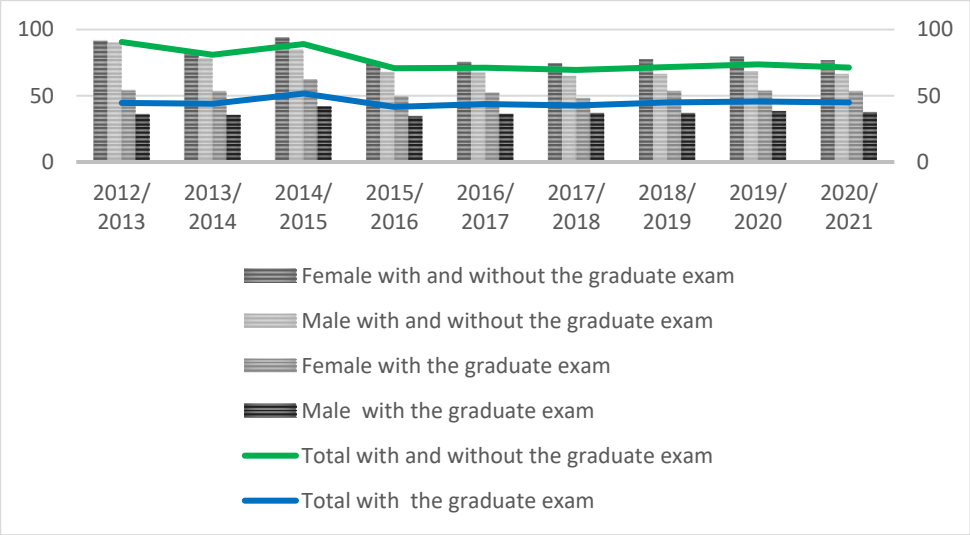

Figure 3: High school graduation rate (with or without graduate exam)
Source: made by the author based on INS data

- *Students' results in the baccalaureate exam*

Of the total high school graduates registered and presented for the baccalaureate exam, in the 2021/2022 school year, 77.6% obtained averages above 5, a higher level compared to the previous year. The highest rate was among graduates of the current class compared to graduates of previous classes.

- *The training level of the population aged 15-64*

The indicator is obtained by studying the information made available through the AMIGO survey, which notes a positive evolution of the education level of the population able to work, considering that the share of the population that has completed higher/post-secondary/high school education has increased, while the frequency has decreased to people with a lower level of education (professional/ secondary school/ primary school/ no primary school completed).

- *Participation in the economic life (labor force) of the population aged 15-64*

According to statistical data, in 2022 there is a 1.57% increase in the active population in Romania compared to 2021, and a 2% in the employed population, but also in unemployment percentage of 1%.
The specialized literature indicated the direct relationship between the level of education and the increase in economic-financial crime (Achim, Borlea, 2020), which affects the state budget through significant reduction of budget revenues. Consequently, government programs cannot be carried out in good conditions generating negative effects both on the volume and on the quality of public services in terms of public health, education, national security, which should lead to a major interest of all factors. involved to discourage school dropout.

5. **Conclusions**

Analyzing similar research models of the proposed subject and the specific indicators we can conclude that the establishment of performance criteria would help improve the quality of education and also the educational management. The most important would be:
- Ensuring didactic processes based on the knowledge acquired by the student;
- Adaptation of teaching methods to the specific needs of the educational unit;
- Application of standards for evaluation and monitoring of teaching and learning results;

- Respecting the objectives of the curriculum and methodical indications;
- Encouraging extracurricular activities and using them to increase educational quality;
- Compliance with regulations and legislation specific to the educational field;
- Involvement in the professional development and continuous training of learners.

The Strategic Objectives mentioned in the Strategy for the Modernization of the Educational Infrastructure 2018 – 2023: OS 1: Developing and updating the legislative framework of the school infrastructure to ensure a conducive environment for learning spaces and OS 2: Improving safety and operating conditions and modernizing learning spaces, were partially fulfilled by accessing European funds, the National Recovery and Resilience Plan provides for investments in all educational plans in the member countries of the European Union, through strategic actions, such as:

• Improving the normative framework applicable to the school infrastructure appropriate to the instructional-educational processes;
• Refurbishment of educational units in order to ensure the minimum standards of operation;
• Modernization and adaptation to safety conditions of educational institutions.

A prioritization of investments in facilities in the educational environment presupposes, first of all, an evaluation and a choice of investment requests by the competent authorities with the verification of compliance of the received proposals. After the validation of these proposals, if they comply with the general principles, they will pass through the filter of the prioritization criteria, in order to be able to establish exclusively the priorities for investments through compatible proposals.

Eligible and validated projects in accordance with the general proposals are also subject to a set of criteria composed of four dimensions and eight strategic sub-dimensions considered essential for prioritizing investments to improve the educational infrastructure, as follows:

Public policies depend on the social, cultural and economic context that requires tools to measure, compare and evaluate the characteristics, at the international level.

An increase in the amount of investments (both from public and private funds) correlated with the application of an acceptable internal managerial control allows the use of good practices, through the verification, evaluation, adjustment and permanent updating of their implementation and can generate benefits for the entire educational system.

Investments in education are needed to reduce the gap between skills and knowledge acquired during schooling. Studies have shown that one in five Europeans has not acquired the basic skills that would allow them to participate in lifelong learning processes and facilitate easy adaptation to the permanent transformations of the working environment. For 15-year-olds who cannot achieve level 2 in the Program for International Student Assessment (PISA), coordinated by the Organization for Economic Co-operation and Development (OECD), there are still a high percentage.

Given that education is the 'engine' of a country's economy, the reference indicators necessary to be able to carry out comparative studies between different member states of the European Union should include: the values of the points obtained in the PISA tests, the GDP per capita, the rate of early school leaving and higher education (tertiary level) graduation rate.

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