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PhD THESIS
SUMMARY

Architecture and Challenges in the Funding of Higher Education – a case study: Romania

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Introduction

In a tribute to English universities, the British poet John Masefield described the university system as "a place where those who hate ignorance may strive to know, where those who perceive truth may strive to make others see; where seekers and learners alike, banded together in the search for knowledge, will honor thought in all its finer ways, will welcome thinkers in distress or exile, will uphold ever the dignity of thought and learning, and will exact standards in these things".

"The European structure has known significant progress in time, but no matter how significant this progress might be, it should not lead us to forget that the Europe we are building is not only that of the Euro currency, of the banks and economy; it should also be the Europe of knowledge. In this structure, we have to focus on and use the intellectual, cultural, social, and technical dimensions of our continent. They have been mostly shaped by its universities, which continue to play a key role in their development."

Ever since its origins, the higher education system has played a key role in the development of society. It can be stated beyond doubt that this system has been a witness of and an active player in the changes that marked humanity over the last millennium. The development and evolution of the system is not yet complete, as higher education studies are constantly subjected to the challenges brought by the economic, political, and social environment. Regardless of the country or continent where these institutions carry out their activity, they largely face similar challenges, which they have to cope with so as to continue to be one of the factors positively contributing to the national and global development of economy in the future.

In the context of radical changes in the market economies, the role played by universities has become a complex one, these latter being currently bound to abide by increasingly stringent requirements coming from both students, as direct beneficiaries of the educational process, and from the labor market players, who will always try to obtain well-prepared graduates, able to cope with and adapt to a global economy characterized by the speed with which it changes the rules of the game.

Starting from these premises, the purpose of our doctoral thesis was to highlight the essential role and the impact the higher education system currently has over the development of a country's national economy. The analysis starts from the hypothesis that specialized human resources with the highest level of academic training represent a solid and reliable economic growth basis in the medium and long term. Thus, in order for this desiderate to be achieved, it is imperiously necessary that the higher education system constantly benefits from the support of authorities, both in terms of the funds required for study programs, and in terms of the institutional development strategies.

In the drafting of the paper, a series of objectives have been set, meant to form a solid basis leading to pertinent and reliable conclusions that support the set goal. In this regard, an initial

objective was to identify an optimum university model alternative. Over time, depending on the circumstances and economic development of each country, various trends could be identified in terms of the type of higher education institutions.

The first higher education institutions were established around the year 1,000. They relied on the clerical model and the Church controlled their activity over a long period of time. However, it was not until the dawn of the 19th century that two relatively modern higher-education movements were internationally developed and imposed. The first one is the German one, or the Humboldt education, relying on Friedrich Schleiermacher's liberal ideas, with a focus on academic freedom, seminars, and workshops. Under this model, universities focused on the scientific training of the student. The main strength of this system was the academic freedom that both students and professors benefited from. It was for the first time that competitiveness became a focus amongst professors, who were also given the opportunity to choose the state where they were going to carry out their activity and achieve academic prestige depending on the specific field of activity. The success of the Humboldt education model was internationally ascertained until the end of the 19th century, being adopted in Europe, as well as in the United States, and Japan.

The second model developed in this period and totally opposite to the German model, was the French one, relying on discipline and the strict control of each academic aspect. Unlike the Humboldt model, it completely lacked liberty, the objects of study, the university curricula, degree awarding while the personnel policy was fully controlled by authorities. Nonetheless, as time passed, the model became more flexible, and adopted a series of elements underpinning the German model.

In the light of the past years' rapid urbanization and industrialization, the freedom of movement implemented at a global level and the global harmonization of university requirements, higher education institutions are accessible to all those interested in further studies. Although the basic academic principles are relatively the same, the need for change has determined higher education institutions to decide on the path to follow, *i.e.*, opt for an entrepreneurial university style or continue on the same line as before. This model has been widely criticized in time, but the long-term effects are yet to be accurately quantified.

Thus, an initial objective of our thesis was to identify, through the research performed, an academic model that would suit the Romanian higher education system, responding to the national labor market requirements. Though at a global level the academic system is constantly changing, we believe that our country should take over the positive aspects identified in other countries and be able to create a competitive and valuable academic system.

A second objective of this research was to highlight the efficiency of funds allotted from the state budget for the financing of university studies. Just as any other investment, the amounts allotted to this economy sector should find their usefulness in the real economy. Thus, our goal was to

identify the return-on-investment rate of such an investment, both in terms of the governmental financial effort in financing the state-paid positions, and in terms of the students financing their education from own resources.

At the same time, the research could not exclusively rely on an individual analysis. Thus, another objective set was to quantify the outcomes triggered by the investment into higher education in the long and medium term. Since Romania is a member of the European Union, the thesis also analyzes the impact of the formalization of international treaties in this field and of the commitment to the targets imposed by the "Europe 2020" strategy. The academic system in our country, mainly relying on the state budget-allotted funds, has to be able to cope with a series of structural changes, which will generate both material and human resource-related costs.

Last but not least, an important objective taken into account was to identify the financial policies specific to the financing of the academic field correlated to the generated output, their developments and the way in which they responded to the economic, social, political, and cultural challenges.

When choosing the topic for research developed in this doctoral thesis, the starting hypothesis was that we are facing a series of radical changes in the academic system, both nationally and internationally, which determines the authorities to quickly act so as to be able to cope with the related challenges. When this topic was chosen, a series of institutional assessments were ongoing according to the new law of education. Starting from the idea that regardless of the reforms applied, education institutions are to support students by providing high-quality study programs, this scientific research has been initiated with the primary goal of demonstrating the need for a high-quality system, training competitive human resources able to offer added value in the long term, according to the human capital theory, with an implicit direct contribution to the development of the national economy.

The higher education system has a complex structure both in terms of institutional development, and in terms of the efforts it requires in order to be sustainable. Architecture, although a term rather common to the field of construction, is both a science and an art characterized through craftsmanship in designing both tangible things and, in our opinion, high-prestige education systems. When talking about architecture in academic education, we are referring both to the material basis this sector needs in order to develop, and to the development and implementation of financial policies adapted to each institution's punctual needs. Thus, as a generic term, the architecture of an academic system is characterized in the light of all tangible and intangible factors underpinning the proper operation of educational institutions and it encompasses all the decisions, policies, and reforms adopted in order to create a form of education tending towards excellence.

The topic of higher education systems has been approached under various forms and concepts over time, depending on the doctrine needs of the researchers analyzing the matter. Considering

the specifics of the "finance" field and the need it determines to objectively justify/quantify any investment, this paper focuses on the identification and analysis of these variables, specific to higher education studies, which can highlight the need and usefulness of the allocation of funds to support the academic system. The analysis started from the works of authors such as Schultz, Solow, Abramovitz, Mankiw, Romeror or Weil, who, in their research, have demonstrated the role and the impact generated by the investment into the higher education system and, implicitly, through its graduates, at the level of national economy. Starting from the presented concepts, by analyzing the European and national legal provisions in the field of education and consulting the databases provided by the World Bank, the International Monetary Fund, OECD (Organization for Economic Cooperation and Development), UNESCO (United National Organization for Education, Science and Culture), EUROSTAT, as well as other national institutes for statistics, the paper analyzes and empirically justifies, based on the Gretl program, the need and usefulness of the allocation of funds for academic education.

In order to be able to achieve the goal of this thesis and reach the undertaken objectives, the research has relied on a series of scientific economic research-specific methods. From amongst them, the following could be mentioned: statistic observation; correlation analysis, conceptual, historical and logical analysis. At the same time, the indicators have also been analyzed in the light of the quantitative and qualitative method, and the Gretl program has been used for the implementation of the mathematical-economic model.

This thesis has been divided into four chapters, objectively illustrating the realities of the Romanian academic system. In the context of a globalized economy, in order to be able to produce an objective radiography of the higher education system in our country, we considered it necessary to first carry out a brief review of the education models adopted by the developed countries in the world. It is in this light that the first chapter starts, presenting the realities the academic systems in Germany, the Russian Federation, the United States of America, Japan, France, Great Britain and China face. The initiative could not go further without a punctual analysis of the current trends the higher education system is facing in the European Union, in strict correlation with the evolution of the national higher education system.

Even if at first glance the comparison of two academic systems might not seem a challenge, the multitude of both objective (quantifiable) and subjective (non-quantifiable) factors turn this analysis into a complex task, requiring special attention. Although in statistical terms, Romania will be placed at the same level and constantly compared to the values registered in the developed European Union Countries, due to the evolution of the post-second World War political background, of the cultural sub-layer and, implicitly, of the population's behavioral features, it is hard to place an equal sign between our country and the Western states. For these reasons, an analysis of the academic system in Romania as compared to other regional educational systems, which, in their turn have been subjected to strict monitoring and to the influence of the Soviet Union, was considered necessary. Thus, at the end of the first chapter, we

adopted a comparative analysis of the academic educational systems in the Central and East European countries.

In order gain in competitiveness and generate value, an academic system needs to constantly develop through extensive teaching, research, and innovation processes. At the same time, pursuant to the adhesion to the European Union and the adoption of the Bologna education model, the national academic system can benefit from the experience in the field at a European and international level. To this end, the mobility of students and professors needs to be constantly encouraged. Study and research scholarships should be accessed, institutional development grants should be obtained, and, last but not least, private investments should be attracted. It is only by offering a competitive and high-performance environment that national acknowledgement will be obtained, and, along with it, the visibility required for international recognition.

Regardless of the field of specialization, a university is "costly" to the economy. Currently, an education institution cannot survive exclusively based on the funds received from the state budget. Pursuant to the decentralization of the academic system, the management of the institution can attract both national and international private funds. Considering that the most stringent issue the academic system faces is related to financing, chapter II of the thesis aims to approach the funding sources institutions can access. The initiative starts from the system funding features at the level of the European Union, while also approaching the structure and dynamics of the academic system funding sources in Romania.

Although the long-term development of an academic system is only possible through a coherent and properly grounded strategy, the inconsistency of the national education funding policies puts pressure on the financial balance of higher education institutions. Universities have to compensate for budgetary cut-offs by identifying and attracting extra-budgetary funds or by re-allotting money based on stringent needs. Whichever the case may be, such inconsistencies can seriously affect an educational institution in the medium and long term.

Within a background of economic instability, as it has happened over the past years, one of the first-line fields to be affected by budgetary cut-offs will be the academic system. Because the results of the investments into higher education are hard to quantify in the short term, in times of recession, authorities prefer to allot significant amounts of money to economic sectors which will generate outcomes with an immediate impact on the population. Thus, an important role in this financing equation is played by the Gross Domestic Product. Its evolution directly influences the amounts allotted to the university system. Thus, in the case of a drop in GDP, the funds dedicated to education will most certainly be impacted. On the other hand, in times of economic growth, the amounts allotted to education will not always increase and they will most certainly not increase by the same percentage as national economy.

Another important aspect that can affect the development of the academic system in the long term is the instability of the legal framework. In this respect, in time, both the national and the international education system have undergone drastic changes in terms of the standards and regulations in force. Chapter III of the thesis is the onset of the analysis of higher education funding policies, forms, and indicators, by presenting the development of the legal framework in the field.

These frequent changes, uncorrelated to the needs of educational institutions, can negatively affect institutional development in the long term. When higher education boards cannot adopt long-term impact projects because of the changes incurred from one year to another, it will be almost impossible to have coherence and efficiency in the application of the reforms required for the revitalization of universities.

Legal changes are due, on the one hand, to the constant need to adapt to market requirements and, on the other, to the necessity to assimilate the European directives Romania has committed to through the adopted international treaties. The main legal changes generally concern financing. Thus, there is a constant attempt to apply legal norms that allow for diversified financing, relying on high-quality criteria, depending on the academic and research results.

In an institution where it is difficult to ensure the constancy of funds, the attraction of extra-budgetary funds based on firm agreements is of essence.

The major investment in this field needs to be quantifiable in the long term so as to allow for an analysis of the opportunity and profitability of the investment made. Thus, chapter IV focuses on the result generated by this investment, on the input, output and efficiency concepts and on the investments in the academic field. This result is very difficult to quantify, especially due to the fact that it requires analysis in time and cannot rely on a single indicator value. A series of factors need to be identified and cumulated so as to justify the amounts of money correlated to the long-term unemployment rate, the number of persons working in their field of study, the percentage of graduates reaching management positions, etc.

Starting from the identification of traits defining academic excellence, the goal of this chapter was to analyze the internal profitability rate of the investment in the academic field, both for the student contributing with their own funds, and for the state. At the same time, the chapter focuses on efficiency and the efficacy of the system and, in this respect, it includes an analysis of the Romanian labor market, as a direct result of the investment made by the state in this system.

The aim was that the conclusions reached based on the research carried out may answer the questions the university system constantly faces and, especially, that they provide a solid basis grounding the decision to finance this field. The purpose of the initiative was to offer a series of pertinent and realistic proposals meant to contribute to an enhancement of the Romanian academic system, both in qualitative and in quantitative terms.

A Summary of the Chapters within the PhD Thesis

Summary of Chapter I - The Global Higher Education System from its Origins to the Present

The global higher education system has been subject to constant changes from ancient times to the present. These changes have turned the higher education system into one undergoing continuous changes and diversification.

We can firmly state that Europe has laid the basis for the higher education system. The first higher education institution in the world was born in Bologna in 1088. The next one was the University of Paris, set up in 1150, followed by Oxford University in 1167. Another world-famous institution, Cambridge University, was founded in 1209. Outside the borders of the old continent, the first universities were established after 1600, when this higher education trend started gaining momentum worldwide. Under one form or another, all higher education systems have been influenced or had as a development model the European system of education.

Romania has also benefited from this trend, the first higher education institution being founded in Iasi - the "Vasilian Academy" - in 1640. Starting from this institution, the University of Iasi was founded in 1860, a university that has lived up to its reputation to the present. Another top university, Babes-Bolyai University of Cluj-Napoca, was created in 1959 through a merger of "Victor Babes" University with "Bolyai" University. But, the higher education system of Cluj has a much longer history, the first higher education institutions being born between 1579-1581, when the Jesuit College functioned there.

In this first chapter we highlighted both the manner in which several world-renowned academic systems in countries such as Germany, Russia, Japan, the USA, France, the UK and China have evolved as well as the current trends identified at EU and Romania level.

In our approach to characterizing academic systems, we have identified a series of relevant quantitative criteria for each country such as *the degree of population benefiting from the university system, the number of students enrolled in higher education programmes, the higher education expenditure or the number of unemployed university graduates*.

The purpose of Chapter I is to outline as accurately as possible the global higher education system and to draw relevant conclusions thereon so as to highlight the positive, but also the negative aspects of the systems considered. This is a necessary approach that allows us in the next chapters to draw a parallel analysis between the benefits of the Romanian higher education system and the alternatives offered by higher education systems in the developed countries of the world. Based on the ideas unfolded in this chapter, we were able to highlight a series of conclusions regarding the measures to be adopted by Romania so as to offer those who want to further their studies, a performance-oriented system viable and adapted to the labor market requirements.

Although we have analyzed a series of university systems in countries renowned for their academic performance, we had to consider the European Union as a whole, too. Thus, we tried to highlight the way in which the educational policy at European level has evolved as well as the structure and dynamics of the beneficiary population. Considering the long-term necessity to create a high-performance qualitative academic system that can be analyzed on the basis of objective criteria in all member states, the goal of the analysis performed was to highlight the evolution in time of the system, its current status and the objectives set both at global level and by each country.

Given the fact that Romania is part of the European Union and it has undertaken development objectives for its higher education system in line with the EU provisions, it was necessary for us to further analyze the evolution and structure of higher education in our country as well. Although higher education in Romania has its roots in the late seventeenth century, in this paper we only focused on the development of the university system and the changes undergone at this level after the fall of communism. These changes pertain to a radical change of outlooks at national level based on the country's process of opening to democracy and the need to integrate into the global fora.

The latest meaningful change in the university system was brought by Law no. 1/2011, a law targeted at a restructuring of the entire Romanian educational system. Strong emphasis is laid on the quality of the higher education system and hence on the quality and viability of the study programmes. This law is aimed at compelling universities to adopt measures fostering the creation of prestigious higher education programs that may compete with the ones offered by world-renowned universities.

Considering both the international competition and the need to be competitive within a global system characterized by ongoing changes, we also carried out in this chapter a comparative analysis of the higher education systems in Central and Eastern Europe countries (Poland, the Czech Republic, Hungary, Slovakia, Bulgaria and Romania). We chose these countries because after the Second World War their national higher education systems were influenced by the Soviet model. We mainly intended to highlight the educational policies they have adopted starting with 1990, the way in which the academic system has evolved to the present, the degree of openness of higher education institutions as well as the degree of alignment with the EU provisions. In our opinion, these are the first countries with which Romania has to compete at an academic level and, therefore, the analysis performed aims to objectively outline the higher education realities in our country by means of direct comparison with other similar academic systems.

The data analyzed herein show that although the systems analyzed generally hold the same substrate, the different policies adopted over the years have made them quite distinct today. However, it is to be noted that although over the last 20 years the authorities have had different views as to how the higher education system should develop, no long-term viable solution has

been identified, new reforms and laws being constantly required to meet the needs of the educational institutions.

If considering that the systems analyzed are part of EU countries, we cannot overlook the long-term development strategies set by the European Commission and adopted by the member states. The objectives set by the adoption of the "Europe 2020" strategy will be very difficult to achieve if considering that there is no uniform policy that might lead to such results. This programme has set the following benchmarks[1]:

- on average at least 15% of adults should participate in life-long learning programs;
- at least 40% of people aged 30-34 should be enrolled in higher education programs;
- the share of 18-24 year-olds who drop out of education should be less than 10%;
- 20% of graduates should have spent a period of study or training abroad.

However, each country is trying to build a society based on a solid educational culture that can offer its people the knowledge and training required by an ever-changing economy. The purpose of the academic system is to prepare high-school graduates for their entry into the labor market. In time, these latter are supposed to provide the national economy with a competitive advantage through the knowledge they have acquired. In order to create value specialists, it is necessary to create an infrastructure that allows students to be in contact with the most diverse and topical issues. The measures can be implemented only when there is a global view of the educational system and prospects thereof.

Radical changes are not easy to implement. However, when a system's failure to create value is noticed, its revival is necessary even if the short-term costs it involves (both material and image leverage wise) are significant.

[1] Jurnalul Oficial al Uniunii Europene, *Concluziile Consiliului din 12 mai 2009 privind un cadru strategic pentru cooperarea europeană în domeniul educației și formării profesionale („ET 2020")* (2009/C 119/02)

Summary of Chapter II - Higher Education Funding Sources

In Chapter II we focused on presenting the main features of the funding sources for higher education. This analysis was mandatory as in order to formulate relevant proposals regarding the funding policies the university system must adopt, we needed to draw an overview of the manner in which funds are currently allotted both in Romania and at a European level.

In most countries - whether developed, developing or underdeveloped - around the world, education has experienced a number of major changes in recent years, especially after the onset of the economic crisis at a global level. These changes were particularly visible in the allocation of the amounts required for the higher education system to function. The drastic measures implemented to cut down costs as well as political instability have seriously affected the budgets of universities.

In a society characterized by an ever-changing economy and an exponential increase of the financial needs of higher education institutions, it is necessary to focus on a pragmatic vision from an economical point of view and to achieve a correlation between the efficiency and profitability of the higher education system. This analysis is justifiable because this economic sector requires substantial amounts representing large shares of the national budgets of each country.

To make an objective analysis of the way in which higher education funding is performed in Romania, we commenced by making an analysis of the way it is carried out in the member states of the European Union. A necessary approach since, as a signatory country of the Bologna Declaration, Romania participates in the creation and implementation of the common policies on education in Europe. Thus, the national higher education system funding policies must be in line with the requirements of our society on the one hand and, on the other hand, with the standards, policies and objectives set at EU level.

In order to achieve the pursued objectives through the measures adopted in the light of the "Europe 2020" strategy, a substantial annual increase of the investment into human capital is required. To achieve this objective implies an efficient management of the funds as well as a genuine correlation between the amounts allotted and the needs of the contemporary society. Although the resources allotted to the academic system may widely vary from one country to another, it has been shown that the amount of these funds directly depends on the level and quality of the education received by the population.

Unlike in countries such as Japan or the US, higher education in Europe continues to be excessively funded from the state budget. The establishment of private funds to finance the higher education system directly depends on the legal framework created by each state. In this sense, an important role is played by *tuition fees, the ability of institutions to attract extra-budgetary funds, the autonomy of educational institutions in terms of fundraising, the means of financing private education* etc.

In many EU countries, higher education is still underfunded. Both the OECD's studies and a series of reports drawn up by the World Bank constantly draw attention to the inadequate level of higher education funding. In an attempt to quantitatively and qualitatively improve this system, the EU member states have adopted a number of common policies designed to produce visible results as follows: *increasing the absolute level of funding, diversifying the income sources of universities, appropriate use of resources, providing additional funding sources for research, greater international openness or granting various forms of financial aid to students*[2].

The analyzes we performed show us that the share of amounts allotted to higher education in Western European countries are more consistent compared to the funds allotted in Eastern Europe ones. This is due, on the one hand, to the education reforms applied with delay, and, on the other hand, to the difficult economic situation experienced by most countries in recent years.

In general, an optimum level of funding allocated by countries to higher education influences to a great extent the results obtained and lead, in time, to achieving the pursued socio-economic objectives. However, the solution does not lie only in increasing the amounts allotted to the higher education system. Sound financial policies should also be implemented in close connection with the needs of the real economy. Such policies should be, on the one hand, effective in terms of cost, but at the same time, correlated with an increase in the performance of students, both in the short term with regard to the educational results and in the long term with regard to the achieved professional results.

Regarding Romania, the higher education system has undergone major changes over the years; however, one constant phenomenon could not be wiped out. The main problem faced by the universities in our country pertains to the defective funding from the state budget. The budget of the Romanian economy is an issue that has not been solved so far and which proves out to be "too poor to lay the basis for the development of a policy for this sector, on which the chance for progress of the country - ultimately – depends"[3].

The main source of funding for the higher education system is still represented by the state budget. These sources are excessively used to cover the expenditure incurred with salary costs, investments, administrative costs or those generated by the functioning of educational institutions themselves, as well as the funds dedicated to supporting and assisting the students throughout the educational process.

Quality education system assurance directly depends on the availability of the funds from budgetary sources. By passing the Law of Education no. 1/2011, an attempt was made to implement a funding system based on the quality of the educational process. Thus, the purpose is

[2] Josan I.J., The relationship between the cost of education and the human capital. The alignment of Romania to the European standards, 2012

[3] Romanian Ministry of Education, *Ghid al managementului universitar*, 1998

to allot a significant share of the funds from the state budget based on the qualitative results produced by the educational programmes.

As a member of the European Union and as a country signatory of the Bologna Declaration, the Romanian higher education system has undergone a number of structural changes in recent years. In addition to the need to implement a system based on three cycles of study, the application of a series of packages of measures designed to increase the efficiency and quality of the higher education system is mandatory as well. In order to meet the student and labor market needs in an economy characterized by instability and fully undergoing higher education reforms, the higher education institutions in Romania had to show foresight in order to remain competitive.

Although public expenditure on higher education increased significantly in real terms during 2006-2008, on the one hand, due to the increased GDP and, on the other hand, due to the increased percentage thereof dedicated to the academic system, there are still very many financial needs that cannot be covered. The most stringent needs pertain to the *infrastructure, equipment to be acquired or even training of the teaching and support staff*.

In 2011, the total expenditure generated by each individual student for the state was up by over 36% as compared to the value recorded in 2005. In this respect, Romania is the last in the ranking compared to other EU countries. By comparison with the average European level, our country annually spends 2.84 less on each student. The fact that this difference tends to decrease is nevertheless encouraging. If in Romania the growth rate of this expenditure was of over 36% in 2011 as compared to 2005, at EU level, the growth rate was of only 10% for the same period.

As in all the countries of the Soviet Bloc, the development of the university system in Romania over the last two decades was marked by an inability to adapt to the real needs of the society and market economy mechanisms. The analysis we performed reveals that, so far, it has not been possible to achieve a diversification of the funding sources and costs of the university process tailored to the true beneficiaries of the university "products". Another major issue that cannot be overlooked is the transparency of the budget system when it comes to payments from public funds, and the inability to correlate these funds to a series of quality and performance indicators[4].

Both at national and European level, a number of trends have been identified regarding the funding of the university system. Subjected to extensive political and socio-economic pressure, the European educational systems are compelled to face disruptive structural changes. The financial crisis in recent years has visibly marked the financial stability of educational institutions. Within an economy subject to both strong internal and external pressure, it is very difficult to maintain higher education expenditure at a very high level. In the member states of the European Union, reducing government expenditure and striking a balanced budget has been and still is a priority necessary to overcoming the last years' economic crisis.

[4]Marinescu C. *Educația: perspectivă economică, Economica* Publishing House, 2001

An issue that has been the subject of much debate lately is the one on the relationship between the public and private funds involved in the financing of academic education. Many of the educational systems worldwide radically differ in terms of the funds allotted to the financing of university studies. Unlike the US, where over 80% of the funds required by educational institutions derive from the tuition fees paid by students, Europe remains an area that places lays great emphasis on investments into the higher education system from public funds. Modern finances tend towards a diversification of the resources allotted to education and towards the use of new criteria for sizing the financial needs based on efficiency and quality.

It has been demonstrated that it is not effective that the sole funding sources in the field of academic education are represented by funds built on tuition fees and budgetary funds. Along with the gradual reduction of the amounts from the state budget and the increasing need for funding from extra-budgetary sources, new aspects regarding the diversification of the income sources must be taken into consideration[5]:

1. administrative charges enforcement for the services provided to students;
2. scientific literature publication and distribution thereof;
3. sale of teaching materials;
4. rental of premises for auxiliary services, both to students and private companies representatives;
5. rental of space to support scientific events, conferences or professional reunions;
6. transformation of student hostels into hotel accommodation spaces during the summer holidays;
7. fee charging to the institutions resorting to the services of the teaching staff tenured into their own institution.

An accurate correlation between the funds from the state budget and those deriving from the private sector has not been possible so far. This could be also explained by the different interests the two economic sectors have when it comes to academic studies. Regardless of the economic situation, the state must remain pro-active in its efforts to ensure the effectiveness of the whole national higher education system, but also in order to support and achieve social fairness[6].

Theoretically, no optimal level of funding that states should allot to higher education has been set. Every year, or whenever necessary, when it comes to the distribution of the budget funds for the higher education system, political decision-makers should take into account a number of principles[7]:

1. a adequate level of expenditure allowing for the achievement of the objectives set both at national and European level;

[5] Miroiu, A. *Finanțarea învățământului superior românesc. Evaluare și propunere de politici*, 2009
[6] Romanian Ministry of Education, *Ghid al managementului universitar*, 1998
[7] Saavedra, J. *Education Financing in Developing Countries: Level and Sources of Funds*, World Bank, 2002

2. the volume of the allotted funds should be constant for long periods of time in order to provide the academic institutions with the possibility to outline viable and high-performance educational policies in the medium and long term, in accordance with the national and international market needs;
3. the pooling of additional resources for education should be achieved based on qualitative criteria.

The funding of the university system will continue to represent an issue in the upcoming future as well. On the one hand, due to the European economic situation which is not favorable, the GDP of the largest EU countries having recorded negative values in the third quarter of 2014, which will negatively affect the Romanian economy, too. Another element that will negatively affect the funds allocated by the state budget is the rate of natural increase, the number of high school graduates declining from one year to another. The results of the high school leaving examination during the last two years have also caused significant problems for colleges, which were not able to cover their tuition figures.

Even if, at European level, an increase in the funds allocated from the state budget is pursued to enhance higher education support, the analyzes performed show that, in the short term, this aim cannot be achieved because both at the level of the European Union as a whole and of the countries that make it up the resources necessary to achieve such an investment are not available. We believe that over the next period of time the funds allotted to supporting students should be particularly supplemented as the economic situation is such that it deters high school graduates from attending a university. At the same time, the authorities should expedite and improve the absorption of European funds as the allocated amounts exceed, in many cases, even completely the funds allocated by the state to certain small-size universities and colleges.

Summary of Chapter III - Policies, Forms, Indicators of the Funding of Higher Education

In the first part of Chapter III we highlighted the academic context and the development of the educational system legal framework in our country since 1990 to the present. We also analyzed the forms of higher education institutions funding in our country in accordance with university classifications.

Change and reform stand out as the main characteristics of the turmoil period of the 90's. The academic system and universities were to undergo major changes, all the more since this area was to become be the main skilled labor supplier for all economic fields.

Although higher education was, at least on paper, a priority for all post-communist governments, many projects have remained in the early stages and have not been implemented mainly because of the political factors. A series of legislative, institutional and organizational changes have been made over time, however, a long-term national development plan for higher education has not been implemented. All the changes came in response to the expectations and vision of governments at a given time. It has not been possible to identify a constant and consistent development towards the achievement of specific results in the medium and long term.

An important component of the university system, which has constantly undergone significant changes, has been funding from the state budget. Currently, according to the latest legislative modifications, it is composed of[8]:

Table 1. Structure of the funds allocated by the state budget for higher education fincancing

Subcomponents		2012	2013
Core funding		**68%**	**73.5%**
Additional funding		**30.5%**	**25.5%**
	Additional funding based on excellence criteria	30.5%	25.0%
	Preferential funding for master's and doctoral programmes in sciences and breakthrough technologies, for programmes in foreign languages and co-tutoring doctoral programmes	2.5%	0%
	Institutional capacity and managerial efficiency expansion	0%	0%
	Pro-active activity of higher education institutions both at local and regional levels	3%	0,5%
Institutional development		**1.5%**	**1.0 %**
Total institutional funding		**100%**	**100%**

Source: Author's work based on the National Council for Higher Education Funding data

[8]The National Council for Higher Education Funding, *Raport public anual – 2012 Starea finanțării învățământului superior și măsurile de optimizare ce se impun*, 2013

As one can notice in Table 1, in 2013 compared with 2012, the core funding increased by over 5 percent. Thus, an increase in the funding of higher education institutions based on quantitative criteria rather than qualitative ones can be noticed.

Core funding is calculated based on the number of equivalent students enrolled at a university and on the unitary cost generated by them as set at national level. Their number is calculated on a two-stage basis.

Firstly, the number of equivalent students and their breakdown by fields of education is determined; secondly, the cost coefficients for each equivalent student are determined. The calculations are made via formulas that use as parameters *the coefficients of equivalence by forms of education and coefficients of cost by fields of study*.

Once the new law of education was adopted, core funding calculated as based on qualitative indicators (introduced in 2002) was transformed into additional funding. According to the approved methodology[9], the allocation of budget funds for the state universities with regard to additional funding based on excellence criteria is determined according to a series of predetermined steps.

In a first step, the amount of the budget allocations for additional funding based on excellence criteria is established for each hierarchized domain. The amount of the budget allocations for additional funding based on excellence criteria for each cycle of studies (bachelor's degree, master's degree, doctorate) by hierarchized domain is determined as well.

Then, the number of unitary equivalent students from the hierarchized domains for each cycle of studies is determined by taking into account the coefficients of equivalence by forms of education for each university. Furthermore, using the process of determining the additional funding based on excellence criteria for each domain, the additional funding per cycles of studies is determined as well.

A second step in determining additional funding is to determine the amount of the budget allocations per unitary equivalent weighted student with the index of excellence per each hierarchized domain and cycle of study. In this respect, the number of unitary equivalent weighted students with is determined with the index of excellence. According to the methodology, the total number of unitary equivalent weighted students is calculated and finally, the amount of the budget allocations per equivalent weighted student is calculated starting from the additional funding based on excellence criteria.

In a third step of the calculation methodology, focus is laid on setting the budget allocations for additional funding based on excellence criteria for each university and hierarchized domain.

[9] Ministry of Education, *Metodologie din 2012 de alocare a fondurilor bugetare pentru finanţarea de bază şi finanţarea suplimentară a instituţiilor de învăţământ superior de stat din România pentru anul 2012,* 2012

Furthermore, the amount of the additional allocation in the hierarchized domain for each university must be determined as well.

Although core funding is currently performed based on quantitative criteria only, the role of additional funding is essential for the development of higher education in Romania. Like any other reform, it will produce both negative and positive effects. In this regard, some educational institutions will benefit from the implementation of additional funding, while others will be negatively affected.

A third important component of the system of financing universities from the state budget is complementary funding, whose purpose is to cover the expenditure complementary to those determined by the academic process. They are important both for supporting the development and deployment under optimal conditions of the educational process and for reaching certain objectives or services of the university.

If core funding is mainly dedicated to the educational process, under the laws of Romania[10], complementary funding is achieved by the state budget and covers:

a) Grants for accommodation;
b) Funds allotted based on priorities and specific norms for acquiring equipment, making investments and repair works;
c) Grants awarded on competitive criteria for scientific research.

Along with the introduction of the new law of education, complementary funding was deprived of the funds dedicated to institutional development, which starting 2011 represent a separate chapter in the funding from the state budget.

After the adoption of the new law of education in 2011, both the university and programmes of studies classifications play a crucial role regarding the funding sources. If considering that Additional Funding was to be achieved in accordance with the position occupied by each university in the national rankings, in this chapter we also examined the manner in which national and international rankings are drawn up while highlighting both the positive and negative sides they present.

Romania, as an EU member state, shall both morally and institutionally have to pay attention to these international classifications as the higher education institutions in our country express an acute need of belonging to the European academic space. This exposure may generate long-term benefits, especially in terms of achieving the educational goals set by the "Europe 2020" strategy.

[10]Ministry of Education, *Legea Educației Naționale nr.1/2011,* 2011

Summary of Chapter IV - Outcomes of the Higher Education Investments in Romania – An Econometric Model

In order to be able to quantify the results generated by higher education investment in Romania, it is necessary to start this analysis with a precise definition of the terms and concepts used in humanities and social sciences. Although the economic principles underlying an investment in the field of education are grounded into *the general return-on-investment economic theory*, they must be adapted to the concerned field. According to the economic theory[11], the return-on-investment rate is used to assess the efficiency of an investment. However, when it comes to human resources, due to the difficulty of measuring the results of such an investment in the long term, the model must be adapted to the specific needs of such a field.

Therefore, in Chapter IV, starting from the definition and highlighting of the concepts of efficiency, input, output and quality, which are specific to the field of education, we addressed the issue of higher education funding under the light of the "human-capital" theory while focusing on a quantification of the result generated by investments in the university system.

In order to be able to analyze the situation of the academic system under the light of use efficiency of the funds allotted to this field, we must necessarily start from the premise according to which, both students, as direct beneficiaries of the educational process, and the national economy, which will benefit from skilled labor with higher productivity, will benefit from the investments made into higher education, which in the long run may be a nation's competitive advantage. However, there is also a large number of third-party beneficiaries who benefit directly from the development of the educational institutions. However, in this part of the paper, we have only focused on the benefits generated by the investments in higher education for university graduates and the state, which are the main investors in this field.

In our approach, we relied on a worldwide used indicator to determine the efficiency of investment in higher education, namely, the Internal Rate of Return (IRR) and the Net Present Value (NPV).

According to the human-capital theory[12], schooling is seen as the process of optimizing the investment decision. Each person is willing to follow a certain form of education as long as the Present Value of the material benefits expected from the academic degree programmes are equal to the direct and indirect costs (tuition fees and lost incomes over the period of study). This concept implies that further education should increase graduates' productivity so that employees with extensive knowledge may obtain higher wages as within a perfectly competitive market labour is paid according to the marginal value.

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[11] Investopedia, Return On Investment – ROI , 2013
http://www.investopedia.com/terms/r/returnoninvestment.asp

[12] Becker, G.S. *Human Capital and the Personal Distribution of Income: An Analytical Approach*, Ann Arbor, Michigan: University of Michigan Press, 1967.

The Internal Rate of Return evaluates an individual's economic benefits by estimating the additional revenues generated by acquiring an academic degree while taking into account the costs necessary to achieve various levels of education.

When discussing the costs generated by following and completing academic degree programmes, we refer to the[13]:

1. Direct costs – represented by tuition fees;
2. Indirect costs – generated by an increase in the additional social charges paid overtime following wage indexation;
3. Financial losses - caused by a late entry into the labour market.

In order to identify the Internal Rate of Return we used in our analysis the Net Present Value of the investment, through which the costs and benefits generated throughout the lifetime are brought into the present to be compared with the initial value of the investment. This is possible by discounting the future incomes to the present value through a discount rate. In order to identify the minimum discount rate (Internal Rate of Return) for which the investment is justified, the rate of return generated by government bonds in the long term is used for comparison. The average of the indicator in the OECD countries was of 4.4% in 2011, and for Romania is 5% on average. If considering that the inflation rate is expected to be maintained at 2.5%[14], the real interest rate for state bonds in the long term will be approximately 2.44%. Under these conditions, for the investment in higher education to be justified, the IRR of the investment must be higher than the real interest rate.

The Net Present Value as a means of assessing the investment takes into consideration the two relevant aspects thereof, namely, the costs and benefits generated[15]. In the educational system, the NPV compares the cash flow obtained by the graduate throughout its active lifetime and the financial effort required for following and completing an academic degree program.

Insofar as the graduates are concerned, upon the completion of a higher degree programme, they might obtain the following returns:

Table 3. IRR on investment in higher education studies in Romania in 2012 - tuition-paying student

	Bachelor's Degree Studies	Master's Degree Studies	PhD Studies
RIR	29%	15%	8%

Source: author's processing

Following the completion of bachelor's degree studies, the IRR on investment is expected to increase to the value of 29%. Provided that the real interest rate rises to 2.44%, an IRR rate of

[13] OECD *Education at a Glance,2013*
[14] Banca Națională a României, *Țintele de Inflație,* 2013
[15] Jugrin, A., *Valoarea actualizată netă și valoarea actualizată ajustată,* Oeconomica Journal, Nr.3 2010

29% leads to an investment efficiency perfectly justified from an economic point of view. Under these circumstances, the decision of high school graduates to continue their studies is perfectly grounded.

Things start to change with the master's degree, where the IRR falls by more than 10 percentual points compared to the rate registered at bachelor's degree level to reach 15%. Further on and under these circumstances, the decision to continue studies is perfectly justified in economic terms. Since the adoption of the Bologna system of education, a growing number of students have decided to further their master's degree studies, as only graduation from such a program can further give you the opportunity to occupy top management positions. Although the decision to continue academic training is based on a number of subjective factors that are directly correlated with students' expectations, it can be noticed that the long-term decision to continue studies will translate into an added value that will materialize when the graduate enters the labor market. Nevertheless, we must keep in mind that in our analysis we used a minimum level of the future incomes. It is unlikely that in time, once work experience in the field has been acquired, the graduate will not obtain wage increases that justify, once again, the efficiency of investment in higher education.

Starting from the advanced hypotheses and by maintaining a minimum level of the income anticipated after graduation from doctoral studies, we obtain an IRR of 8%, well above the market interest. So, in economic terms, the decision to further studies at the highest level is perfectly justified. Every year over 10% of bachelor's degree graduates manage to finalize their studies within a doctoral school. Graduates of a doctoral degree programme will always have a well-defined professional objective, which makes it impossible for them not to exceed the minimum wage set by law during the period when they are active on the labor market

For a student who will attend a fee-paying program, the payback period of investment in higher education is of 3.5 years for the bachelor's degree level, 6.4 years for a master's degree program and 11.2 years for a doctoral program.

For the IRR registered at bachelor's degree level to remain constant for master's degree and doctoral studies graduates as well, a salary increase for each new level of specialization completed would be necessary. Thus, for a master's degree graduate to be able to anticipate an IRR of 29% upon graduation, he/she should obtain a gross monthly income of 2741.38 lei. Regarding doctoral graduates, they should register a gross income of 4799.39 lei to maintain a constant return on investment in higher education.

The analysis undertaken to date only refers to the substantiation of the investment decision that a tuition-paying student enrolled at a university could take. Since the Romanian system finances a significant number of places, it is advisable to analyze this studies financing decision in the light of the students enrolled at college on a budgeted place.

In this regard, we keep the premise of the previous model except that the expenses incurred by the student for each cycle of studies are significantly reduced by excluding tuition payment from the calculation. Also, we neither take into account any possible performance, merit or excellence scholarships that a number of students might benefit from. Thus, by taking into account the new premises, we obtain the results in the table below:

Table 41. IRR on investment in higher education studies in Romania in 2012 – budgeted-place student

	Bachelor's Degree Studies	Master's Degree Studies	Doctoral Studies
IRR	34%	18%	9.2%

Source: author's processing

As it can be noticed in the table above, by keeping the minimum level for the future revenues a student who has not had to pay tuition fees shall receive, the Internal Rate of Return is higher than in the case of students who did not study on places funded by the state budget. Thus, for a student who has notable results and does not have to cover from his own funds the tuition fees, the decision to further his studies both through a master's degree or doctoral program proves to be economically viable in the long term.

Provided that a higher degree graduate will study over the entire period on a state budget-funded place, in order to keep constant the IRR value recorded upon the completion of undergraduate studies, one must register a gross monthly income of 2695.7 lei at master's degree level and of 4640.34 lei at doctoral level.

Based on the analysis undertaken, we conclude that a wise and economically justified decision for each high school graduate is to continue their educational training and to attend a higher education institution. As we have shown, this is a long-term investment that is paid back by producing consistent marginal incomes. Depending on the aspirations of each bachelor's degree graduate, the decision to continue financing their studies is based on a mixture of both subjective and objective factors, but if the decision is to continue studies, in the long run this will bring about additional benefits based on the professional experience acquired throughout the years and to the theoretical knowledge acquired during the period of studies.

Considering that the state is the main financer of the academic system, the Internal Rate of Return and the Net Present Value had to be calculated also for the investment the state has made into training students.

The calculation of the Net Present Value in the public domain costs is based on the costs incurred with the budget allocations for each student, added up to the costs incurred with the losses related to the income taxes and social contributions the students could have made if they not had not been attending a university. Overall, these taxes comprise the tuition costs required by budgeted-place students for each year of study.

The public benefits derived from the financial support given by the state to higher education institutions mainly consist of the higher taxes graduates will pay as a result of the additional incomes they will obtain upon the completion of higher education.

Thus, our approach has produced the following results:

Table 5. The IRR on investment in higher education in Romania in 2012

	Bachelor's Degree Studies	Master's Degree Studies	Doctoral Studies
IRR	31.5%	14.2%	2.5%

Source: author's processing

As it results from the calculations undertaken, the Internal Rate of Return at Bachelor's Degree level amounts to 31.5%. The inflation-adjusted percentage is well above the efficiency of the government bond market, making the investment at this level perfectly justified economically. Continuing in the same vein, at the master's degree level, the IRR reaches 14.2%, the investment being fully justified in this case, too. The lowest rate of return is registered with doctoral programmes graduates, its value covering the inflation rate only.

The results obtained so far justify the need and efficiency of the funds allocated to academic studies. As we have seen, at bachelor's degree and master's degree level, the Internal Rate of Return is approximately equal for both the State and graduate. The situation changes when it comes to doctoral studies fully financed by the state. In this case, for an anticipated level of incomes to the state budget calculated on the basis of a minimum wage for higher education graduates, the obtained value is equal to the rate of inflation. However, it is unlikely that a doctoral school graduate will not register incomes above the market average.

The investment made by the state in the academic training of students will have a payback of 3.12 years for a bachelor's degree graduate, 6.9 years for a master's degree graduate and 21 years for a doctoral programme graduate. If at bachelor's and master's level the payback period for the state is similar to the one registered by students, the situation is totally different when it comes to doctoral studies. The state needs a double period of time, compared to that of the student, to recover the amounts invested in the academic training of a doctoral school graduate.

If our country would reintroduce the increase of 15% for doctoral studies graduates, the IRR for them would amount to 9.3% due to the increase in the tax revenue of over 1,500 RON per year. However, if a doctor in a given field recorded a gross monthly salary of 9,500 lei, the state collected taxes would generate an IRR equal to that for bachelor's degree graduates (31.5%). To reach the same rate, for a master's degree graduate the state should collect fees for monthly gross salary incomes of 3,100 lei.

All these results are based on a set of minimum data regarding the incomes generated by the future graduates. Accordingly, any salary increases obtained by them will bring more to the state budget, the investment demonstrating its efficiency proportionally.

Achieving academic excellence requires the largest possible number of well-trained students who, through their performance in the field of research, might bring added value to the academic process. Even if we discuss in macroeconomic terms, the investment in higher education continues to be carried out on the basis of subjective factors, as imposed by the national policy for academic development. We believe that these strategies should mainly target the financing of those fields of study which are expected to contribute the most to the strategic development of the country. For an economy to be able to rely on efficient human resources, the state needs to develop and invest in those study programs the labor market needs. Such an investment would demonstrate its effectiveness if the future graduates found a job in the shortest possible time and were able to generate added value in their field.

If in the first part of this chapter we have seen results that both the individual and the state can gain from investment in higher education, in the last part of Chapter IV we have tried to outline the role and influence of the funds allocated from the state budget to finance the academic system on long-term labor productivity and unemployment.

Contemporary economic theories involve the use of econometric models capable of quantifying the effects of various variables on the macroeconomic output. The literature in the field shows that human capital impact on economic growth is achieved either by means of the Solow-type[16] neoclassical exogenous model (1956) or the endogenous economic growth models proposed by Romer[17] (1992) and Lucas[18] (1988).

Regarding the Solow model, it starts from a series of neoclassical principles, which are based on the production function and which quantify the production volume obtained from the combination of two factors, labor and capital. The model, based on a Cobb-Douglas-type function, implies that an increase in the capital stock will ensure the long-term growth of the national income. Hence, the Cobb-Douglas[19] function is as follows:

$$y_t = A_t * K_t^{\alpha} * L_t^{\beta} * M_t^{\delta} \qquad (1)$$

where: Y - GDP, K – physical capital, L – the stock embodied in the labor force, M – working capital elements. The term A_t reflects the efficiency characteristics of the production factors and it will determine the GDP evolution.

Our analysis starts from the premise that **the evolution of labor productivity, as a dependent variable**, is influenced by **the share of public expenditure on the higher education system as a percentage of GDP, labor productivity in the base year and the gross fixed capital**

[16] Solow, R., *A contribution to the theory of economic growth*, Quarterly Journal of Economics, nr 70, februarie 1956

[17] Mankiw, N.G., Romer, D., Weil, D. *A Contribution to the Empirics of Economic Growth*, The Quarterly Journal of Economics. Vol.107.No.2, 1992.

[18] Lucas, R., *On the mechanics of economic development*, Journal of Monetary Economics. No. 22(1), 1988.

[19] Cobb, C. W., Douglas, P. H, *A Theory of Production*, American Economic Review 18, 1928

formation as independent variables. Hence, the coefficients of the developed model measure variation in labor productivity in 2011 as compared to 2001, based on each of the three explanatory variables considered, namely state investment in the higher education system, productivity level in the year of reference and the investments in fixed capital formation.

Thus, the Cobb-Douglas function will take the form:

$$(LP2011/LP2001)_i = \alpha_0 + \alpha_1 LP2001i + \alpha_2 CF_i + \alpha_3 PE_i + u_i \quad (2)$$

LP2011/LP2001 = index of labor productivity growth in 2011 as compared to 2001
LP2001 – labor productivity in 2001 - euro/hour worked

i – the index of analyzed countries (Annex 10 - Table 1)
CF – gross fixed capital formation as % of GDP
PE – share of public expenditure on higher education system as % of GDP
u_i = residual variable/prediction error

In a preliminary stage to the implementation of the econometric model, we have observed, according to the "unit roots" tests, that the time series that render the evolution of CF and PE respectively for each country taken apart, gravitate around the average. This average value for the period 2001-2011 was introduced as an independent variable in the regression model.

To estimate the regression model we used the method of least squares (OLS) and for the variance-covariance matrix of the coefficients the Newey-West estimator was used as it takes into account the heteroskedasticity and correlation of errors. To test the meaningfulness of coefficients we have used the T-Student test.

In building the sample, we used the data provided by Eurostat for a number of 33 countries in Europe. Thus, the data used in the estimate include 33 observations; for CF and PE, average values for the last 10 years were taken into consideration for each country analyzed. The unknown parameters in a multiple regression were estimated based on the independent variables LP 2001, CF and PE (Gretl software was used). The results of the estimation are as follows:

Table 6. Results of the regression analysis on the evolution of labor productivity (LP2011/LP2001) in 2011 as compared to 2001

Variable	Coefficient (T-ratio)
LP2001	-0.024 (-4.6) ***
CF	0.093 (13.05) ***
PE	0.25 (2.19) **
R2	0.59

Note: *,**,*** means a significant ratio at the relevance levels of 10%, 5%, and, respectively, 1%.
Source: author's processing in the Gretl software

According to the results obtained, the independent variables selected significantly contributed to the percentual change registered in labor productivity in 2011 as compared to 2001. In addition, the explanatory power of the model is rather high, justifying 59% of the dependant variable variation.

Another aspect to be analyzed is the sign and meaning of each explanatory variable coefficient. The coefficient sign shows whether the relation is a positive (direct) or negative (reversed) one, while the value of the coefficient indicates the change in the value of the dependant variable upon a modification of the explanatory variable by one unit, when the level of the other variables remains unchanged.

• Labor productivity in 2001 is a basic element of our analysis as the variable consists in the initial value from which the analysis starts. All registered results are reported to this value. The variable significantly influences productivity variation, the correlation being reversed. Countries with a higher productivity level in 2001 have registered a smaller productivity growth. An increase by one unit of labor productivity in the reference year 2001 is associated to an average productivity variation decrease by 0.024 units.

• In its turn, gross fixed capital formation significantly and positively influences labor productivity increase in the long term. Thus, for an increase by one unit of the variable, labor output increases by 0.093 units as compared to the year of reference. This is natural because, when investments are made in technological equipment that optimizes the technological process, a constant number of employees will be able to produce more with the same quantity of work.

• The last analyzed variable, the share of expenditure on the financing of the higher education system as a percentage of GDP, significantly and positively influences the variation of labor productivity. Thus, for a modification of the amounts dedicated to higher education by one unit, labor productivity shall increase by 0.25 units. Such a result confirms the initial hypotheses concerning the role and efficiency of the investment in higher education. It demonstrates that, in the long term, the state is motivated to intensively support this level of the education as it will lead to the development of well-trained population able to integrate in the labor market and generate added value, elements that represent the basis of economic growth for each nation.

In conclusion, it may be stated that, regardless of the social and economic circumstances, higher education funding policies have to be characterized by pragmatism and flexibility having as a sole purpose the creation of a highly competitive labor force, able to adapt to the ever-changing labor market demand. Such a desire can only be reached through a change of the funding system, i.e. a more aggressive reorientation of the educational institutions towards public-private partnerships. To this end, universities will have to adapt their curricula depending on the market demand and in accordance with the new challenges in the market economy.

Another macroeconomic indicator analyzed in chapter four was the long-term unemployment rate. Thus, emphasis was laid on the way in which the state investment in present on the labor

market, identifying the connection between the unemployment rate evolution amongst higher education graduates and the level of funds allotted from the state budget.

Our approach relies on the premise that investment in the higher education system is best transposed to real economy through the graduates and the way in which they manage to make use of the acquired knowledge. To this end, an important indicator to be analyzed is the unemployment rate. We believe that a low unemployment rate may be regarded as an indicator of the university system efficiency. Thus, our model will make use of **the unemployment rate amongst higher education graduates** as a **dependant variable**. In order for this analysis to be as comprehensive and realistic as possible, we firstly took into account in our study three categories of persons. In this context, we have analyzed the unemployment level amongst graduates with ages ranging between 25 and 29 (RȘ2529), 30-34 (RȘ3034), and 25-65 (RȘ2565).

In so far as the **independent variables** used are concerned, we considered that the most eloquent indicator that can influence unemployment rate is **investment in the higher education system** and, more specifically, the share of the overall state budget expenditure on the financing of higher education as a GDP percentage (PE). To this end, we used the yearly EUROSTAT values available for both EU and non-EU European member states. The indicator is calculated as a GDP percentage, it has yearly values and it includes all direct and indirect, public and private funds granted to higher education institutions.

Another independent variable used in the proposed model is the **share of students enrolled in higher education programs of the overall population enrolled for studies** (TS), as a percentage of the total number of population enrolled for studies. The data excerpted from EUROSTAT represents yearly values for each analyzed country over the 2001-2011 period.

Another major element to be taken into account upon the analysis of the unemployment rate amongst higher education graduates is the way in which the social and economic conditions as a whole and the characteristics of the labor force market evolve and, more specifically, the evolution of the **overall unemployment rate** (TU). In this context, another independent variable used was the yearly unemployment rate for each country subjected to analysis during 2001-2011.

In the empiric study, the data provided by Eurostat for a number of 31 European countries over a 10-year period has been used. Considering that the data subjected for analysis highlight the evolution in time of the variables taken into account for a sample of countries, the variables have to be analyzed based on a panel model. This model allows for the quantification through a single coefficient of the independent variable impact over a dependant variable.

The equation of the simple linear regression model for the panel data is as follows[20]:

$$y_{t\,i} = \alpha \quad + \beta \;\; x_{t\,i} + u_{t\,i} \qquad (3)$$

where,

i = 1, 2…N (entities), t = 1, 2,…T (time span), α and β are the parameters of the model.

The variables $y_{t\,i}$ și $x_{t\,i}$ illustrate the level of the dependant variable, respectively of the explanatory ones for entity i, at time t.

Starting from these premises, an econometric panel model has been estimated using the GRETL software, relying on the following equation:

$$(RȘ)_{\,i} = \alpha_0 + \alpha_1 TS_i + \alpha_2 TU_i + \alpha_3 PE_i + u_i \qquad (4)$$

where,

RȘ – unemployment rate amongst higher education graduates;
TS – share of students enrolled at higher education studies of the overall population enrolled at studies;
TU – overall unemployment rate;
PE – share of public expenditure on higher education (% GDP) – investment in the higher education system;
u_i - residual variable/error;
i= 1,2…31 – coefficient corresponding to each analyzed country;
t= 1,2…10 – time span (years) subjected to the analysis.

In order to identify the appropriate panel data econometric model, we started by determining whether the data used can be analyzed through a fixed effects model or random effects one. Thus, in order to decide on this aspect, the Hausman test has been applied, where the null hypothesis stipulates that the model is a random effects one. The test indicates whether the sets of estimated coefficients for the two models, with fixed, respectively, random effects are significantly different. If the null hypothesis cannot be rejected pursuant to the application of the test, the random effects model is preferred to the fixed effects one. At the same time, the Breusch-Pagan test has been used to test the heteroscedasticity of the model. The null hypothesis of this test consists of the fact that error variation is equal to zero. If this hypothesis is rejected, the appropriate analysis model is the random effects model.

Pursuant to the application of the Hausman test, it was found that the estimation of a random effects model is recommended. This conclusion is also strengthened by the results of the Breusch-Pagan tests. Thus, the analysis performed uses the random effects panel data model.

Considering the results of the Hausman test, in the case of the application of the random effects model, the basic equation presented above shall incur a series of modifications. Thus, the free

[20] Brooks, C., *Introductory Econometrics for Finance*, Editura Cambridge University Press, 2008

term α_0 will no longer be treated as a fixed effect, but it is assumed to be a random variable of α average. In this case, the value of the free term for one i section is expressed as: $\alpha_i = \alpha + \varepsilon_i$, where ε_i is the random error term with an average 0 and variance σ_ε^2.

The processed data includes 310 notes, i.e. 31 cross-section units (countries) and ten years. The analysis has been performed using the random effects panel data model (GRETL software package).

Table 7. Results of the panel data econometric model for each analyzed age range

Variable	RȘ2529 – coefficient, (t – Student; p - Value)	RȘ2564– coefficient, (t – Student; p - Value)	RȘ3034– coefficient, (t – Student; p - Value)
TS	0.17 (3.4; 0.00008) ***	0.074 (5.14; 0.00001) ***	0.066 (2.53; 0.01186) **
TU	0.74 (17.84; 0.00001) ***	0.46 (33.25; 0.00001) ***	0.41 (16.24; 0.00001) ***
PE	-0.37 (-0.53; 0.56774)	0.12 (0.58; 0.55657)	0.02 (0.043; 0.96622)

Note: *,**,*** illustrates a significant coefficient for the relevance levels of 10%, 5%, and respectively, 1%.
Source: author's processing in GRETL software

The analysis of the data shows that the independent variables, the share of students enrolled for higher education of the overall population enrolled for studies (TS) and the overall unemployment rate (TU) have contributed to explaining the unemployment rate variation amongst higher education graduates; the estimated coefficients differ depending on the analyzed age range. The main conclusions of the analysis of the sign and meaning of each variable may be summarized as follows.

In the age range 25-29 (RȘ2529), the share of students enrolled for higher education has significantly and positively influenced the increase of the unemployment rate. Thus, an increase of the students' share by one unit would also lead to the increase of the unemployment rate, by an average of 0.17 units. This result can be explained through the fact that few graduates manage to find a job immediately after the completion of studies. Thus, for a short period of time, the unemployment rate is going to be high, but it shall significantly decrease as the labor market integrates the new graduates.

In so far as the overall unemployment rate (TU) is concerned, it is, in its turn, a variable that significantly and positively influences the unemployment rate amongst higher education graduates. Thus, for an increase by one unit, on average the unemployment rate amongst employees aged between 25 and 29 will increase by 0.74 units. The phenomenon occurs because when the labor market faces difficulties, new graduates will have more difficulty in finding work and the unemployment rate will implicitly increase.

For the age range of 25 to 64, the TS variable significantly and positively influences the dependant variable. Thus, in the case of the increase thereof by one unit, the unemployment rate amongst higher education graduates will increase by 0.074, on average. The same trend also

applies for the TU variable, which, in its turn, significantly and positively influences the dependant variable. Thus, for an increase of the overall unemployment rate by one unit, the unemployment rate amongst higher education graduates shall increase by 0.46 units, on average.

The results are also maintained constant in the case of the influences of variables TU and TS over the unemployment rate amongst higher education graduates with ages between 30 and 34. Thus, for an increase of the enrolled students share by one unit, RȘ 30-34 shall increase by 0.066 on average. At the same time, the increase of the overall unemployment rate by one unit generates an average increase of the dependant variable by 0.41 units.

Up to now, all analyzed variables have left their trace, one way or another, on the evolution of the unemployment rate amongst higher education graduates. An important role of this analysis dedicated to identifying the efficiency of the university education system consisted in identifying the way in which the higher education investment influences the unemployment rate evolution. Based on the empiric results obtained, it can be noted that the share of the university system expenditure as a percentage of GDP (PE) registers an insignificant coefficient and, by way of consequence, does not significantly influence the unemployment rate amongst higher education graduates.

The registered results can, on the one hand, be related to the reduced data sample used, as well as to the random evolution of the higher education funding. The values of this variable differ from one country to another, from one government to another, depending on the national policies. Thus, a country such as Great Britain, which, over the past years, has radically changed the university system funding policy, reducing the state budget expenditure for this sector and considerably increasing the fees, is opposite to the German system, which almost fully finances studies. Due to such diametrically opposed examples, it is very hard to quantify a generally valid relation for all 31 countries.

The result obtained, in terms of the role played by the share of GDP expenditure allotted to the financing of higher education, demonstrates that the amounts dedicated to the academic process are a necessity but, at the same time, if correlated with appropriate social and economic development policies, they are not sufficient to directly and significantly influence the unemployment rate evolution. According to the results obtained, both in Romania and at the level of the European Union, it can be noted that the unemployment rate level is largely influenced to a greater extent by the specific conditions related to the labor market than by the level of the funds allotted to the financing of the higher education system.

For a punctual analysis of the way in which the unemployment rate is influenced amongst higher education graduates, all demographic and sociological factors should be taken into account. It has been noticed that there is a positive correlation between the percentage of young people of

the overall population and the unemployment level[21]. Thus, the lower the share of young people of the overall population, the lower the unemployment risk amongst graduates.

Another factor influencing the unemployment rate amongst new graduates is the global economy. Thus, regardless of the level of amounts invested in higher education, a difficult macroeconomic context will implicitly determine an increase of the unemployment rate.

Studies[22] have illustrated a reverse relationship between the overall number of years dedicated to education and the unemployment rate amongst higher education graduates. Thus, the longer the number of education years, the higher the chance of unemployment rate reduction is. Between 1995 and 2007, the most important decline of the unemployment rate at a European level was amongst higher education graduates (14.7 percentual points). However, not all countries abide by the same rule. For instance, in Greece, the unemployment risk is higher amongst university graduates than amongst high school graduates.

In a global economy, it is almost impossible to identify a common "recipe" in terms of the influence of education and of the financing thereof over the unemployment rate. Nonetheless, a series of patterns that could apply to most countries can be identified. Thus, the share of expenditure on higher education funding as a percentage of GDP significantly and positively influences the variation of labor productivity. On the other hand, the analyzed hypothesis, according to which the unemployment rate amongst higher education graduates is influenced by the share of expenditure as a percentage of the GDP allotted to this sector, cannot be empirically validated. According to the expectations, the more a student decides to further his/her studies, the higher the chances of employment. Thus, the investment in the university system is meant to train qualified labor force able to cope with the challenges on the labor market. In this context, such an investment demonstrates its economical justification.

Thus, considering the peculiarities of each of the analyzed countries, their cultural, economic, or political specificities, the result could vary from one country to another. However, if taking into account that at the level of the EU a common strategy has been adopted in relation to academic studies, the results in this paper could be regarded as generally valid for all university systems.

We may therefore conclude that the investment in higher education is only visible in the economy through the benefits generated by graduates in the first years after graduation. The determinations are valid for the analyzed sample. Of course, the validity of the results also implies the possibility to generalize and transfer the same by extrapolation to the entire population. This is achieved through similar results obtained by other studies, which may have managed to achieve explanatory capacities of the models that are higher than the ones in this study, by considering additional independent variables.

[21] Gomez-Salvador, R., Leiner-Killinger, N., *An analysis of youth unemployment in the Euro Area*, Banca Centrală Europeană, 2008
[22] idem

At the same time, throughout their lifetime, higher education graduates can opt for re-specialization courses or further educational training. In theory, this will lead to a higher professional training of people and, implicitly, to better training meant to meet the labor market demand. Thus, at a national/European level, a program will be implemented, meant to support the population and provide continuous training programs, the unemployment rate decrease prospects being feasible.

Although the expected results in all developed models have not been validated, we still believe that the investment in human resources in general, and the investment in higher education, in particular, is essential to defining and ensuring the professional training of people. As it could be noted, labor productivity is directly influenced by the higher education funding evolution. At the same time, because the unemployment rate amongst young graduates is inversely proportional to the evolution of funding, the investment decision is perfectly justified, the benefits being directly felt in the economy.

Conclusions

Knowledge is one of the most important assets a nation possesses, and education is its foundation. Plato defined education as the "art of shaping good habits or of developing the native faculties of those who possess them towards virtue". Aristotle, in his paper "Politics", believed that "education should be the object of public, and not private, supervision".

In the author's opinion, education is a tool each nation possesses and which it can use to model and shape the civil society so that it is able to respond to and overcome the constant challenges both the national and the international economy may face. The author's view is that the goal of the academic system is to complete the character, the innate and acquired knowledge, the personality and aptitudes of the population. The university system is the basis required for the establishment and development of the premises required for cultural, social, ideological, and, last but not least, economic development.

This research has attempted to transpose, through the economic mindset approach, a fundamental component of society, *i.e.* the higher education system. Considering its volatility in the light of the pace of major changes it permanently faces, as well as the constant need for substantial financing, the academic field is one of the key sectors of an economy. Starting from these premises, the paper has tried to identified an optimum higher education system, responding to the needs of students, of the civil society, and, implicitly, of the state.

The research carried out did not lead to a precise conclusion as to the suitability of a single type of academic system. Several national education systems, on different continents, have been scrutinized in the paper, to identify their strengths and to be able to transpose and use them as educational system models in our country. However, the research did not lead to the identification of a university system which can be stated to approach perfection. In the author's opinion, such a system is yet to be developed. For these reasons, a characteristic shared by all the analyzed systems is that they are all undergoing a reform and new market demand adjustment process. If we were to take into account the international rankings only, we would have to conclude that the system imposed by the United States of America is the best one, as it ranks first in global classifications. However, the research has shown that the analyzed rankings are rather subjective, which is why the reliability of a system cannot be analyzed in the light of this criterion/benchmark only. It is beyond doubt that the American system is by far the most competitive from certain points of view, but the implementation of this model in Romania and even in Europe is not regarded as feasible.

In order to be able to identify an optimum academic system, the history of each country, the cultural background, the political ideologies that have had an impact on society, the economic development, and, last but not least, the population's perception on higher education should be considered. It could be noted that the academic system may differ substantially from one country to another. If in the United States of America higher education is not the direct obligation of the state, in all other analyzed countries it holds a central role in the adopted national policies.

A trend that has started to gain shape, being adopted by an increasing number of countries, from amongst the analyzed ones, is characterized by the decentralization of the university system, the creation of the institutional framework allowing for self-governance and decreased state involvement in terms of the budget-allotted funds supporting education. Although Europe is far from the tuition fees level in the United States of America, there is, however, a trend to adopt the financing system imposed by the overseas academic system. Over the past years, the UK Government has tripled tuition fees, reorienting its budgetary policy from the direct support of educational institutions towards the financial support of the student from which it aims at recover the amounts advanced over the years. Some countries, such as Hungary, have tried to develop an autonomous university system, independent from state support. Other governments have decided to introduce tuition fees, for the first time in their history. Regardless of the analyzed country, it can be concluded that there is an attempt to gradually transfer the university system support burden from the state towards the population.

A special case in the research was that of the European Union. Since Romania is an EU member, it has to adapt to the requirements and rigors imposed by the European Commission. And, at this level, the university system benefits from the special attention of political decision-makers. It could be noted that in the medium- and long-term strategy adopted in Brussels, "Europe 2020", special attention has been granted to the higher education system. The strategies to be implemented in the academic field over the years to follow start from the premise that an economy can only develop if it can rely on properly trained population (both professionally and educationally), their goal being to encourage and enhance the number of people benefiting from this system. At the same time, focus is also placed on the more substantial support granted by the member states to research and development, students and their labor market integration.

Regardless of the economic, social or political circumstances, the university system still needs special attention from the state. Whether a student-oriented or an institutional framework-oriented policy is adopted, the state has to be able to apply long-term development policies, meant to meet both the needs and expectations of the population, and to those of the indirect labor market beneficiaries. The state has to ensure a correlation between the economic realities and the institutional capacities through the adopted policies.

In so far as the Romanian higher education system is concerned, it can be stated beyond doubt that it was marked by deep and substantial changes over the past ten years. Starting from the adoption and implementation of the Bologna System and up to the promulgation of the new Law of Education in 2011, the university system has permanently been on the government's agenda. The biggest problem the Romanian university system faces is *insufficient funding*. Regardless of the governing party or the political orientation, academic studies have permanently been put at a disadvantage in terms of the amounts allotted from the state budget. This aspect, correlated to the decrease in the number of high school graduates, the economic crisis and, last but not least, the possibility the population has to study abroad lead to major challenges for the Romanian academic system.

Pursuant to the analysis carried out, it may be noted that the national higher education system is complex and faces difficulties in adapting to the new challenges and requirements coming from real economy. In order to be competitive at a national, European and global level, the universities and faculties in our country need to be able to promptly respond to the expectations of the direct beneficiaries of this system, create high-performance educational programs, representing a tool for the further training of human resources.

It can be clearly stated that the investment in the university system is reliable on the long-term, at least in terms of profitability. Thus, it is believed that the development strategies for this sector of the economy should mainly focus on the development of coherent policies in the long term. It could be observed that the labor market can obtain direct gains from the funds allotted to this field. Both the labor productivity and the market absorption rate for the beneficiaries of this sector are increasing pursuant to the financial support granted by the state to education. Unfortunately, because of the past years' major changes and the radical perspective shifts in the field, the educational institutions could not rely on the constant financing of the implemented study and research programs. This lack of constancy translates into the inefficiency of the study programs, which influences both the image of educational institutions, and students' training.

Romania, as an EU member stat, should benefit from the experience of the more developed states, with an educational system that is characterized by excellence at a global level. This excellence aim also represents the objective of the university system in our country.

In order to be able to create a highly competitive system, we believe that a series of strategies meant to treat the causes of the problems and not their effects could be adopted in Romania. Thus, pursuant to the research of the international education systems in this paper, a series of policies shall be supported, which could also prove useful in the Romanian academic system. The proposals rely on the experience of the other countries and they encompass a series of factors that we believe could be successfully implemented in Romania.

A first strategy proposed is to see the *university system as part of a whole*. In order to have competitive and properly trained students, the selection mass should be clearly defined. Thus, the state and the universities have to focus on pupils starting with primary education, foster further training, and offer "educational products" adapted to their needs. In the context of the decentralization of this field, higher education institutions have to shift focus and become complete organisms from the current teaching- and learning-oriented institutions; organisms that constantly promote their study programs, permanently maintain contact with the future students and attract them. At the same time, universities cannot disregard the economic realities, and they have to also maintain permanent contact with the representatives of their graduates' future employers. A university has to be polyvalent; it has to create an environment that fosters personal development and, last but not least, implement an organizational culture that can become a strength in the long term, both for the institution and for the graduate. The goal of this paper is not that of encouraging the development of the entrepreneurial university concept, but,

considering that the entire society orients its needs depending on the social and economic context, educational institutions cannot remain isolated and should accept change and novelty. Based on the consulted data, it could be concluded that remarkable academic results are not sufficient in order for a university to be competitive. In the end, reaching the desired outcomes requires hard work, effort, and financial resources. Since it has been demonstrated that educational institutions acutely need funds and considering that these latter can no longer be fully provided from the state budget, universities need to adopt marketing and management policies oriented towards attracting financial resources from the private environment, from the direct and indirect beneficiaries of the system. It is believed that a higher education institution can no longer be managed by people with remarkable academic results, but they need competitive managers who, in addition to prestigious academic training, also have an overview of the needs and policies required for the development of the institution.

Another absolutely necessary policy, which should this time rest with the state, is *the development, at a national level, of a legal framework encouraging high school graduates to attend university courses and applying motivational policies* encouraging further training. The state should be actively involved in the development of a national educational identity. In order to become competitive, the national system has to be characterized as a whole. It is not recommended that each education institution adopts individual policies. They should cooperate to become competitive and attract students and professors from abroad, generating gains. Romania holds all the required premises to be a prestigious educational center. Starting from the geographical setting, the size of the educational system, the relatively low cost of education programs, the features of national economy and, last but not least, due to the advantage that it issues degrees acknowledged in the European Union, the national higher education system fulfills the required criteria to become a high-quality one, characterized by excellence and internationally recognized.

We believe that the direct beneficiaries of the academic system are students. To this end, they firstly need to desire *to be part of a prestigious higher education system* and be aware of the fact that it is only by becoming actively involved in the academic training that they can obtain the desired result. A great advantage the university system in our country holds is that it offers students the possibility to benefit from internships abroad. It is believed that, starting with the master's level, and continuing with the doctoral one, each student should benefit from national or international mobility, so as to become acquainted with the various academic teaching and research techniques. The national and international academic opening can generate both advantages and disadvantages. It is only a very strong institution that can face this challenge and turn it into an institutional advantage.

One of the great problems the national education system faces and which should be solved as quickly as possible is *the establishment of the institutional framework required in order for banks to grant schooling loans with preferential interest rates*. There are numerous examples of countries that support students in accessing such loans, which they have to reimburse within a

predefined period of time, after graduation. Considering that Romania has committed to facilitate the access to education of as many people who do not hold the required financial resources as possible, we believe that the development of this loan system is beneficial.

There is no universally valid educational policy. We were nevertheless able to note that a policy applied in a country may not be valid in the neighboring country. However, a problem all higher education systems share is that of financing funds. This is a problem in Romania, too. Based on the previously presented arguments, we believe that the *adoption of tax policies meant to encourage private companies to become directly involved in student training* would be constructive. Most of these companies, after employing graduates, organize a series of training sessions meant to facilitate their familiarization with the specific activity. It would be useful for higher education institutions to collaborate with these companies and develop specialized training programs so that, at the end of the educational cycle, the graduates can start their activity without any additional costs involved. The new study programs would involve both own academic personnel and company trainers. Educational institutions would thus be able to attract additional funds from the market, the companies would benefit from graduates able to respond to challenges at all times, and graduates would have better chances to enter the labor market shortly after they complete their studies.

In order to create a performance-based competitive system, it is believed that the implementation of *multiannual grant-based university studies funding* should be preserved, thus binding the academic management to demonstrate management, financial and social efficiency. Moreover, the application of this financing method would offer greater autonomy to higher education institutions and, implicitly, the possibility to adopt punctual policies ensuring the quality of the education and research process.

As shown by the empiric results obtained in this paper, the investment in human resources is necessary for the development of the national economy and it cannot be regarded as a closed chapter immediately after the completion of university studies. The state has to be actively involved and *create an adequate legal framework for the implementation of life-long higher education forms,* allowing those interested in furthering their professional education to obtain additional qualification pursuant to the graduation of high-quality programs that respond to the labor market demands.

Regardless of the political, economic or social context, as long as the state is the main financier of the university system in Romania, it will have to implement medium- and long-term development policies that anticipate the future needs of graduates and employers. Thus, the *financing of the fields of study at a national level is required, depending on the priorities of* national economy, correlated to an optimization of the allotted amounts in the light of qualitative criteria, so as to be able to encourage and promote competitiveness and performance, both at the level of the students, and at the level of universities. This can only be implemented if the priorities are set at a national level.

The purpose of this paper was to *identify the impact the university system currently has over the development of the national economy* of a country. Thus, based on the consulted data, it can be clearly stated that university education does influence the development of an economy, from several points of view.

Firstly, the role university education plays in the adequate training of graduates so that they can face the challenges coming from the labor market should be mentioned. Properly trained human resources contribute to the generation of a competitive advantage, which each country needs to acquire a better economic position at an international level. From this point of view, it can be stated that the *higher education system has a strong economic impact in the initial stage*.

Pursuant to the completion of a higher education program, the future employees shall exhibit a different consumption behavior, due to the high expectations, and shall be willing to allot greater amounts of money to satisfy their needs. As a consequence of these needs, the economy as a whole will gain, due to the continuously increasing products and services demand and diversity, which indirectly *leads to the development of national economy*.

Last but not least, another impact university education has over a national economy consists of the *consolidation of a social class with a high level of training*, each country being interested in relying on a properly educated population, understanding the need to permanently contribute to the development of society. It is only through a community characterized by performance, seriousness, and professionalism that a country will be able to attract foreign investments, tourists, multinational companies, international bodies, which, in their turn, can generate added value for a market economy.

Considering the above, it can be clearly stated that the university system plays an important role in the long-term development of a national economy. At the same time, the hypothesis according to which it is only through considerable investment in the field that specialized human resources generating added value in the future and ensuring a competitive environment can be obtained is confirmed.

We believe that the proposed purpose of the paper, *i.e.* to demonstrate the connection between the market economy and the involvement of the state in supporting the university system has been reached, as we have managed to show that this system demonstrates once again its usefulness and necessity for the social, cultural, and economic development of a nation, in the long term.

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