

Social Efficiency in Romanian Education Services

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Abstract. *The term "educational services" is used to describe activities that are designed to enhance awareness and understanding of the underlying causes and characteristics of conditions or factors that have an impact on an individual's development and functioning.*

This paper inspects real data from the Romanian Statistics Institute and computes the social efficiency of Romanian education using the resulting indicators: the educational units per 1,000 inhabitants in Romania, the total number of enrolled students per 100,000 inhabitants in Romania and the enrolled population per teacher in Romania. Furthermore, the research article assesses the Romanian social efficiency in 2023 with that of 2013 (now with the figures of 10 years ago) and with 2003 (now compared with 20 years ago).

The results indicate a reinvigoration of social efficiency in Romania, being on the right track in this field of research.

Keywords: social efficiency, education, educational units per 1,000 inhabitants, enrolled population, enrolled population per teacher.

Introduction

The term "education services" encompasses the delivery of structured teaching and learning programs aligned with accredited courses, as well as the provision of assessment and evaluation decisions pertaining to such courses.

Non-market services comprise collective public services, providing services for the general benefit of the community. These public services directly benefit individuals (schools, health, army, police, fire brigade, justice). Consumption of these services is special, because consumers pay taxes and fees to the state budget to benefit from these types of services. Services are immaterial, so they cannot be compared and evaluated on quantitative elements. Moreover, for many such services people pay out of obligation and not out of pleasure (health services, compulsory education services). In fields such as education, health, culture, art, where the effects obtained are difficult to quantify, requiring years to see the results, efficiency refers to the rationalization of expenses for the training of a student, the care of a sick person. The efficiency with which available resources are used to obtain maximum non-monetary results is social efficiency.

The share worldwide of woman with tertiary education is 41%, representing an important achievement for the education sector. Regarding Romanian education, we have 7,102 education units in 2023, and 45.5bn RON the budget for education in 2023. The dropout school rate for

Romania was 16.6% in 2023 (Statista, 2024). The dropout school rate average for the European Union countries was 9.5% in 2023. In this light, the dropout rate in Romanian education is very seriously and problematic even in 2024.

The Romanian education system comprises the next stages: early education, primary education, secondary education (which includes secondary lower education or gymnasium and superior secondary education), tertiary non-university education, higher education, and adult education. Since early education is optional, compulsory school usually begins around six, starting with primary education, then lower secondary education, and the first two years of upper secondary education (Statista, 2024).

Considering all these facts, the present paper research real data from the Romanian Statistics Institute and calculate the Romanian education social efficiency using the following indicators: The Education units per 1,000 inhabitants in Romania, the Total Students enrolled per 100,000 inhabitants in Romania and the Enrolled population per teacher in Romania. More than that, we are comparing the Romanian social efficiency in 2023 with that of 2013 (now with 10 years ago) and with 2003 (now with 20 years ago).

The paper construction is as follow: first we start with the literature review, continuing with the research methodology. The results are discussed and the conclusions are presented.

Literature review

Social efficiency is the most difficult to estimate using quantitative indicators. For this manner, aspects of social efficiency in education services can be expressed using indicators such as: the number of educational units per 1000 inhabitants; the number of students per 100,000 inhabitants; the number of scholars per teacher (the scholars to teacher ratio per secondary school class) or students per teacher.

Social efficiency includes the measurement of the quality of services received by consumers from service providers, and translated into education, it represents the satisfaction of students in regards with the educational services offered by institutions through their teaching staff.

According to Lacka et al (2021) one reason for a poor evaluation is the limited support that students receive while working in class alongside with their teachers. So, teachers must be involved in the processes of homeworking by attributing tasks very well taught during class time. More than that, students are part of the social efficacy of the teaching process if they are paying attention or asking good questions.

Measuring the quality of services consists in reducing the differences between the level of services offered and the one expected by consumers.

Efficiency in education refers to maximizing outputs by rationalizing inputs (Stefan et al., 2023), i.e. maximizing the knowledge acquired by students while minimizing the expenditure on their education (see Figure 1).

Recent studies show that high workloads and work-life balance are the reasons why almost three-quarters of UK teachers would have wanted a different job (Education today, 2024). The interest in teaching is crucial to obtain social efficiency, as well the interest in learning. If the first one depends on the teachers, the second one depends on the students. Job satisfaction is another vital factor for gaining social efficiency in education. The desire to create a career path is additional important factor for acquiring social efficiency in education (Kukreti & Bhatt, 2023).

In developed countries, the issues regarding social efficiency in education are more and more research, in contrast with the studies poor in this filed in the underdeveloped countries (Feizi

& Elgar, 2023; Galeotti et al. 2024; Siddiqui & Lento, 2024). The students behavioral change by being involved in the education services is the silver line for reaching social efficiency.

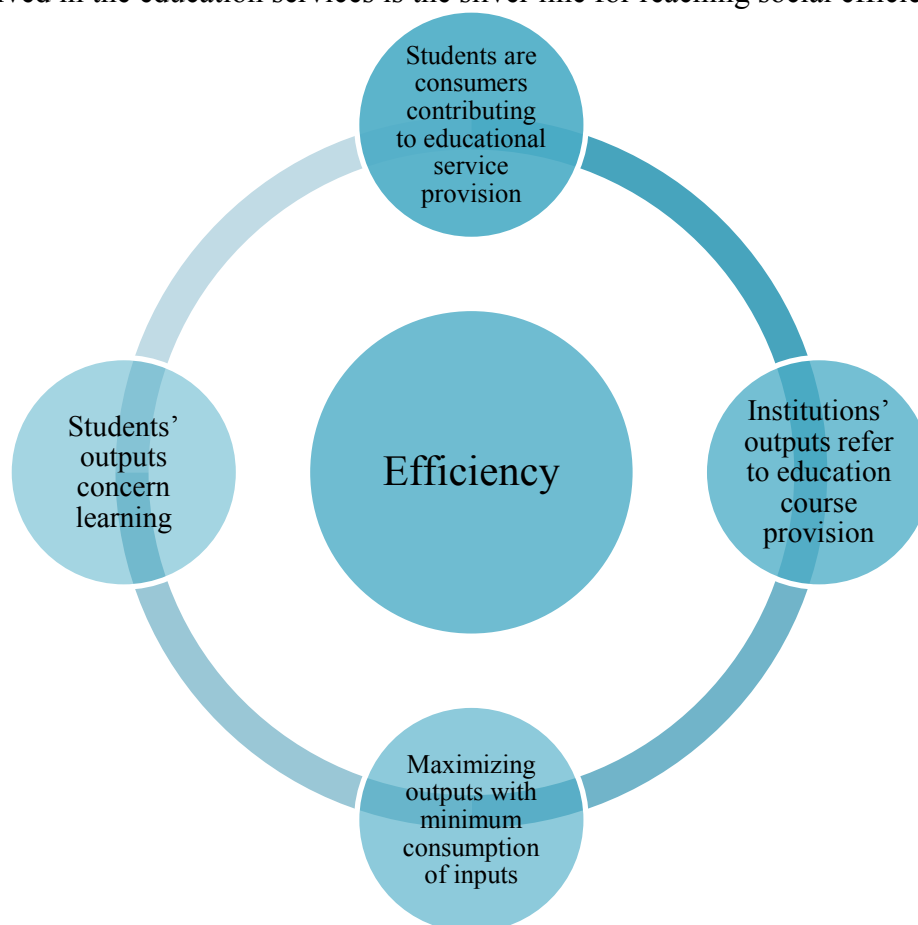


Figure 1. The efficiency process in education

Source: created by authors.

In the field of education, a number of factors contribute to social efficiency. For instance, parents with higher levels of education are more likely to engage in learning activities at home and to send their children to schools that offer greater resources and more highly trained teachers. Conversely, parents with limited literacy skills in developing countries are more likely to send their children to schools with fewer material resources and teachers who are less well-qualified. In both cases, it is challenging to isolate the impact of specific school inputs from one another or from that of parents.

The cycles of social and economic efficiency in education begin with the Inputs of non-monetary nature (like number of textbooks; years of teaching experience), continues with the Outputs of non-monetary nature (like learning achievement) creating *the social efficiency*, continues with the Inputs of monetary kind (for example costs of textbooks; teacher salaries) generating Outputs of monetary nature (like earnings) contributing to achieve *the economic efficiency* (see Figure 2).

On one side, the social efficiency deals with inputs and outputs of non-monetary nature, and on the other side, the economic efficiency deals with inputs and outputs of monetary kind.

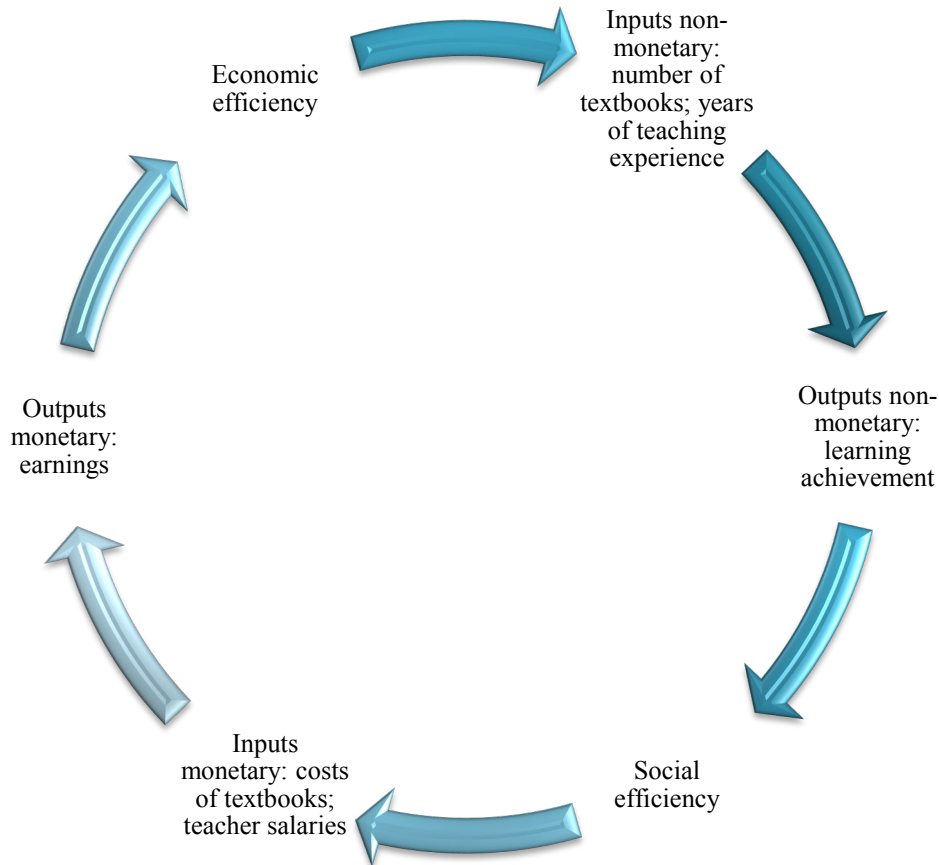


Figure 2. Cycles of social and economic efficiency in education

Source: created by authors.

In way to achieve high quality, the educational process must balance three diverse assemblages of elements (see Figure 3), specifically, teacher preparation, teaching materials and digital tools for creating lessons, and the active and engaged behavior of pupils and students during schoolings and trainings.

Pelau et al. (2021), said that the benefits gained from the use of artificial intelligence and robots decrease the fears that the people have in relation to them”, so perhaps in the near future in the classroom we will see teachers’ robots. Imbriscg & Toma (2020) specified that education fulfils an important social function and plays a critical role in creating a “just and sustainable future”.

An equilibrium must be achieved between the three pillars – *professional training* of the teaching staff, *teaching materials*, digital tools and education processes and *the behavior* of pupils and students. Thus, an over-emphasis on school materials and equipment can give students the impression that they are just numbers in the educational management. Too much focus on behavior can make teachers soft, rather than firm in teaching the lesson. A learning unit that insists on teacher preparation may neglect the effectiveness of teaching during classes. Otherwise, the students may end up mattering less than the educational management problem that the school has to solve.

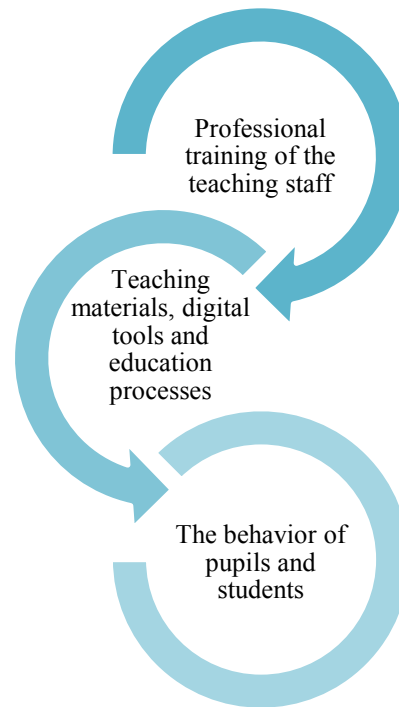


Figure 3. Pillars for achieving quality in education services

Source: created by authors.

In light of all these considerations, we research the potential of the social efficiency in Romania using real data and calculate and interpret the results.

Methodology

The present paper research real data from the Romanian Statistics Institute and calculate the Romanian education social efficiency using the following indicators: The Education units per 1,000 inhabitants in Romania, the Total Students enrolled per 100,000 inhabitants in Romania and the Enrolled population per teacher in Romania.

Furthermore, a comparison is made between the Romanian social efficiency in 2023 and the figures from 10 and 20 years previously: 2013 and 2003 respectively.

The authors conducted their own calculation and results interpretation and assessed the the social efficiency in the Romanian education system.

The data was collected using Tempo Online, the statistics official portal of the Romanian Statistics Institute.

Results and discussions

First, we analyzed the evolution of the Education units per 1,000 inhabitants in Romania and we found that in 2023, Romania had 7.10 education units per 1000 inhabitants. In 2003, Romania had 18 education units per 1000 inhabitants, much better than in 2023 (Table 1).

Over the 20 years (2003-2023), an average annual decrease of 37.2% in the total number of education units in Romania was predictable. This correlates with the high school dropout rate of 16% by 2023 and the low birth rate for Romania.

Table 1. The evolution of the Education units per 1,000 inhabitants in Romania

Years	2003	2013	2023	2003 Education units per 1,000 inhabitants	2013 Education units per 1,000 inhabitants	2023 Education units per 1,000 inhabitants	Change rate %
Total Education units	18012	7074	7102	18.01	7.07	7.10	-37.20

Source: Authors' own calculation research using real data from the National Statistics Institute, Romania, 2024.

We continued our evaluation of the social efficiency of Romanian education by assessing the Total number of enrolled students per 100,000 inhabitants in Romania. It was observed, an average annual decrease of 18.24% in the number of students in Romania (2023 compared to 2003). Regarding the social efficiency, we could understand the decrease, as the Students enrolled per 100,000 inhabitants in 2023 was 4.15 compared to the number of Students enrolled per 100,000 inhabitants in 2003 (6.21) (Table 2).

Table 2. The evolution of the Total Students enrolled per 100,000 inhabitants in Romania

Years	2003	2013	2023	2003 Students enrolled per 100,000 inhabitants	2013 Students enrolled per 100,000 inhabitants	2023 Students enrolled per 100,000 inhabitants	Change rate %
Total Students enrolled	620785	433234	414998	6.21	4.33	4.15	-18.24

Source: Authors' own calculation research using real data from the National Statistics Institute, Romania, 2024.

Thirdly, we conducted an analysis of the evolution of the enrolled population per teacher in Romania in 2003, in comparison with both 2013 and 2023. We observed a recovery and an improvement in social efficiency due to the fact that the enrolled population per teacher in Romania in 2023 (14.15) is lower than the enrolled population per teacher in Romania in 2003 (15.9), representing a reduction of approximately 6% (Table 3). This improvement in social efficiency is beneficial for the Romanian education system, as a lower enrolled population per teacher is preferable.

Table 3. The evolution of the Enrolled population per teacher in Romania

Years	2003	2013	2023	Change rate %
Total Enrolled population	4472493	3650933	3466548	-11.96
Total Classroom teachers	281272	248016	245039	-6.66
Enrolled population per teacher	15.90	14.72	14.15	-5.68

Source: Authors' own calculation research using real data from the National Statistics Institute, Romania, 2024.

Even if there are improvements in social efficiency, we still have many shortcomings in Romania. A major disparity in education between urban and rural areas.

The social efficiency of education services in Romania is facing a major problem, explicitly the shortage of qualified teachers teaching in secondary education.

Our country stands out, at all levels of secondary education, for the large number of pupils per teacher (14 pupils per teacher), as well as for the high proportion of unqualified teachers in rural and other disadvantaged areas.

Concerning the top of the best universities in 2023 in Romania, the Babeş-Bolyai University from Cluj-Napoca, was on the first place, followed by the University of Bucharest and the Carol

Davila University from Bucharest, as the Bucharest University of Economic Study took the 10th place after Politehnica University Bucharest (Statista 2023).

When it comes to high schools, according to the School Inspectorate of the Bucharest Municipality, the National College of Informatics "Tudor Vianu" was the best high school in Romania's capital based on the Bacalaureate exam and seven other performance criteria.

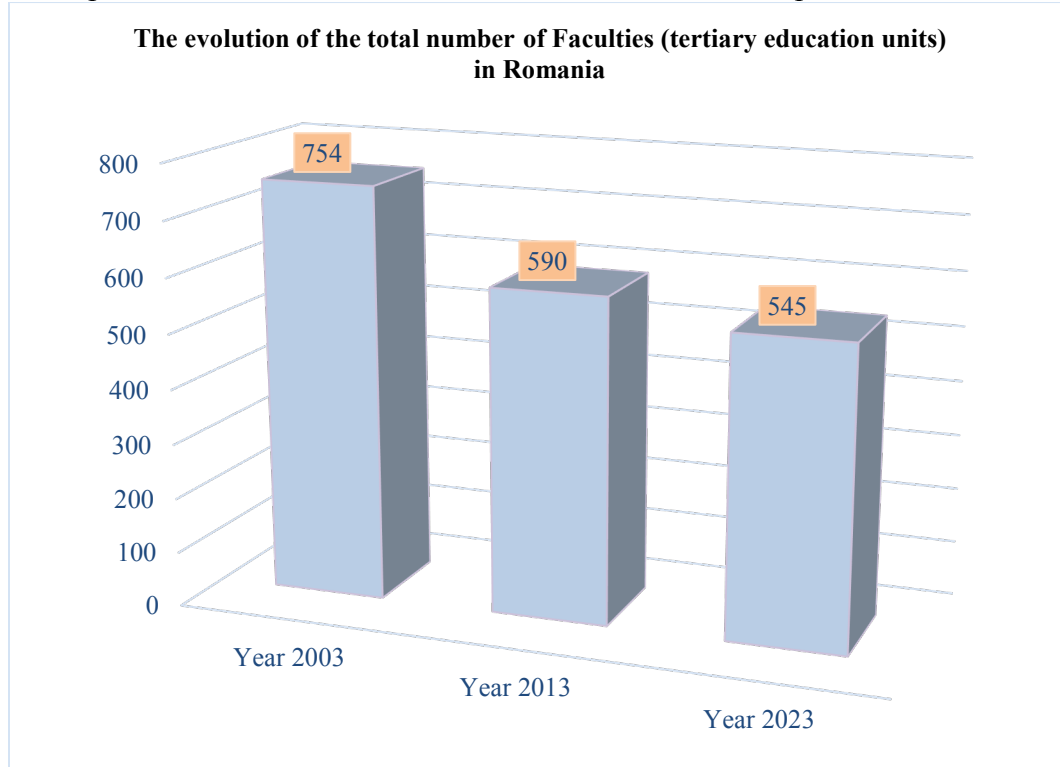


Figure 4. The evolution of the total number of Faculties in Romania

Source: Authors' own creation using real data from the National Statistics Institute, Romania, 2024.

The total number of faculties in Romania has decreased from 754 faculties in 2003 to 590 faculties in 2013 and 545 faculties in 2023 (see Figure 4). The demand was no longer high, we no longer had potential candidates for university studies. The economic and social causes are diverse and bring to the surface an unfavorable situation for the population school population. First of all, high school students with a 10 average in the Bacalaureate exam choose to continue their university studies abroad in countries such as the Netherlands, Belgium, Germany, etc.

Secondly, the pass rate for the Bacalaureate exam is falling from year to year. year after year, and the generations that have taken up online schooling have been severely affected and left with huge gaps in mathematical calculation formulas or in the literary work for the Romanian language. We have 42% of Romanian pupils functionally illiterate, and only one in 10 pupils has the ability to understand the message of a text. Experts say school is not helping young people enough at the moment, and if we don't intervene in face-to-face education then future adults will be unable to read and understand a work contract (World Vision Foundation, 2023)..

Thirdly, during the pandemic, a significant number of students dropped out of school, dropout a serious problem for the Romanian education system.

The situation of children in Romania's villages is extremely serious, according to the study of the World Vision Foundation. They point the fact that one fifth of children in rural areas do not

attend school and do not receive sufficient food, one tenth are not enrolled in any form of education, and more than a third miss school because they have to work in the household. These are the highest rural-urban disparities in the EU. One in ten rural children currently do not attend any educational institution. Two out of ten children say their family only sometimes or never provides enough food (World Vision Foundation, 2023).

Almost half of mothers have never had their children tested in health issues. 24% of children say no one helps them with homework when they need help and support. Behind all these numbers are not numbers, they are children, they are lives of children who should have access to education. In rural areas the early school dropout rate school was 23%, and in urban areas just over 5%.

In terms of supply, the number of teachers in Romanian universities is declining year by year (-6.6% in 2023 compared to 2003 year). Many are retiring, and there is a lack of interest among young people in pursuing a career in teaching. In the Romanian education system, we have peaks. We should mention that in 2023, Romanian Olympic students won 5 gold medals and one silver medal at the 2023 International Mathematical Olympiad (IMO) 2023 in Japan, bringing Romania to the 1st place in Europe and 4th in the world, after China, the United States and South Korea (Lefter, 2023).

Conclusion

The professorship is a demanding role, requiring significant time and effort for lesson preparation, project correction, and examination preparation. Additionally, the remuneration is comparatively low in comparison to other sectors. Teaching is a profession that requires dedication, a calling, or a passion.

In conclusion, for the downward of Romanian education trend in offer and demand, we can mention demotivation, dropout school, non-promotability or continuing studies abroad. We also have major differences between urban and rural, rich and poor social classes. The elite continue their careers, while the poor get lost on the tedious road of life without schooling.

Over the 20 years (2003-2023), an average annual decrease of 37.2% in the total number of education units in Romania was predictable. This correlates with the high school dropout rate of 16% by 2023 and the low birth rate for Romania. It was observed, an average annual decrease of 18.24% in the number of students in Romania (2023 compared to 2003). Regarding the social efficiency, we could understand the decrease, as the Students enrolled per 100,000 inhabitants in 2023 was 4.15 compared to the number of Students enrolled per 100,000 inhabitants in 2003 (6.21).

We detected a recovery and an improvement in social efficiency due to the fact that the enrolled population per teacher in Romania in 2023 (14.15) is lower than the enrolled population per teacher in Romania in 2003 (15.9), representing a reduction of approximately 6%. This improvement in social efficiency is beneficial for the Romanian education system, as a lower enrolled population per teacher is preferable.

The question is, if allocating more money to Romanian education will increase the social efficiency and not only economic efficiency. Social efficiency is always related to the quality of education and without financial resources you cannot do quality education. The question can be asked: how big should a group of pupils be in order for the class teacher to be efficient and to have time to deal with each pupil individually? It is already known that each student's learning rhythm is different, how do we harmonize them? Thus, social efficiency is delicate and has multiple sides, yet there is a promising trend for Romanian education in this regard.

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