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Consequences of the Investment in Education as Regards Human Capital

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Abstract

A sustainable and democratic society cannot exist if the majority of the citizens do not have a minimum level of education. Nobody would contest that an individual that invests in his own education could bring benefits not only to his family, but also to the others. However, there are a lot of other good things for human co-operation or society, but it does not result that they should be produced by the state and financed by taxes and fees. Additionally, the investment in one's training/education can finally be retrieved when the individual comes to the labour market.

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1. Introduction

In the fierce competition caused by economic globalization, the quality and inventiveness of human resources are definitely the main factors underlying the essential differences between the states. That's why human resources are now the main competitive aspect, both at corporate and national level.

In this context the author's aim is to demonstrate on the one hand the importance of vocational training for the individual and the society and on the other hand, that vocational training level, individual income and social welfare

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are interrelated and that investment in education especially at higher education level is a profitable investment which has long term benefits both for the individual and the whole society.

Many studies published in the last decades show the positive correlation existing between individual and social welfare and the investment in human capital. Murphy, Tamura, Tomes and Mincer (1974) are just some of those who were able to clearly demonstrate that income differentiation is mainly caused by the level of people's skills and the complexity of their studies. There are numerous studies proving that the educational stage related efforts (primary, lower secondary, upper secondary and higher education) are followed by increased benefits according to the training or qualification period. Highly qualified people are likely to obtain higher incomes than less qualified people.

The phrase human capital has been used for the first time in the economic literature in 1961, in the article "Investment in Human Capital" published by Nobel Prize laureate, Schultz (1961). Afterwards, a large number of economists of which the most prominent is Becker (1997), have enriched the new theory of human capital.

2. Human capital – a progress element for the individual and the society

In his work "Human Capital" Becker (1997) underlined the idea that information means power and that education and vocational training are the most important long-term investment at individual level. The author also mentions that "people with a higher education level earn in most cases above the average, their benefits being more significant in less developed countries".

Becker (1997) also recognizes that education requires a lot of resources from the beneficiary, even where education is free. In reality there are costs which express in terms of opportunity costs the amounts likely to be lost when choosing further education instead of entering the labour market. Some famous authors (Ibbotson and Brinson, 1987) have studied the possibility of measuring the human capital contribution to social welfare. Regarding Great Britain they have shown that in 1946 human capital ensured about half the country's welfare, while in 1989 around 80% of the welfare of the developed countries has been ensured by the human capital contribution.

The Japanese model is perhaps one of the most relevant examples of *human capital contribution* to economic development. Almost completely destroyed after the Second World War, Japan has become in less than fifty years one of the main global economic powers thanks to its human capital special qualities, relying on a value system that fosters loyalty and reliability in every work field and on a very well organized vocational training system.

According to this study the U.S. has a GDP/capita over 30 times bigger than India, and however the physical capital stock is only 25 times bigger in the U.S. On the other hand the differences related to the human capital/worker indicator are huge - 186 times. These results have been confirmed by other studies, even though the methodology used was different. Thus, Ruttan, et al. (1988) estimated a *coefficient of elasticity of human capital output in relation to input* of 0.472 as compared with that corresponding to physical capital, which was 0.263.

The results underlined by these studies should trigger an alarm for the developing countries which should consider education as a priority, as a means of human capital investment in order to reduce the gap between them and the developed countries.

3. Investments in education

Sociologists, economists, politicians, all agree that the real treasure of a country is the education.

Durkheim (1980) believes that "the formed by the education is not the man the nature has created, but the man society wants and it wants them as the inner structure requires [...] education is before all the means by which society continually renews the conditions of its own existence" (Durkheim, 1980).

Salade presents education as a factor of production that participates just like any other factor in the production of goods and services. "The level of education of a people can foresee the investment that society makes in people. Just like science education is part of the production factors through its many educational facets" (Salade, 1989). From the perspective of the perfect society of Galbraith (1997), education serves mainly for "*widening the perspective on life and increasing the satisfaction of living. It opens to the individual new horizons in linguistics, literature, art, music and the diversity of the world. Those who have benefited over the years from a solid education have never doubted that they receive, that they will receive a greater reward ...*" (Galbraith, 1997).

We believe that an important goal for all countries of the world is to develop education and training throughout life, so that changing and restructuring economy does not produce adverse effects that have a negative impact on social cohesion.

One of the most important conclusions of recent research in the field of education is that the investment in education and training of people is both a growth factor, especially in the current climate of rapid technological changes and a basic tool to support social integration. This was also confirmed by the analysis of PISA study results, showing that developed countries have the lowest levels of inequality between individuals. And also by the education and highly qualified training because they provide the human resources necessary to the economic and social development. They are considered a tool to reduce the gap between more developed and less developed Regions.

The human element considers that investment in education brings first of all a benefit by the sense of credibility granted by holding a higher education degree, an idea amplified by the prestige of a certain educational institution, and this often represents an advantage for the applicant in the labour market. Instead, workers who have a low education level can face various difficulties in the labour market, not because they are not able to perform a certain activity, but due to the fact that they do not have the necessary degree or qualification in order to have access to a certain social and professional status.

Therefore, the supplementary income a student expects to obtain as a consequence of every year of education, the marginal income of the investment in human capital may be suggestive for the tendency and marginal propensity to invest in education.

The analysis from a social point of view is based on the same principle of costs-benefits, costs including both subsidiaries and support allowances, and benefits subsuming the reduction of unemployment rate and thus the reduction of unemployment benefits, lower costs for the social field (lower taxes for the social protection programmes, a fund created for the prevention of antisocial phenomena) and the money earmarked for this purpose may also be used in other fields such as: health, culture, environment, research and so on.

Among the investments in the human capital we can identify investments in education and training, migration, and some current living expenses, such as those for accommodation, food, clothing, supplies and so on.

An OECD (2014) study shows that “attending a supplementary year of average education amplifies economic development with a percentage of 5 % and with a percentage of 2.5% on a long term”. An additional educational year also raises the level of average wages by about 6.5%. Records have also shown that unemployment rate decreases proportionally with the levels of higher education reached, reducing additional social costs involved. We may conclude that employment rate increases proportionally with the level of education achieved.

Regarding education, we should take into consideration that investments ensure a future update of material resources, in the context of reorganizing the whole economic, social and cultural activity.

In this particular context, the main objectives for the investment policy in the educational field must provide the development of the technical and material educational resources, an improvement in the quality of education and an increase of the social impact of education.

4. The benefits of the investment in education on human capital

A social effect of education with significant impact on the decision to invest in training human resource is linked to the workforce market. Working conditions are usually more convenient for a university graduate in the sense that the relationship with the superiors is based on greater confidence as compared to the relationship of a person without education. These types of non-wage benefits (conditions and work environment, personal status, opportunities for promotion) are particularly important for the university graduates, sometimes as high as the wage received.

Table 1. Private and social benefits of education

A-1 Private monetary benefits	B-1 Benefits of the GDP externalities /
Direct	per capita
	Indirect
A-2 Non-market private benefits	B-2 Benefits of non-market externalities
Direct	Indirect
A-3 Pure externalities of public goods	B-3 Pure externalities of public goods
Direct non-repetitive effects	Indirect non-competitive effects

Source: De Walter W. McMahon, Education and development: measuring the social benefits, Publishing house Oxford University press, 2002, pp21-36

Non-market effects of education increase as individuals use human capital at home or in the community and not in the labour market. Part of the non-market "returns" in education are private, such as health (part A-2), but some of them are pure public goods or "non competitive goods" such as public health, public television or benefits of democracy, human rights and political stability (the A-3 area). These are goods that are applied the exclusion principle. The consumption rate of an individual usually does not diminish the consumption rate of the others.

Barry Chiswick (1974) shows that the inequality in the educational level is directly related to the income inequality and therefore the improvement in education would be a levelling factor. In the work „*Income Inequality: Regional analysis within a Human Capital Framework*”, the same author, using a different variable for education, namely the interaction between the rate of return on investment in education and the educational variation, in the examination of the income inequality in the United States and Canada around the 60s, found this interaction as having a strong positive effect on income inequality. He established that income inequality is higher for a higher rate of return on investment in education, but also because of the variation in the number of years of schooling. The same author notes that regional differences in the income levels of the workers are correlated with the differences in the educational level.

We tried to translate these assumptions in the Romanian reality and we saw that they are fully confirmed. The most developed regions with a superior standard of living are those that also have the largest number of university graduates (Bucharest Ilfov, West and North West of the country) and at the opposite pole are the areas underrepresented in the university system (the South and South East of the country).

A question that we tried to answer is: are there purely educational externalities? While on the one hand, the idea that one cannot influence the average of the entire community is transmitted as the effects of education are long delayed generally affecting future generations, it is necessary to identify the impact of education on the development objectives. On the other hand the community development can contribute to the increase of the income per capita as an indirect effect of education. For example, immigrants to the United States from Haiti, Mexico and those to the UK from the Southeast Europe and Southeast Asia know they can earn more money after immigrating. This is partly due to the benefits of democracy, the respect for the law, the spread of new technologies which are the consequences of the education of the previous generations.

There are two basic reasons for which we can say with certainty that the link between education and economic growth is very strong. The first is to improve the living standards especially after 1800 due to education. Education is required for people so they benefit from the scientific progress and that they can contribute to it.

The second argument in favour of education comes from a variety of econometric studies that indicate that individual incomes can be conclusive depending on the years of study. One such study was developed by Mincer (1974): He looked at the earnings of individuals by years of education, age and experience. He found that for white men who were not working on farms, an extra year of education raised the earnings level of an individual by almost 7%. Dougherty and Jorgenson (1997) illustrate the contribution of improved labour quality to the input of work in the G7 countries (Table no.2). The figures are calculated taking into account the percentage of labour in the production function of 2/3. It should be noted that a variable that is more important than education is the quality of work.

Table 2. The increase in the workforce quality and its contribution to global economic increase (%), 1960-1989

	Increasing the quality of workforce (%)	Contribution to the economic growth (%)	Increasing the production per capita (%)
Canada	0,74	0,50	2,93
France	0,73	0,49	3,04
Germany	0,41	0,28	2,91
Italy	0,19	0,12	3,74
Japan	1,16	0,79	5,39
Great Britain	0,38	0,26	2,15
USA	0,59	0,40	2,07

Source: Geraint J.(2005), Edward Elgar Publishing Ltd-Cheltenham, UK- Northampton, USA – International Handbook on the Economics of Education, p.171

We see a direct relationship between the quality of the workforce largely due to education and the increase of production per capita.

Psacharopoulos has identified the benefits of higher education at the individual level and macro scale. He has also analyzed the average (social and individual) rates of the return on investment in human capital for 32 countries and showed that with a higher level of education the private benefits of investment in human capital are superior to public benefits.

Table 3. Social and private benefits of education to the individual level and macroeconomic scale (Psacharopoulos)

Type Benefit	At the individual / personal / private level	At macroeconomic and macro social scale
In relation to the market	<ul style="list-style-type: none"> - Employability; - Increased income; - Lower unemployment rate; - Labour market (more) flexible; - The mobility of the workforce (population) is higher. 	<ul style="list-style-type: none"> - Higher productivity; - Greater competitiveness; - Better quality of the human factor and of the products and the Services; - Higher net income fee (depending on the fiscal policy) - Higher budget collections; - Lower dependence on financial support
Non-market	<ul style="list-style-type: none"> - Better / more effective consumption - Better health for you and your family - Better conciliation of the occupational activity with the family life; - Better education for children; - Responsible participation to the community life; - Active citizenship; 	<ul style="list-style-type: none"> - Reducing violence and crime rate in general, of young people in particular; - Reducing infectious diseases; - Lower fertility, especially at the categories of population with a superior level of education;

- Civilized / decent human relations.
- Greater social inclusion;
- Strengthening economic, social and territorial cohesion;
- Participation in political activities, including voting.

Source: Drawn up by the author starting from the picture elaborated by George Psacharopoulos in his work „Rates of Return and European Commission, ch.2. The Returns to Investment in Higher Education: Methods Data and Policy Implications, January, 2007, p.30

We appreciate that the arguments should convince private companies and policy makers on the need to allocate additional resources for human capital development in general and education development in particular.

Human capital is an intangible capital and hence it cannot be exploited independently of its owner. It is impossible that the family, the company or the state limit the efforts to develop human capital and request the full amount invested in the workforce.

If we look at the effects and efforts of investment in education in purely economic terms we could say that in the rural area children are more profitable than in urban areas. We must not lose sight of the fact that "man is more than a commodity" and children are not raised by their parents to become "commodities" on the labour market.

Similarly, neither the companies nor the state can guarantee that they will recover all or part of the investment in human capital.

From the study of specialized works we learn the idea that the effectiveness of human resource funding is very difficult to quantify in terms of both costs and benefits. Investing in human resource during lifetime is funded by the individual, the society and the company.

The problem that is still concerning the experts in the field is related to the total cost of education which cannot be determined unless they strictly come from the public budget. Explicit costs are difficult to distinguish because they also include the opportunity cost, which sometimes exceeds the expenditure on human resource education.

The delimitation of the benefits is not clear, since the impact of these investments can have a multiplying effect on the social scale. For this reason we consider that the educational system of a country is the "support" of its present and future development.

It is widely accepted that education contributes significantly to economic growth, the education profitability being compatible with the return on investment in physical capital. At the individual level, more the degree of education is higher more the individual's contribution to the overall progress of society is substantial.

There is a complex relationship between education and income distribution since the impact of education on earnings depends not only on how it is planned, developed and financed but also on many socio-economic factors.

Today, more than ever the performances obtained due to the development of human resources depend on production and assimilation of knowledge, on the human ability to step forward through innovation, on the efficiency of resource mobilization provided by the precious abilities of human beings.

We will have to understand that individual and social prosperity depends primarily on a priceless treasure, our capital resource, the man.

5. The experience of the developed countries in financing human resource development

The analysis of the present situation and of the trends shows that the European Union suffers because of an insufficient investment in the development of human resources. In average, the European Union member states spend a little more than 5% of the GDP for education and training (financed from public funds), but with substantial differences from one country to another. As indicated in table no. 4 at present the percentage of the GDP allotted for education is very high as compared to the European Union average, precisely in the countries with a higher quality of life level.

Table 4. Public expenses for education (% of GDP)

	2000	2002	2004	2006	2008	2010	2012
EU 27	-	5,06	5,07	5,07	5,07	5,38	
Denmark	8,28	8,44	8,43	8,48	7,7	8,8	
Spain	4,28	4,25	4,25	4,23	4,6	5	
Finland	6,08	6,21	6,42	6,40	5,6	6,8	
Norway	6,81	7,58	7,47	7,21	7	6,9	
France	5,83	5,57	5,81	5,60	5,62	5,9	
Bulgaria	3,78	4,23	4,51	4,6	4,2	4,1	
Romania	2,88	3,52	3,29	4,9	2,8	3,5	

Source of Data: Eurostat Data from June 1st, 2014

From this perspective, the convergence of the Romanian education with those of the main countries belonging to the European Union can only be assured on a long term, requiring investments for the development of the two great categories of infrastructures, of physical and human type. The granting of a percentage of 6% from the GDP for education might make available such resources.

Table 5. GDP per capita (EU-27 = 100)

	2000	2002	2004	2006	2008	2010	2012
EU 27	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Denmark	127.8	124.1	123.6	120.0	124.8	128	126
Norway	164.9	154.7	164.4	183.7	190.1	180	194
Great Britain	119.0	120.6	123.7	120.7	114	108	104
Germany	116.6	116.5	116.8	114.8	116.6	120	123
France	115.7	111.8	110.6	108.9	103	99	96
Romania	26.1	29.4	34.1	38.3	45.8	51	53

Source of Data: Eurostat Data from June 1st, 2014

The same proportion can be noted if we consider the evolution of the GDP per capita. Denmark has the highest level of income per capita, four times bigger than the income in Romania.

In the countries where the individuals contribute significantly to the financing of their own education, the governments offer them a considerable support by providing the financial subvention granted for students. These countries have at their disposal various financing schemes for the higher education, either through directly financing the education, or through indirect financing, by supporting students living costs or schooling expenses, or by combining both systems. The public authorities from the Czech Republic, Greece, Spain, France, Poland, Portugal and Switzerland grant more than 90% of the total public expenses for higher education directly to the education institutions.

The transition from the education system to the labour market is an important factor in evaluating the human resources quality. The long term unemployment, the professional declassification are factors that lead to the depreciation of knowledge, abilities and capacities acquired during the schooling period, namely to the depreciation of the human capital. Romania has at present an unemployment rate quite low (5.3%) as compared to other European Union member states (9.2%), but also an increased part of the population involved in agriculture (27.41% as compared to 5% in the EU) and industry – namely the fields of activity where the level of qualification required is also reduced. The lack of educational and professional training or its reduced level will render quite difficult for the future the integration of high performance technologies necessary, for increasing productivity.

Education should help solving some of the problems that contemporary society is confronted with. For this purpose, it is necessary to improve the internal coherence between educational systems and the society, together with ensuring a certain stability which is to guarantee their long term efficiency. Short term efficiency of educational systems must be included in a long-term strategy, by conferring a greater importance to cultural and humanist dimensions of education.

It is necessary that the impact of new IT technologies on educational systems should be supported by the Government. The introduction of computer science will induce a quality improvement at all levels of educational

systems. In this respect, Denmark, Great Britain and Finland are way ahead of the other member states of the EU. The percentage of population able to work who acquired education and vocational training in 2010 rises to 29.2%, 26.6% and 23.1%, way past the average of 9.6% in the EU. Bulgaria and Romania had the worst performances in EU, with a rate of 1,3% each, ranking themselves after Greece which had a rate of 1.9% (Eurostat, 2012).

„Education and vocational training at the highest standards are essential factors for the development of Europe as a society of knowledge, able to compete in an effective way in the context of globalised world economy”, stated Jan Figel, European official for Education, Vocational Culture and Youth, at the introduction of the annual assessment of the European Commission. „Unfortunately, this report suggests that the member states should enhance their efforts in order to be sure that education and vocational training in the EU can face the challenges of the XXI century. The message directed to the decision-making factors from the member states is very clear: we need more efficient investments in our human capital.”

6. Conclusions

We have tried to emphasise the idea that the education level and the income value are closely and positively connected and that employment rate and the education span (that is, the quantity of investments in the human capital) are also related.

Analysis concerning Romanian labour market shows that people who have a medium level of education are most affected by unemployment, while people with higher education are better protected from this phenomenon.

The investment in education especially in higher education is a profitable investment that assures positive long-term effects in what concerns the individual and the socio-economic progress of the society.

The higher the level of education, the higher the income of a person increases and it is almost always above the average. The advantages are more obvious in developed countries. If we look at the United States, - the differences in the average earnings between the university graduates and the high school students - were of 40-50% in the early 60s and afterwards they kept growing.

An economic analysis may reveal why throughout history there have been countries that had long periods of persistent growth in the income per capita. Countries like the United States and Japan had continuous increases in the personal income in the last one hundred years and even earlier. The explanation lies in the expansion of scientific and technical knowledge that helped the increase of labour productivity and production.

Systematic implementation of scientific knowledge to the production of goods has increased the importance of education, mainly technical education. It is obvious there is a positive connection between the investments in education and the technological progress, having a considerable influence on all social and economic fields.

We may conclude that education, information and knowledge are powerful.

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