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## Efficiency, Effectiveness and Profitability – Concepts Used in Assessing Public Expenditures in Education

**Author:** Ioana Duca, Titu Maiorescu University, Bucharest, Romania

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*The author's scientific endeavour aims at presenting the three given concepts from a theoretical perspective and at emphasizing the importance of expenditures efficiency, effectiveness and profitability in the education activity. At the same time, the author emphasizes the differences in defining the concept of economic efficiency and effectiveness in education. This research also presents the two important types of education activity efficiency indicators, namely physical and value indicators.*

**Keywords:** *efficiency, profitability, effectiveness, education*

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### Introduction

In an economy in which public needs require public goods with high values, in continuous development as well as diversified, on the one hand, in the context in which the state's financial resources do not increase at a high rate, there appears a gap that mostly leads to insufficient resources necessary in performing all the economic activities and implicitly the education activity.

The state's financial effort in terms of the education activity is represented by the consumption of public financial resources (resulting from taxes levied by the state) allocated to this activity.

The use of these public resources is a legitimate right of the state, as well a responsibility of those who administrate them to use them to the benefit of society. If we consider this from the perspective of optimizing expenditures in education, we may state that the optimum way to allocate financial resources to the education activity is also efficient, but no efficient way may also be optimum.

Moreover, due to the constant changes in the economy, to progress, practically the absolute optimum cannot be reached. Specialists state that 'it is as the horizon line which moves further away as one approaches it' (Staicu – coordinator, Pârvu, Stoian, Dimitriu, Vasilescu, 1995, p.55).

## **Concepts Used in Assessing the Level of Public Expenditures Allocated to the Education**

In the opinion of Romania specialists Vasilescu, Românu, Cicea, 2000; Staicu, Pârvu, Dimitriu, Stoian, Vasilescu, 1995; Cistelecan, 2002; Vasilescu, Gheorghe, Cicea, Dobrea, 2004) "the efficiency of expenditures in education must be analyzed in terms of the dual character of this activity, namely as social – cultural activity and at the same time economic activity.

As a result of performing the education activity, efficiency may express the results obtained by employing material, financial, human resources".

Also, other specialists present in their papers aspects of education efficiency, of the teaching staff credentials, of setting certain efficiency indicators. They present 'the issues of macroeconomic efficiency in education, also setting the indicators to illustrate it, they research and quantify the efficiency of workforce credentials as the result

of vocational training through education’ (Enache, 1975; Păun, 1974, p. 66-80).

In order to define the efficiency of expenditures in education, we must start from the purpose of the education activity, following the way in which it may be achieved. Thus, ‘the training, vocational training of the members of society is the main objective’ (Gherghina, Văduva, Postole, 2009), and the efficiency must be analyzed and calculated according to the rational production and use of resources allocated to training the individuals.

Efficiency represents from a material point of view the quantitative aspect, of the amount of achieved indicators as a result of education; and from a value point of view, it expresses the quality of the education action effects, reflected in the increase in gross domestic product.

This may be quantified as a ratio of the results obtained by performing the education activity and the expenditures on performing this activity in a certain interval, or as a ratio of the amount of effort consumed in the education activity and the increase in effects (results) obtained by means of performing the respective activity.

On the other hand, in presenting the concept of education efficiency, we must take into account the ‘general forms thereof’ (Cistelecan, 2002):

- natural efficiency (emphasizes the natural factors feature of triggering favorable effects especially at social-human existence level);
- technical efficiency (reflects the technical factors feature of triggering useful effects as a result of physical effort made by man, of his intervention upon machines or by means of supervising automated processes)’.

Another form of efficiency is the economic one expressed in the quality of activities (in our case, education), of actions taken in this domain in order to trigger favorable economic effects (of a social-human nature) with a minimum effort. We consider the economic efficiency of

education to be an external efficiency as it reflects the results of the education activity outside this process.

Yet, an economic efficiency of education may also be obtained at the level of graduates from various education levels, and the education process results appear both at the level of each individual (material gains for the trainees) and at the level of the whole society.

We emphasize that the economic efficiency is of interest mostly because in the majority of human actions the economic effect are dominant, and they do not have a concrete, material, measurable character, which allows us to directly assess the quality of the respective activities' results, in this case education.

In order to know and assess the economic efficiency of education, it is necessary that in research bigger steps are made in terms of establishing the elements that characterize the efficiency of this sector. Consequently, a cause for the delay in the domain of research on efficiency may be the fact that, 'generally, the content of the respective action's efficiency is harder to be included in fixed elements, because the results have a wider span and there are difficulties in expressing their values'(Ștefănescu, Văduva, Ciobănașu, Postole, 2008).

At the same time, the economic efficiency of education may be considered from two perspectives: material (as a number of graduates, according to education forms, specializations, etc.) and value (as increase in revenue due to the social-economic activity performed by the staff trained in the education system).

A specific feature of economic efficiency is the fact that the education activity must not be analyzed as a consumption process, but as a knowledge gaining process, one of training individuals to be competitive in a knowledge society.

One of the links in the system of efficiency general types is social efficiency. But, specialists do not define the concept of social efficiency clearly, yet they state that this type of efficiency is the expression of life quality. Under these conditions, the decision makers proceed to selecting and ranking social needs, respectively to calibrating public expenditure

according to several criteria: priority, opportunity, efficiency and effectiveness, quality of public services.

As a result, the financial effort materialized 'in expenditures in education must result in training skilled staff capable of yielding as high a productivity as possible in all the domains of economic and social life'(Gherghina, 2009).

As the education activity is considered a complex one due to its character, the efficiency of this sector also has a complex character as a result of two categories of persons participating to this process: the teacher and the student.

Therefore, education efficiency surfaces at the level of each participant to this process and includes both 'the efficiency of the information sender, of the information receiver, of the teaching process on the one hand, and the final efficiency which is the most difficult to explain and quantify' (Vasilescu, Românu, Cicea, 2000, p. 166).

## **Effects and Effort in the Education Activity**

In assessing the efficiency of using public funds, the direct relationship between benefits (effects) and the society's effort to financially support the education system must not be avoided, but on the contrary considered a criterion for access to resources.

Taking into account the interdependence links among the areas of human activity, increasing the economic efficiency of activities in the non-material area directly influences the economic efficiency in the material production area which benefits from the education, culture, and healthcare activities.

Thus, by increasing the economic efficiency level, by advancing the effects compared to the efforts required by these non-material activities supplementary resources are obtained, which may be used in the productive area, thus increasing its allocated financial resources. Nevertheless, we consider that there are prerequisites for efficiency to be reflected in certain indicators that act for the plane substantiation of the

education activity from a financial point of view. Reflecting the education activity quality, the social-economic efficiency of education is achieved through a system of indicators which express physically or as values the ratio of effect and effort, using indicators of effects or effort for each element.

The economic efficiency of education must be expressed through indicators that reflect the quality of the activity performed in education, thus comparing the effects to the effort. A system of indicators ‘must operate as a dashboard. It allows us to emphasize the issues and to measure their spans’ (Sauvageot, 2003, p.18).

Physical indicators – directly reflect the efficiency of the education process in terms of the pupils’ and students’ training. They are mostly expressed at the level of the whole economy, in all education, or at levels, forms, types of education.

In calculating these indicators, we use ‘information related to the elements specific to the education structure: number of pre-school pupils, pupils, students enrolled in education, forms and levels of education, number of graduates according to school years and levels of education, number of education institutions overall and according to specializations etc.’ (Bodnar, 1981).

Physical indicators are calculating as ratio (for example) of the number of graduates and the number of enrolled persons, or ratio of their total number (graduates and enrolled) according to education levels. The calculus is as follows:

$$I_{EF} = \frac{Nr_{Abs}}{Nr_{Ins}} \text{ where: } I_{EF} - \text{ is the efficiency indicator;}$$

$N_{Abs}$  - is the number of graduates;  $N_{Ins}$  - is the number of enrolled persons.

Value indicators – indirectly reflect the results of the education process by presenting the effects of using those trained in various education levels in the economic activity. The calculation of these indicators is based on information on the financial resources and the

effects obtained by using these resources resulting from the education process.

Moreover, macroeconomic efficiency indicators may be calculated, which reflect the economic efficiency of expenditures in education by means of the increase in national revenue obtained, compared to the overall expenditures in education or in term of ratio of secondary education and higher education staff to the overall active population, etc.

In addition to these macroeconomic indicators, microeconomic indicators may also be calculated according to education institutions, reflecting the efficiency of the funds allocated to performing the education activity. These efficiency indicators are also established according to the type and place of the effects they trigger.

There are several groups that these effects are divided into, among which three groups: training-educational effects – represented by the direct results of the education process (number of graduates, expenditure per pupil, student, education level, expenditure per school employee, expenditure per graduate); economic effects – usually appear outside the education process and reflect the capacity of the workforce vocationally trained in the education process to contribute to the increase in work productivity and national revenue; socio-cultural effects – they generally lead to the increase in the culture level. If we analyze the level at which the effects of the education level are produced, we identify ‘effects surfacing at the level of individuals and effects surfacing at the level of the whole society’ (Zgreabăn, Gherghina, Postole, 2009).

But, not all effects can be measured, as their nature does not allow for the direct assessment of their size. Thus there appear changes in terms of the financial effort in the vocational training interval, changes or influences that are felt at the level of the effects obtained.

Thus, specialists must find the means and tools by which to assess the results of the education activity which, compared to the financial efforts, will emphasize the economic efficiency. In presenting the effort in the education activity we must take into account the specific character of this activity, both quantitatively and qualitatively. For

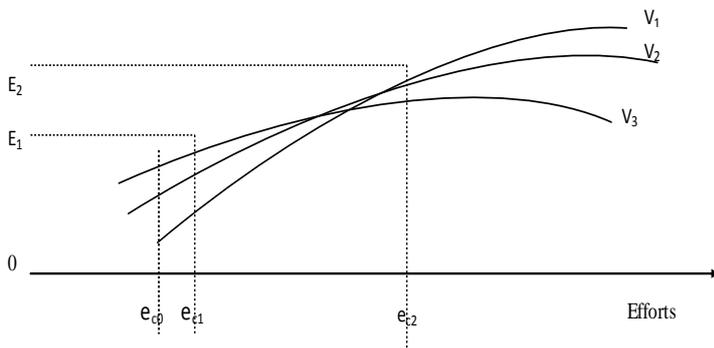
example, ‘quantitatively the expenditures on obtaining the ‘finished product’ are made during a longer interval of 8, 12, 16 or even more years, and their structure is different from the other expenditures’ (Bodnar,1981).

Analyzing the effort qualitatively, we notice that we obtain bigger efforts by means of efficiently using and managing the funds allocated to this important sector, namely education.

In obtaining skilled, trained workforce, the main effort is materialized in expenditures in education; the activity performed by the workforce trained in various education levels has higher labor productivity, thus leading to the increase in national revenue and also to the increase in the individuals’ standard of living.

By graphically presenting the effects and efforts (fig.1) we notice that as the efforts increase, so do the effects, but we specify that this increase in effects is boosted up to a certain efficiency level.

Effects



**Figure 1:** Evolutions of the effects according to the efforts made

Source: I. Vasilescu, I. Romănu, C. Cicea, *Investiții*, Economica Publishing House, 2000, p. 74.

After achieving this level, there is a degree of saturation, when we notice their evolution is slightly increasing, decreasing or even leveling off. As a result, the effort/effect ratio involved in each education action or process, as well as the quality of their positive development at social-human level through their variety and complexity require establishing social relations related to the type of effort made and the effects, their span, organization factors and levels that surface in the education action.

The education effects may be grouped inside the system, but they are manifested outside it in two main directions: the first is represented by the activity performed by the trainees in economic-social life, and the second one is given by the activity of the teaching staff who remain inside the education activity. Thus the effects appear only after the education process is completed, they are manifested during a longer interval, thus being difficult to customize. If the efforts can easily be determined (for example, expenditures allocated to the education activity), the effects are more difficult to quantify. In addition to the concept of efficiency, the specialized literature on assessing the public expenditures level in general (in our case assessing the value of expenditures in the education action) two concepts are also used: effectiveness and profitability.

In this research we consider the concept of effectiveness to be as important as the concept of efficiency as, in the opinion of specialists in the domain, the effectiveness of education is the feature of the education action to produce the forecast results. Quantifying its effectiveness is given by 'the ratio of the actual result (effect) obtained from performing the education activity and the result (effect) forecast in designing the education activity' (Văcărel et al, 2007). Consequently, effectiveness reflects the ratios, be them only of the effects obtained as compared to the forecast ones, or only of the consumed assets (consumed efforts) as compared to the forecast ones. The third concept we used is public expenditures profitability. This compares 'the ratio of effectiveness and the level of achieving the forecast results' (Văcărel et al, 2007).

The analysis of the three concepts described that are specific to this public service (education) sets the premises for making a correct decision when allocating budget resources, which are indeed limited, in order to obtain effects as good as possible as well as a proper management of public funds by each and every institutions in order to increase the educational act quality.

## Conclusions

Consequently, the interest in the way budget resources are allocated to and used in the national education system, the criteria for achieving, redistributing and using the revenues obtained in the domain of activity sets the premises for a complex analysis of the efficiency and effectiveness of using these funds. In this context, the aspects presented in this analysis lead to the following conclusions:

- the efficiency of the financial resources allocated to education is directly related to the education-training process, being influenced by a series of variables with direct implications on the results, such as the size and content of the knowledge base, convergence of the training process and the practical use of what has been learnt;
- because we have as reference the defining elements of the efficiency concept, namely the relationship between allocated financial resources and results obtained during the graduates' entire active life, we estimate that the budget funds used in financing education cannot be assessed in terms of immediate efficiency;
- effectiveness or the degree to which the objectives have been achieved is expressed in terms of benefits, respectively positive effects triggered in other domains of social-human life and which are difficult to quantify;
- education efficiency may be expressed by means of indicators that must reflect the aspects typical of this activity, and

calculating them must be necessary and it must correspond to the requirements of the respective activity;

- in calculating the education efficiency indicators, we might mention (as characteristic) the gap between the interval when the effort is made by the state in relation to the education action and the interval when the results (effects) of this action are obtained;
- the system of efficiency indicator calculated for the education activity have a certain information power, they are transferable in certain situation and they are used in various educational policies objectives.

By studying the indicators we identify new action directions along the line of improving the use of financial funds in the field of education, which are not insignificant per se, as information, but only in relation to certain criteria, regarding the educational process objectives and system purposes.

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