

Overview on the History of Formal Education and Macroeconomic Development in Romania, Starting From the 19th Century, in Comparison With Other European States

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Abstract. The present paper is a part of a post-PhD research entitled *Assessment on the Impact of Education on the Macroeconomic Development in Romania, As Compared to Other EU Member States*. The survey starts with a short overview on the history of education and macroeconomic development in Romania, starting from the 19th century. To explain this situation, we must go far back in time in order to understand the deep historical roots of economic and social development in our country, in comparison with other European states. The industrial revolution and sustainable economic growth as well as the impact on education should also be analyzed.

Key-Words: formal education, macroeconomic development, history of education, linear regression, statistics

1. Introduction

Formal education occurs in a structured, systematic and controlled environment where students are learning together with a trained, certified (preschool, primary, secondary or tertiary) teacher, professor or lecturer of the subject.

Etymologically, the word "*formal*" is derived from the Latin *formalis* which means "official", "organized", therefore, formal education is official education. Philip H. Coombs¹ defined *formal education* as the hierarchically structured, chronologically graded education system, running from primary school through the university and including, in addition to general academic studies, a variety of specialized programmes and institutions for full-time technical and professional training. Formal, official education includes social managing and evaluation, centered on the development of self-assessment capabilities learned within the formal education.

Formal education is extremely important because it provides access to cultural, scientific and artistic values, to literature and scientific knowledge as well as to social and human experience, having a critical role in shaping the students' personality, according to society and individual needs. Investing in human resources, i.e. in education, training and healthcare systems, is aimed at improving the professional and scientific abilities of trainees as well as at increasing their adaptability to cope with structural economic changes and the technological progress as well as efficiency.

Below, I intend to show that formal education plays a key role in improving living standards, leading to prosperity.

2. Problem formulation

Romania's integration into the European Union has brought to our society's attention the need to draft a long-term development strategy, a goal which cannot be achieved in the absence of significant progress in

¹ Philip Hall Coombs (1915-2006) was a program director for education at the Ford Foundation; he was appointed by President John F. Kennedy to be the first Assistant Secretary of State for Education and Culture; he worked for UNESCO and served as vice-chair and chair of the International Council of Economic Development

four fields, namely the economic, humanitarian, technological and environmental domains that can significantly improve living standards. This paper thoroughly analyzes the relationship between economic growth and training strategies in Romania, an issue I intend to dwell on, going back to the 19th-21st centuries as well as in contemporary history, based on a comparison with other European Union countries. I would like to familiarize you with the current premises that, in order to achieve sustainable development [8], following the prolonged economic and financial crisis, a new, coherent strategy based on short-term and long-term measures should be drafted, production costs should be reduced to fulfill the needs of the future generations, and social adaptability should be increased to avoid further crises or enable us to cope with them.

Europe 2020 strategy, launched in March 2010, clearly states that this new economic model should be based on knowledge, having three main goals, the most important of which is to achieve smart economic growth that means improving the EU's performance in education, research and innovation, as well as in digital society. As a result, EU targets for smart growth in the next four years include combined public and private investment levels to reach 3% of EU's GDP as well as better conditions for R&D and Innovation, and at least 40% of 30-34-year-olds with third level education.

As an example in Denmark, investment levels reach 7% of the country's GDP, in other European countries – an average of 4%-6%, while in Romania and Slovenia they fall below 4%. Another important goal is to reduce school drop-out rates below 10%. Students graduating from math, science and IT universities should also account for 15% of graduates. It means that, in the present moment as well as in the future, high quality education, available freely to all citizens and providing the foundation for equity in society, is key to social and economic development.

In 2016, Romania still faces the risk of economic and financial crisis, despite recent positive economic indicators and low budget deficits, which are based on growing demand instead of innovation, technology, and higher education.

At the same time, investments in education and R&D have fallen under 6% of Romania's GDP since 1995, which means poor curricula, high school drop-out rates and analphabetism, as well as low graduation rates. In addition, one should take into account the poor performance of vocational education, i.e. the absence of a close connection between training policies and employment policies, which has led to the lack of skilled workforce for sustainable development, amid the evolving demands of labor markets.

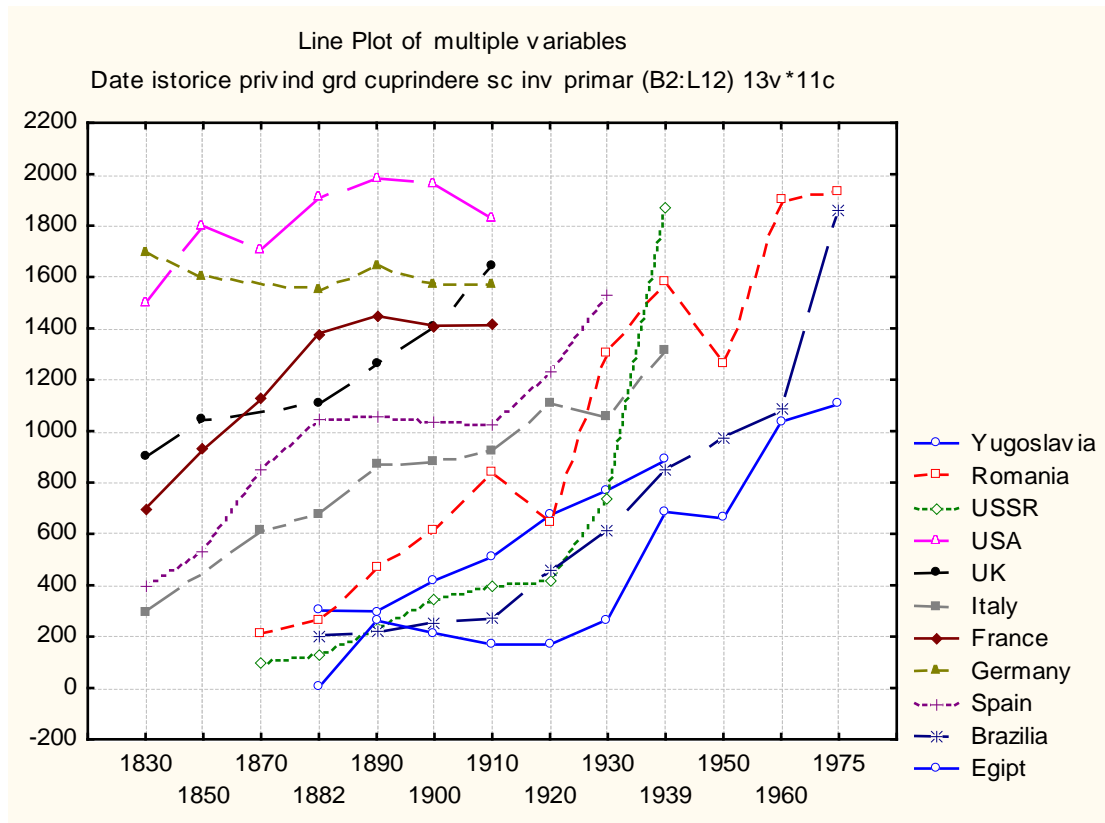
To explain this situation, we must go far back in time in order to understand the deep historical roots of economic and social development in our country, in comparison with other European states. The industrial revolution and sustainable economic growth as well as the impact on education should also be analyzed.

It is worth mentioning that statistical data, i.e. economic indicators, were for the first time analyzed in Europe in the second half of the 19th century. In 1850, and later on, in 1870, many European countries provided data on their GDP per capita, child mortality, analphabetism, and education quality. In short, the Romanian education system was established in 1831, i.e. the official primary education, in the Romanian Land and, subsequently, in Moldavia, where primary schools were built in major towns, between 1831 and 1842. Without getting into details, it is worth mentioning that this very difficult phase took place amid Romania's slow journey to modernization and progress, i.e. increasing the agricultural production, accessing the global markets, and so on. Starting primary education from scratch, in 1831, Romania opened the first schools in the autumn of 1838. Their number constantly increased, reaching 2.236 in 1848.

The enrolment rate is a key indicator for economic growth, according to recent British statistical surveys [3]. Thus, in Germany, in 1830 (at district levels, since the united nation was founded 40 years later), the number of people who graduated from schools reached 1.700 per 10,000 population, being followed by Great Britain – 900 people, France - 700, Spain - 400, and Italy (at district levels, since the united nation was founded in 1870) - 300. There was no reference to Romania in these documents.

Easterlin [3] noticed that, in 1850, official primary education almost did not exist in countries which were not located in North-Western Europe and North America. In 1940, low enrolment rates were reported in Africa, Asia and Latin America. The development of official education systems has led to economic growth, modernization and progress. Moreover, Easterlin underlines the importance of the education system. Thus, in Spain, the Catholic Church assumed a leading role in the education system, centered on religion and manual skills. Therefore, the enrolment rate remained high. Esterlin claims that the growth experienced by the countries located in North-Western Europe was not triggered by progress in the economic field, but by advances in education promoted by the Catholic Church.

Graph 1. The evolution of official primary education in the 19th and 20th centuries



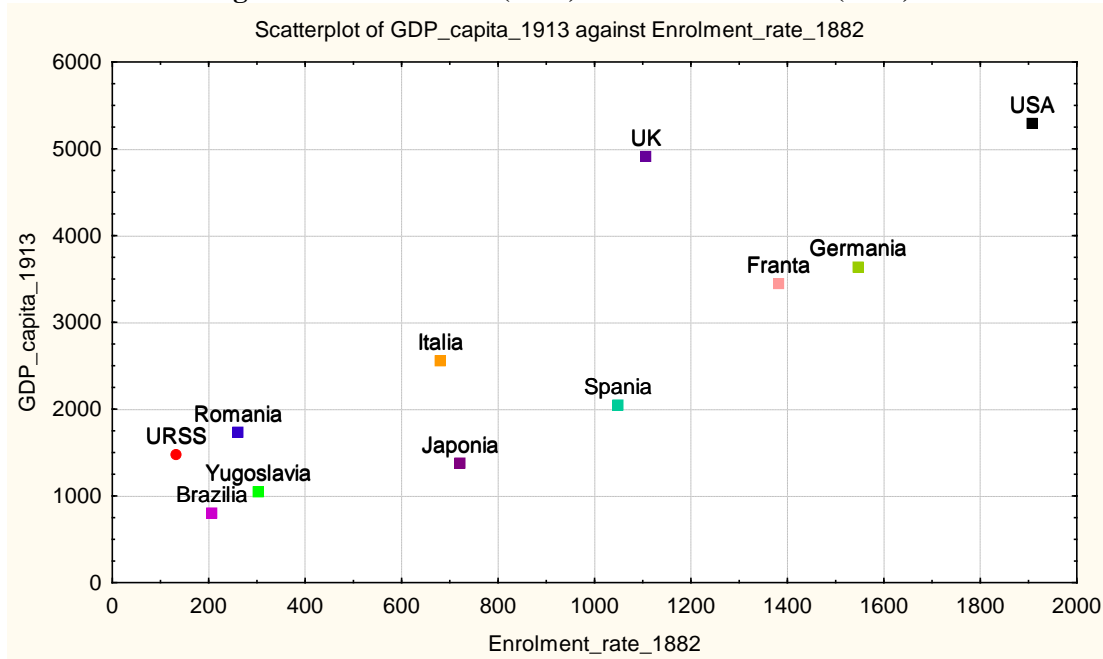
Sursa: Easterlin (1981) și INS

Graph 1 shows the evolution of official primary education, per 10,000 population. However, this indicator does not refer to education quality, due to the lack of historical data available. In the 19th century, countries located in North-Western Europe were on top of the list.

.As for the impact of education on economic growth, during the above mentioned period, historical data were scarce. Graph 2 is based on data on GDP per capita, in 1913, as well as on Maddison's [6] survey on primary education in 1882. It clearly reveals that high GDP rates were reported amid high enrolment rates recorded 30 years earlier.

Great Britain is an outlier, with the highest GDP growth against enrolment rates. Despite this close connection, the graph does not clarify whether high enrolment rates have triggered high GDP rates in France, Germany and Great Britain. The need to solve this issue has posed a major challenge to experts approaching the relationship between education and economic growth.

Figura 2 World's GDP (1913) and enrolment rate (1882)



Source: Maddison [6] and National Institute of Statistics

Although it is impossible to draw a good conclusion from the graph, if we use regression, we can analyze the data and compare them. Thus, we obtain the following results (including the standard errors of the regression model in Table 1):

$$\ln GDP/capita = 0,5611 \ln Enrolment_rate + 4,082 \quad (1)$$

Tabel 1. Regression Summary for equation (1)

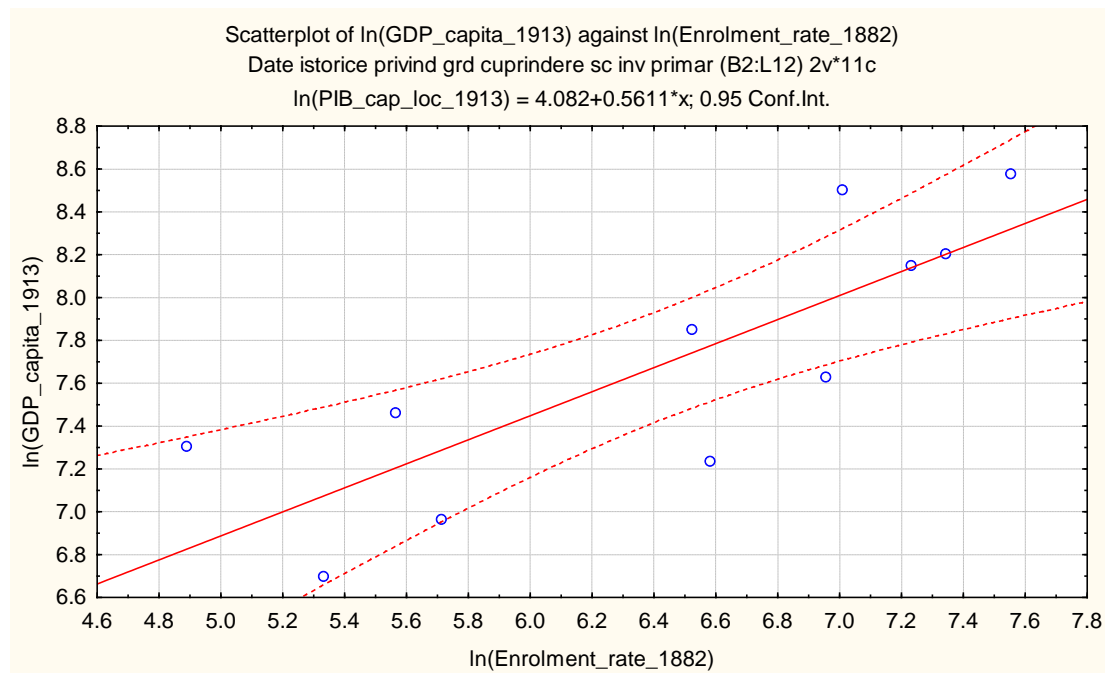
Regression Summary for Dependent Variable: $\ln(GDP_capita_1913)$ $R = .81849963$ $R^2 = .66994165$ Adjusted $R^2 = .63326849$ $F(1,9) = 18.268$ $p < .00207$ Std.Error of estimate: .37638						
	Beta	Std.Err. - of Beta	B	Std.Err. - of B	t(9)	p-level
Intercept			4.081957	0.851314	4.794890	0.000981
$\ln(Gr_sc_1882)$	0.818500	0.191502	0.561058	0.131269	4.274097	0.002068

We have the following *interpretation*: the equation shows that a 1% increase in school enrolment could lead to a 0.56% GDP growth per capita, during the analyzed period. On the long term, a 20% increase in the above-mentioned rate, from 5 to 6 years, in the future, can trigger a 10.7% GDP growth. It is a log linear equation.

However, the results should be carefully analyzed, since developed countries with strong GDP growth and quality education services have significant assets; thus, education is not the main driver of economic progress, but the accumulation of capital stock.

As for historical returns, before the First World War, Romania reported significant progress of its key modernization efforts, despite the lack of developed economy status as compared to West and North European countries. Thus, although Romania had important oil and grain reserves, in the early 20th century, it failed to capitalize on its resources, due to the inability of the political elite to draft opportune moment strategies for economic development.

Graph 3. Double log regression model (1)



Sursa: Maddison (1991) and National Institute of Statistics

According to Vasile Axenciuc [1], national wealth significantly improved between 1860 and 1914, due to transportation and communication investments, i.e. leading to a 66.41% increase during this period, strong industrial output – a 10.34% growth, major agricultural production – a 3.06% increase, and high monetary base – a 4.12% increase. However, Romania was ranked the 12th on the list of 14 European countries by real GDP growth rate, with 476 dollars per capita, as compared to Great Britain, France, Germany and Switzerland – 1,590 – 1,025 dollars, Italy and Austria-Hungary – 640, and, respectively, 605 dollars. Serbia and Russia were two countries near the bottom of the list, i.e. 462 dollars and, respectively, 425 dollars.

As previously mentioned, there is a strong connection between education and income. In the second half of the 19th century, many European countries introduced new education laws, increased investments in this sector, and undertook coordinated efforts to improve the education system. As a result, the number of primary and secondary schools significantly increased and the literacy levels improved in the modern society, the education system producing a more skilled and productive workforce. The Romanian elite also paid great attention to the education system, the law on primary education being adopted in 1864. However, the government lacked the financial resources or the political will to meet citizens' educational needs, especially in small towns and villages. The next decades preceding the education reform achieved by Spiru Haret were marked by conflicts between the growing number of teachers dedicated to making knowledge accessible to all students and local authorities accused of negligence.

Following a debate that lasted almost 20 years, at the end of the 19th century, public figures such as Petru Poni², Take Ionescu³ and especially Spiru Haret⁴, brought their significant contribution to the drafting of a coherent law on education, in compliance with European standards. At the same time, amid population boom, organizational and logistical issues were solved, the number of primary schools increased along with that of teachers, and literacy levels significantly improved. This hardly could have been anticipated. For example, in 30 years, the number of literates grew from 261 per 10,000 in 1882 to 467 per 10,000 in 1890, and respectively,

² Petru Poni (1841-1925) – a Romanian chemist, physicist, professor, mineralogist and politician, Liberal Party member, who established the Romanian chemistry school. He was a professor at the University of Iasi, and a titular member of the Romanian Academy.

³ Take Ionescu (1858-1922) - a Romanian centrist politician, lawyer and journalist, he was prime minister between 1921 and 1922.

⁴ Spiru Haret (1851-1912) - a Romanian mathematician, astronomer, professor, and politician, he held 3 mandates as education minister, during which he promoted and implemented the education reform. He was a titular member of the Romanian Academy

to 839 in 1910. Thus, enrolment rate almost tripled. Refined statistical data show that in the early 1900, before Spiru Haret's education reform, 67.2% and, respectively, 89.1% of females and males did not attend school, while 78% were non literates, in comparison with countries such as Denmark and Germany - 4%, Switzerland, Sweden and Norway - 2%, which successfully completed this process. However, the situation was worse in Serbia, where 79.7% were non literates.

In the early 1910s, 0.5% of the people aged 10-19 graduated from primary and secondary schools or colleges in Romania, which ranked low in Europe, below Portugal - 1%, Hungary - 1.8%, and, of course, Switzerland - 10%.

Therefore, in comparison with previous years, interwar period, i.e. 1920-1940, was marked, on the one hand, by population boom and, on the other hand, by economic decline. Europe accounted for 26% of the world's population, decreasing to 21% in 1950, while its GDP declined from 44% in 1913 down to 38% in 1950.

Despite the relative prosperity in the interwar period in Romania, i.e. significant economic progress, reaching climax in 1938, new assumptions emerged, showing that the gap between Romania and other European countries remained and even deepened after the Great Union. Thus, the country's GDP per capita reached 1.237 dollars in 1937, i.e. 0.34% of Great Britain's GDP, while the Czech Republic recorded a 0.54% GDP growth, Hungary - 0.44%, and Poland - 0.35%. Bulgaria was the only country where GDP per capita was lowest, i.e. 1.148 dollars, accounting for 0.32% of Great Britain's GDP. In 1938, real GDP per capita decreased to 76 dollars, as compared to Great Britain - 378 dollars, and Germany - 338 dollars. In Bulgaria and the former Yugoslavia, GDP per capita reached 68 dollars, the lowest in Europe. GDP per capita in Europe averaged 222 dollars. In conclusion, even during this so-called prosperous period, Romanian agricultural and industrial sectors did not experience strong growth, but moderate growth. However, enrolment rate significantly improved during the interwar period. Thus, the number of non literates decreased from 61% during Spiru Haret's mandate down to 43% in 1930. According to other surveys conducted 8 years later in Romania, the number of non literates reached 54.3%, while life expectancy was 40 years - males, and, respectively, 41 years - females, and child mortality rate was the highest in Europe, i.e. 1.825 per 1.000. A fair assessment shows that, despite the progress achieved by our country, the enrolment rate dropped in the 1920s-1930s as compared to the beginning of the century. However, except for Belgium and France, which successfully completed this process, other European countries, such as Romania's neighbors, for example Hungary, experienced high literacy levels, i.e. only 6% of non literates. As for secondary education, despite the progress achieved, the indicator was below the European average in Romania, i.e. by 3-5%. Real progress was however achieved in tertiary education, i.e. 1.3 per 1.000, as compared to 1.8 in Denmark. Three quarters of them were university students, 11.4% attended high schools of economics, and 4.9% - polytechnic high schools. As for professional schools, the gap remained, taking into account that only 2% primary school graduates enrolled to such schools in Romania, as compared to Denmark - 12%, and the former Yugoslavia - 6%. Therefore, one could draw the conclusion that, despite relative progress, the gap between Romania and North-West European countries remained, and not even the existence of skilled workforce could improve the situation in Eastern Europe.

The postwar period, marked by the end of World War II and the fall of Communist regimes in Eastern Europe, witnessed 30 years of prosperity, the so-called Golden Age of Capitalism, between 1945 and 1974, followed by recession and democratic transition in Eastern Europe.

The first interval, i.e. 1945-1973, was a period of unprecedented economic expansion which removed all gaps. The two economic crises experienced in 1974-1975 and, respectively, in 1981-1983 had no major impact on Europe's GDP. However, their social and economic impact was strong, amid rising oil prices which led to inflation, low industrial productivity, high unemployment, public debt, and budget deficit. From the statistical point of view, the 7 most developed countries in Europe accounted for 86% of the gross world product between 1913 and 1950, in the Golden Age of Capitalism, i.e. the average GDP growth reached 4.86%. Between 1973 and 2000, GDP was 1.01%.

For 45 years, Romania was a Communist state and now, a quarter of century after the fall of Communism, a fair assessment should be done.

Without getting into details, it is worth mentioning that the reforms implemented by Communists shortly after taking power were the largest property rights and centralization reforms in Romania. According to one of the most favorite slogans of the Communist ruling elite, the regime was superior to that of the other countries in the region, because it achieved significant economic growth, claiming that dictatorship outperformed democracy in growth and economic development. But the respective growth was based on forced industrialization and collectivization, i.e. great share of investment.

At the same time, the number of occupied population increased significantly, which was a key driver of economic growth. After 40 years of Communism, one cannot ignore this outcome nor challenge it. The industrialization process was successfully completed in Romania, however too late as compared to the West, where the industrial revolution ended and the attention was focused instead on service development and environmental protection. Unfortunately, the forced industrialization that led to accelerated growth was based on measures imposed by the political elite and was not sustainable on the long term. The same goes for the education sector, where significant progress was made. Average literacy was excellent, secondary education improved, the number of colleges increased from 281 in 1948 to 981 in 1989 along with that of university students - from 48,000 in 1948 to almost 160,000 in 1989. However, after the 1960s, especially in the 1970s and 1980s, the number of students dropped. As a result, the education system which fueled economic and social development in the early days of Communism experienced a deep crisis, whose effects led to the fall of the Communism, in 1989. A separate debate should be started to analyze the situation in the 1990s, which requires a thorough assessment on investment policies, human resources, social cohesion, productivity and institutional efficiency. Let it suffice to say that my conclusion is one of optimism, namely that the future of our society is open.

The above-mentioned historical facts show that the gap between our country and the West is deeply rooted and that potential economic growth will not automatically translate into benefits. In fact, sustainable development depends on various factors which are not always objective and specific conditions should be met to achieve success. On the other hand, the relatively slow educational progress, despite Spiru Haret's successful efforts to comply with European standards and the high literacy level during the first 20 years of Communism, has led to the conclusion that the impact of education on economic and social development was strong only under exceptional circumstances.

Back to present day, the government has recently adopted the national youth strategy 2015-2020, which aims to improve coordination and establishes top priorities in the field, based on Europe 2020 integrated guidelines.

The strategy addresses the challenge of delivering long-term and sustainable development, including change of general economic, labor market and entrepreneurship, i.e. encouraging high youth employment and people for prolonged economic activity, reducing the number of unemployed among youth and improving training, raising the employment rate of women and vulnerable youth. The strategy approaches labor problems, such as high informal sector employment in Romania, subsistence living, job insecurity, poor access to specialized training, and labor exclusion. In the field of formal, non formal and cultural education, the document stipulates that relevant governmental and non governmental institutions should undertake sustained efforts to improve the quality and efficiency of formal and non formal education. Measures to develop programmes of non-formal education as well as to improve formal education shall be simultaneously taken.

Posting this comprehensive and coherent education strategy for the next 4 years on the official website of the Education Ministry gives us hope that improvements will be made. Force ideas emerged in the comments published by various users, such as equal opportunities in school, in rural and urban areas, major investments in professional schools, qualified, good teachers, coordination with economic agents, and so on. To achieve success, these measures should be applied, necessary funds should be earmarked, and school management should be improved.

3. Conclusions

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