

# Education and labour market outcomes in Romania

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## Abstract

*Education plays a central role in preparing individuals to enter the labour market, by offering them the opportunity to improve and increase their amount of knowledge, skills and abilities. Considering this aspect, the purpose of our study is to identify and analyse the relationship that exists between the educational stock, as a measure of the quality, quantity and availability of human resources, and the labour markets' outcomes in Romania. In order to reach this goal, we have conducted an analysis of the secondary data offered by the specialized literature. These secondary sources included various statistical yearbooks and reports, as well as different scientific researches. The results of our study show that, in Romania, the level of education is positively linked not only to the employment rate but also to the income level.*

*Keywords:* education, labour market, employment rate, income level

## 1. Introduction

The impact of education on economic growth and development has become an important issue for the analysts only since the last period of the XXth century, when the specialized literature brought into discussion the role of human capital. According to Lucas (1993), the major source of economic growth is human capital accumulation and, therefore, the main cause of the differences between nations in terms of living standards resides in different human capital endowment.

The human capital theory became largely debated among the economists who have turned their attention from the amount of natural resources to the degree of their efficient usage. Researchers thought it was not enough to own raw materials or agricultural lands if their usage generated average results. This led to the idea that the basis for a sustainable development is in the human capital investment, through education and training.

Romer (1990) considers that the essential input in research is human capital, since it generates new products or ideas able to stimulate technological

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progress. Nelson and Phelps (1966) talk about human capital from the perspective of absorbing new technologies, arguing that a larger stock of human capital in a country facilitates the absorption of new ideas and technologies discovered elsewhere. Consequently, the country that has a higher level of human capital will develop faster than others because it has the ability to overcome the technological gap at a faster pace. Therefore, a country which starts the economic growth process with a higher ratio of human and physical capital tends to develop faster because physical capital can easier adapt to economic expansion (Barro, 2013).

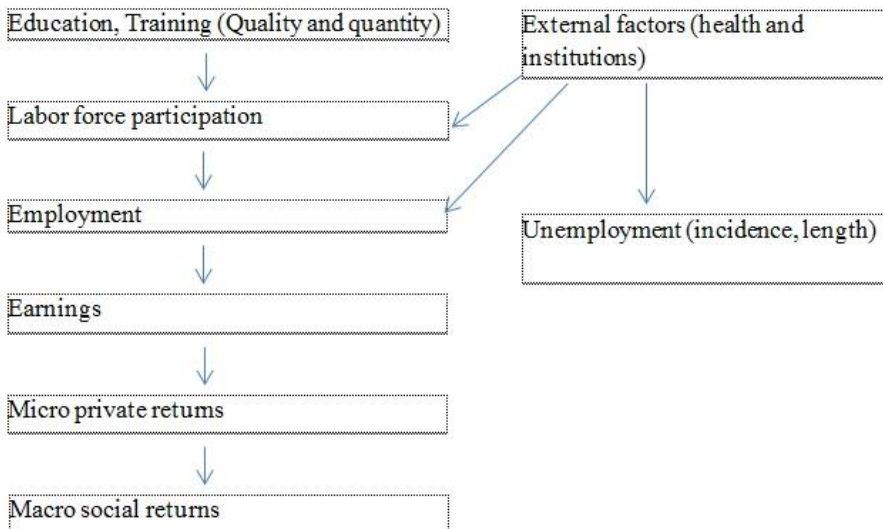
There were made several attempts to find the adequate measures for the concept of human capital. Regarding education, one of the most important qualitative sides of human capital, it has generally been agreed that there are two types of indicators: for inputs and for outputs. While the input indicators focus on the human, financial and material resources that are channeled into educational activities, the output indicators measure how effectively education policies and strategies were implemented, by measuring the actual progress against the goals and targets that were set in education plans. Apart from these two categories, the European Commission considered that there are also some other types of indicators: stock and flow ones, early age and adult indicators, quantity and quality measurements and also internal and external to the school/training system indicators (European Expert Network on Economics of Education-EENEE, 2010). Considering all these types, the European Commission has adopted 16 indicators for monitoring the progress of education and training systems: participation in pre-school education, special needs education, early school leavers, literacy in reading, mathematics and science, language skills, ICT skills, civic skills, learning to learn skills, professional development of teachers and trainers, upper secondary completion rates of young people, higher education graduates, cross-national mobility of students in higher education, participation of adults in lifelong learning, adult skills, educational attainment of the population, investment in education and training (EENEE, 2010).

All the arguments regarding the importance of education to the development of a country converge to the fact that education plays a central role in preparing individuals to enter the labour market, by offering them the proper skills in order to engage in lifelong learning experiences. To cope with the nowadays frequent technological changes, individuals need technical abilities and knowledge that have to be acquired, first of all, in school. While in some countries this thing is possible only by reconceiving the educational and training policies, in other states this is done by redirecting public funds. For example, Chile has implemented, a long time ago, some measures to improve the quality of education by measuring the quality of the results, offering some stimuli and allocating the necessary resources (UNDP, 2001). In the developed countries, the educational reform is focused on the need of helping people to adapt to the

new requirements of the jobs, students being encouraged to accumulate a broad range of knowledge in order to have many carrier options. In the United Kingdom, for example, the examination systems allow students to choose subjects not only from the general syllabus but also from the vocational ones. In Finland, the government has increased the importance given to vocational training as well as the level of spending in order to sustain the acquirement of some specific knowledge at the working place. Despite all these aspects, a study conducted at the beginning of the 21<sup>st</sup> century shows that developed countries are confronting with a lack of technological and engineering abilities, over a quarter of the university and college graduates graduating from social sciences in the European Union (EU) (Sequeira, 2007).

At the European Union level, education and knowledge are the first priorities in the Commission’s ‘EU 2020’ Strategy (European Commission, 2009). According to this strategy, the employment problem in the EU can be solved not just by supplying more educational opportunities, but also by creating demand for those skills. In Figure 1 we can see that education and training are, according to the European Commission, the milestones that directly influence the labour force participation and earning, but there are also some extra factors (such as the institutions) which can have an indirect impact on employment.

**Figure 1. Analytical dimensions of employability**



*Source:* Adapted from EENEE, Skills for Employability, Economic Growth and Innovation: Monitoring the Relevance of Education and Training Systems, Analytical Report for the European Commission, 2010

As we can notice, there is a strong positive link between education and the labour market. This correlation plays a very important role especially in the context in which the labour market has a central position in the markets' system due to the fact that, on the one hand, it captures the signals of other markets, accumulates and amplifies their failures and distortions and, on the other hand, it transmits its own signals to other markets, formulating its requirements related to their functioning.

Considering the fact that the educational stock, a measure for the quality, quantity and availability of human resources, is often related to the labour markets' outcomes, the purpose of our study is to identify and analyse the relationship that exists between these two aspects in Romania. In order to reach this goal, we collected, analysed and interpreted information included in various statistical yearbooks, reports and in different researches conducted in Romania.

## **2. Specific aspects of education in Romania**

In a general assessment, there are two contrary perceptions on the Romanians' level of education. On the one hand, at the individual level, if each of us is allowed to appreciate his professional and intellectual capabilities, which are strictly related to education, the prevailing view is that Romanians are relatively well prepared, especially compared to people from the Western countries. On the other hand, if each of us is asked what his general opinion regarding the level of education of Romanians is, but not compared to others, the criticisms would shortly appear.

In order to clarify these misleading subjective opinions, we have analysed the statistical information included in various databases. According to a study conducted by the European Commission (2012), in Romania, the percentage of those who have graduated high-school (57.8%) was below the EU average (46.4%) in 2012, while the percentage of those graduating the university (13.6%) was almost half the EU average (24.5%). However, since 2004, the population with both upper secondary and tertiary education has increased in Romania, fact that can be noticed in Table 1.

As we can see in Table 1, while the percentage of high-school graduates is increasing, the proportion of those who graduated lower secondary schools slightly decreased during the analysed period. Moreover, we can notice a significant decrease of the number of persons who graduated from vocational schools: the percentage of the graduates in the academic year 2010-2011 is four times lower than in 2004-2005. One possible explanation for this downward trend could be the fact that, in Romania, the vocational education and training system is characterised by a high degree of centralisation, a weak school infrastructure (due to under-investment for a long period of time), a lack of well trained administrative personnel in the bodies responsible for vocational

education and training, a lack of well prepared teachers and an outdated and narrow curricula in the majority of schools.

**Table 1. Percentage of graduates, by level of education, in Romania, in the academic years 2004-2005 and 2010-2011**

Level of education	Academic year	
	2004-2005	2010-2011
Primary and lower secondary education	36.70%	34.00%
Post-high school and foremen education	2.60%	3.20%
Vocational education	21.10%	5.10%
Upper secondary education (High-school)	24.60%	30.00%
Tertiary education	15.00%	27.70%

*Source:* Adapted from Romanian Statistical Yearbook, *Education*, 2007, and Romanian Statistical Yearbook, *Education*, 2013

Another explanation for the decreasing number of those who graduated from vocational schools in Romania could be that individuals are more and more tempted to acquire general knowledge in the first stages of education, and then, to become specialists in a certain field. This argument is also sustained by the fact that the percentage of university graduates in the academic year 2010-2011 is almost double compared to the one in 2004-2005. It is scientifically proven that general training leads to an easier adaptation to the new work conditions and innovative technologies (Krueger and Kumar, 2004a). Associated with a process of continuous training, general training may induce higher rates of growth compared to vocational training. Another study conducted by Krueger and Kumar (2004b) underlines the big differences in economic development that occurred in the '80s between the United States and Europe due to the structure of education. They noted that there was a particular focus on general education in USA (74.5% enrolment rate in general education) and on vocational education in Europe (30% enrolment rate in specialized schools), aspects that led to different growth rates.

Taking into consideration the results of these studies, we may say that Romanian education should not waste what it already has, a general feature, but it should develop the possibility of doing some practical training, in certain fields. This opinion is based on an empirical study conducted by Bonnal, Mendes and Sofer (2002) who have demonstrated that, in France, students who obtained their degrees with an apprenticeship component found a job more rapidly and earned more than those who had an exclusively school-based education. This aspect is also proven by an OECD study, which shows that European Union countries with very well designed apprenticeship systems, like Austria and Germany, have the shortest transition period from school to work (OECD, 2012a). In order to improve the vocational education and training and to make it more attractive to

learners throughout Europe, in 2002, the *Copenhagen process*, based on the open method of cooperation between the Member States, was launched.

As a developing country, Romania needs a large number of workers with a general education, able to adapt to the changes of the labour market and, at the same time, to find a suitable job within national boundaries, considering their knowledge and the salary that might be obtained. According to the specialized literature, a significant part of the persons willing to migrate from developing countries are those with a high level of education. A study conducted on the North-Eastern part of Romania shows that the individuals' emigration desire increases with the number of years of education, as a result of the so-called effect of over-specialization: the lack of demand for qualified persons on the domestic market leads to migration to other markets in order to find a job more suitable to their education level (Popescu and Pohoata, 2007).

The level of education of a country could be measured through the results obtained in the international tests and evaluations. In Romania, the students' performance is also poor compared to other EU and OECD countries. According to the Program for International Student Assessment (PISA), which evaluates the knowledge of 15 year-old people and their ability to put it into practice, in 2012, Romania was ranked on the 45th position out of 65 countries (OECD, 2012b). The results obtained by Romanian students were below the world average in all three areas assessed: mathematics, reading and science. Thus, while the average scores recorded in 2012 by Romanian students in PISA test were 445 points in math, 438 in reading and 439 in science (see Table 2), the OECD average scores were 494, 496 and, respectively, 501. These dishonorable results reflect a gap in students' performance, especially in secondary education - the level considered responsible for the most part of the economic growth.

**Table 2. PISA results in selected states, in 2012**

Ranking	Country	Math	Reading	Science
0	OECD average	494	496	501
10	Netherlands	523	511	522
11	Estonia	521	516	541
12	Finland	519	524	545
14	Poland	518	518	526
15	Belgium	515	509	505
45	Romania	445	438	439
46	Cyprus	440	449	438
47	Bulgaria	439	436	446

Source: Adapted from OECD, PISA 2012 Results, 2012b

These classifications come to certify something that is easily noticeable on the Romanian labour market, where specialized workers become more and more

rare, in a context where labour productivity is up to four times lower than the European average. These effects occur after a long period of neglect of the educational system, not only financially but also from the institutional reform point of view.

The relationship between education, measured through the results of PISA tests, and economic growth seems to be bidirectional. On the one hand, according to the OECD 2012 report, 21% of the variations in countries' mean scores can be predicted on the basis of their GDP per capita (12% of the variation in OECD countries). Therefore, countries with higher national incomes are thus at a relative advantage. On the other hand, an analysis of Hanushek and Woessmann (2009) shows, from a different perspective, this positive relationship between long-run economic growth (measured by the average annual growth rate of a country between 1960 and 2000) and a country's on-average performance in several international achievements tests, such as PISA. According to their conclusions, key competences in mathematics, science and literacy seem to be good predictors of economic growth.

When analysing Romania's level of education, the fact that, in this country, a large part of the population lives in the rural areas and that, unlike in the developed EU states, there is a significant difference between the rural and urban regions from the educational point of view, should be considered. If in the cities, the proportion of those who are enrolled in an age-specific learning institution is 96.7%, in communes and villages, this proportion is only 44.5% (Mursa and Ignat, 2009). In Romania, the enrolment rate in schools in the rural areas is very close to that in the urban ones only in terms of primary education, for the secondary and, especially, tertiary ones, the differences between cities and villages being very high. These differences are caused by the vicious circle of poverty which diminishes the access of those with low incomes to the educational system and forces them to enter into the labour market at relatively early stages of life (Nurske, 1953).

### **3. The impact of education on the labour market in Romania**

There are many studies conducted on the relationship between education and the labour market outcomes, most of them being based on the classical model of Mincer (1958, 1974) and Becker (1994). Taking as a reference point these models, which assumes that individuals who complete more schooling years generally enter the labour market at a later age, the analysts have noticed that the higher the level of education, the better the chances of employment. Margolis and Simonnet (2003) underlined that the period of time on the first stable job is significantly influenced by an individual's level of education.

In the case of Romania, we have found that there is a significant difference between the percentages of those employed from the total number of

the people who have finished primary and secondary school, on the one side, and university graduates, on the other (see Table 3).

**Table 3. Employment rate in Romania, by highest level of education attained, between 2003 and 2012 (% of the age group 25-64 years)**

<b>Level of education attained</b>	<b>2003</b>	<b>2005</b>	<b>2007</b>	<b>2010</b>	<b>2012</b>
Pre-primary, primary and lower secondary education	43.8%	39.6%	40.3%	43%	41.9%
Upper secondary and post-secondary education	65.2%	63.8%	63.9%	62.2%	63.1%
Tertiary education	81.5%	84%	85.8%	82.4%	81.4%

*Source:* Adapted from Eurostat, *Employment rates by sex, age and highest level of education attained (%)*, 2014a

Analysing the data included in Table 3, we notice that while only around 40% of those who graduated from pre-primary, primary and lower secondary education are employed, about 60% of those with upper secondary and post-secondary education manage to find a job. We can see that the highest percentage of employment can be found with university graduates – over 80%. These results demonstrate once again that there is a positive correlation between the level of education and job access, the unemployment rates declining with the increase of the level of knowledge (Gangl, 2000). Moreover, while those with higher levels of education have a “greater ability to deal with disequilibria” (Bowles, Gintis and Osborne, 2000, p. 7), the least qualified workers are the most vulnerable to unemployment during economic downturns (Gangl, 2001).

The analysis conducted on the Romania’s labour market shows that the worst affected by unemployment are the less educated ones. According to the statistics, during 2000 and 2012, in Romania, there was a reduction in the employment rate of people with primary and lower secondary education from 53.9% to 41.9%, as well as in the employment rate of those with upper secondary and post-secondary education (from 68.2% to 63.1%). Meanwhile, the lowest rates of unemployment were registered among those who graduated university, considering population aged between 25 and 64 years old (see Table 4). This data, identified in the case of Romania, is consistent with that of the European Union, showing a clear negative relationship between the incidence of unemployment and the level of education: the more educated people are less likely to experience unemployment lasting over six months (OECD, 2012a).



**Table 4. Unemployment rate in Romania, by the highest level of education attained, between 2000 and 2012 (% of the age group 25-64 years)**

Level of education attained	2000	2005	2010	2012
Pre-primary, primary and lower secondary education	3.9%	6.4%	5.7%	8.07%
Upper secondary and post-secondary education	7.5%	6.3%	6.7%	7.55%
Tertiary education	3.4%	3.1%	4.1%	5.6%

*Source:* Adapted from Eurostat, *Unemployment rates by sex, age and highest level of education attained (%)*, 2014b

In the specialised literature, considerable attention was paid to the returns on investments in education. A first important distinction should be made between the private rate of return and the social rate of return on education. While the private rate of return is the yield on the investment in education received by the person making the investment (for example, the relation between the direct costs of education paid by the student and the gain in net earnings associated with this investment), the social rate of return measures the outcomes for society, considering the resources devoted to education. The private returns have been analyzed to a further extent due to the fact that they can be measured more easily. In a study conducted by Psacharopoulos (2009) on the EU states, it is shown that there are more private returns than social returns to higher education, the difference being, on average, of 2.3 percentage points. This difference between the private and social rates of return is an indication of the degree of public subsidization of higher education. In Romania, the private returns to higher education were, in 2000, 8.5%, compared to the social ones, 5.3% (Psacharopoulos, 2009). According to this study, the private returns to higher education have increased in Romania, between 1952 and 2000, with 5.4 percentage points.

One of the most measurable returns on investments in education is the level of income. According to Goldberg and Smith (2007), the annual earnings or the hourly wage depends, in a linear way, on the years of schooling. An empirical study conducted by Kane and Rouse (1995) shows that, in the case of men, while a year at a two-year college increases the average earnings with 3.5%, a year at a four-year college generates an increase of the average earnings by 5.6%. However, after a detailed research, Card (1999) concluded that the level of income may be influenced not only by education, but also by some other variables, such as family background or individuals' abilities. Yet, when all the other characteristics are similar, education has a positive impact on incomes (Soloman and Fagano, 1997). An explanation for this fact is brought by Edgerton, Roberts and von Bellow (2012) who argue that a higher level of education raises workers' productivity.

These theoretical arguments are proven by the statistical data offered by Eurostat (2013) which show that, in the EU, the median gross hourly earnings of the employees with a high level of education (those who have a university diploma) was almost one half above the amount of those with a medium level of education (those who only had secondary education) and 70% above the level registered in the case of employees with a low level of education - those who have graduated only the primary school (see Table 5).

**Table 5. Median gross hourly earnings of the employees, according to the level of education, in 2010 (calculated in Euro)**

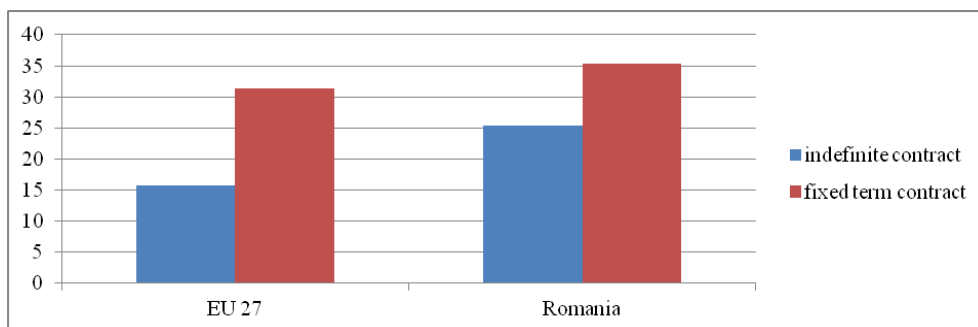
	Low level of education	Medium level of education	High level of education
<b>EU 27</b>	9.6	11.1	16.3
<b>Romania</b>	1.3	1.7	3.3

Source: Adapted from Eurostat, *Earnings statistics*, 2013

According to the statistical data from Eurostat (2013), in Romania, as well as in Portugal and Germany, there were registered the biggest differences regarding the median hourly earnings between the employees with a high level of education and those with a low level (almost three times higher in the case of the first ones). However, unlike Portugal and Germany, Romania has very low values of median gross hourly earnings, at all three levels of education, compared to EU 27 average.

If the data included in Table 5 helped us prove the fact that people with a lower level of education earn less, Figure 2 shows that the persons with low wages are more likely to have a fixed term labour contract.

**Figure 2. Proportion of low-wage earners, by employment contract, in 2010**



Source: Adapted from Eurostat, *Earnings statistics*, 2013

In Figure 2 we can see that while in the European Union, 31.3 % of employees with a fixed term contract were low-wage earners in 2010, in

Romania, this percentage was higher – 35.4%. Meanwhile, in the EU, only 15.7 % of employees with an indefinite contract had low incomes; in Romania, this percentage was up to 25.4%.

#### **4. Conclusions**

The level of education can be a good indicator for estimating the available amount of a population's knowledge and abilities, which are very useful for participating in the social life and for integrating or reintegrating into the labour market.

The results of our study show that individuals are more and more tempted to acquire general knowledge in the first stages of education, after which to become specialists in a certain field. This aspect is demonstrated by the fact that, during the last years, both a significant decrease of the number of persons who graduated vocational schools and an increase in the percentage of university graduates have been noticed.

Regarding the insertion on the labour market, our study shows that, in Romania, as well as in other EU states, the higher the level of education, the better the chances of employment. We noticed that the highest percentage of employment can be found with university graduates – over 80%, while only 60% of those with upper secondary and post-secondary education and about 40% of those who graduated pre-primary, primary and lower secondary education manage to find a job. Moreover, the analysis conducted on Romania's labour market show that the less educated ones are the worst affected by unemployment.

Another positive impact of education on the labour market is related to the level of income. According to the statistics, Romania is among the EU countries with the biggest differences, regarding the median hourly earnings, between the employees with a high level of education and those with a low level (the median hourly earnings almost three times higher in the case of the first ones).

Considering all these aspects, we can say that education is one of the most important factors for Romania's economic growth and development. Therefore, taking into account the results of our study, it is necessary for Romanian education not to lose what it already has, a general feature, but to develop the possibility of doing some practical training in certain fields. The Romanian educational system policies should correlate specializations to the market demand more accurately in order to improve employment prospects and to reduce the labour market inequalities. Moreover, a more careful personnel policy focused on acquiring new knowledge and skills specific to the firm or to the job would be necessary.

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